

Assessment of Impact on Rural Economic Development and Rural Livelihoods of Economic Corridor Development in the Greater Mekong Subregion (GMS)

Drawing Conclusions for Potential Future German Technical Cooperation Assistance: A case study of Bokeo and Louang Namtha Provinces in Lao People's Democratic Republic (Lao PDR)

**Mekong Development Program (MDP) Department
Mekong Institute (MI)
September 2014**



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The findings, interpretations and conclusions expressed in this report are drawn from the literature review, field research, discussions with various stakeholders and conclusions drawn from the various sources.

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DIRECTOR'S ACKNOWLEDGMENT

On behalf of Mekong Institute, I would like to express our sincere thanks to Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, for partnering with MI and in conducting the research, *“Assessment of Impact on Rural Economic Development and Rural Livelihoods of Economic Corridor Development in the Greater Mekong Subregion (GMS): Drawing Conclusions for a potential future German Technical Cooperation Assistance - A case study of Bokeo and Louang Namtha Provinces in Lao People’s Democratic Republic (Lao PDR)”*.

MI has been working for the GMS regional development, co-operation, and integration since 1996. Today after more than 18 years of its existence, it stands as an autonomous international institution owned and operated by the six GMS countries it serves: Myanmar, Thailand, Cambodia, Laos, Vietnam and the Autonomous Provinces of Yunnan and Guangxi of the People’s Republic of China (PRC). MI is committed to the needs for human resources development of the sub-region. Our primary responsibility is to enhance people’s knowledge and skills so as to effectively prepare them for the greater extent of integration in the GMS. This is to ensure that the benefits from regional economic growth are inclusive and equitably distributed to all.

MI is delighted to submit the research finding analysis and provide GIZ with inputs towards its future strategy planning in developing the economic corridors in GMS. We hope the research recommendations will facilitate GIZ to further its development of action plan and strengthen its resolve to address poverty alleviation for the well-being of the GMS people, as part of its long-term strategy.

I would like to thank all the colleagues in GIZ for all their academic, administrative and logistics support to our research team during the research work.

I also thank the Government of Lao PDR, Governors of Bokeo and Louang Namtha Provinces, respective Provincial Ministries and officials for giving the permission for the research work to be undertaken and also in sharing their insights with the research team.

Last, but not the least, I thank MDP’s Research Team Member’s - Mr. Sanjay Gathia (India), Dr. Kornkarun Cheewatrakoolpong (Thailand), Mr. Tetsuya Kanno (Japan) and Ms. Thiphaphone Phetmany (Laos), and give them the due credit for their hard work, collaborative spirit and dedication towards the challenging research activities such as collecting relevant information, field visits, final analysis report and its presentation to GIZ team.

Once again, I would like to express my deep appreciation to Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH for its great initiative for our subregion and for working with MI on this research work. We are happy to be a part of this achievement and we look forward to future GIZ – MI cooperative endeavors in GMS.

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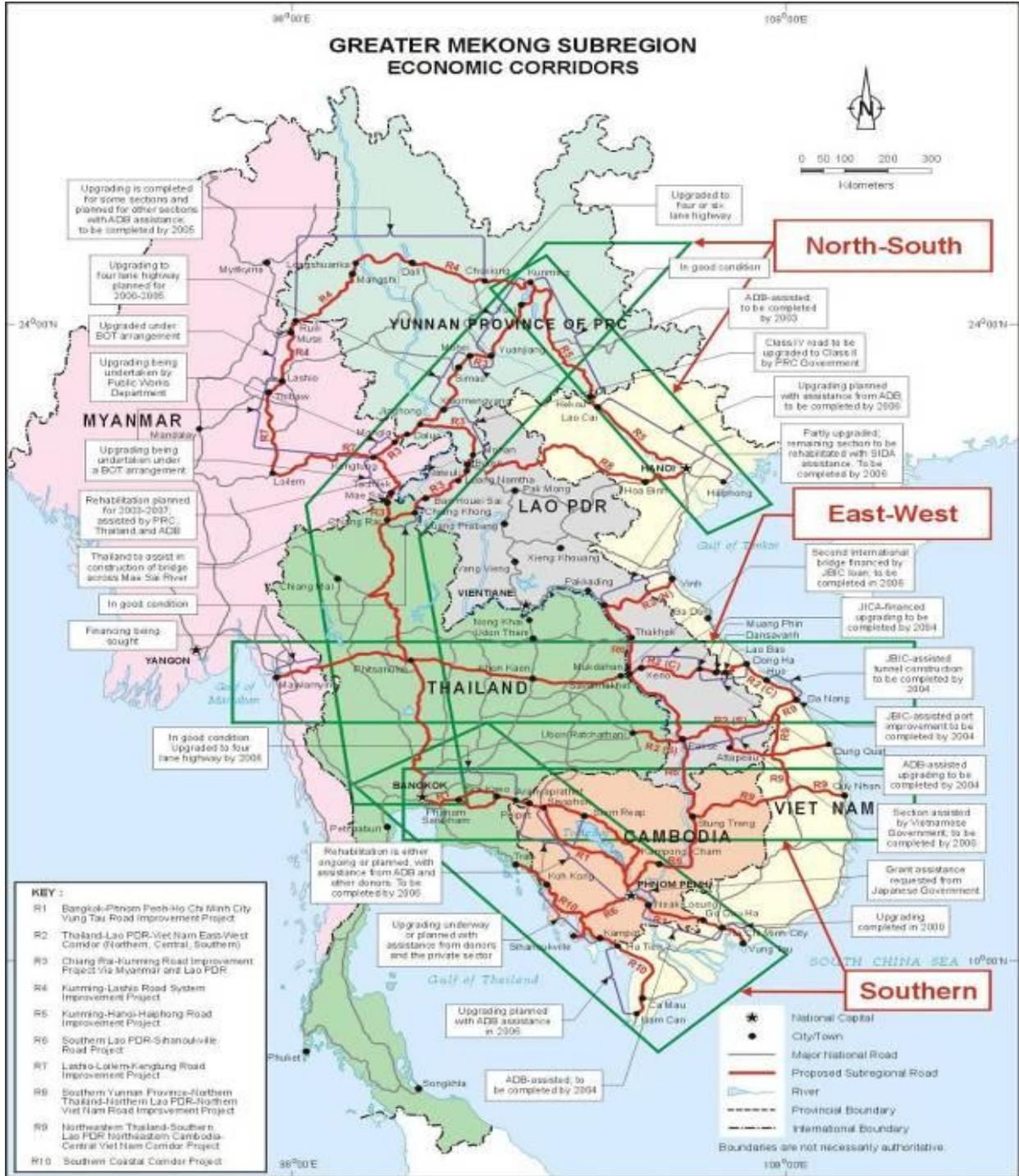
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ACRONYMS AND ABBREVIATIONS

ADB	-	Asian Development Bank
ASEAN	-	Association of South-East Asian Nations
BIMSTEC	-	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
CBTA	-	Cross Border Trade Agreement
EWEC	-	East-West Economic Corridor
GIZ	-	German Technical Development Cooperation
GMS	-	Greater Mekong Subregion
GMS-BF	-	GMS Business Forum
GMS-SOM/SOM	-	GMS Senior Officials' Meeting
GMS-TSS	-	GMS Tourism Sector Strategy
GSF	-	GMS Strategic Framework (2012–2022)
Ha	-	Hectare of land
Lao P.D.R.	-	Lao People's Democratic Republic
LDC	-	Least Developed Countries
NGPES	-	National Growth and Poverty Eradication Strategy
NSEC	-	North-South Economic Corridor
NSEDP	-	National Socio-Economic Development Plan
P.R.C./P.R. China	-	People's Republic of China
NESDB	-	Office of the National Economic and Social Development Board of Thailand
SEC	-	Southern Economic Corridor
SEDP	-	Socio-Economic Development Plan
Tac-tac	-	Local name for the Chinese made hand-tractor widely used in Laos
TDF	-	Trade Development Facility
TTF	-	Transport and Trade Facilitation



Source: ADB (2010)

EXECUTIVE SUMMARY

The Greater Mekong Subregion (GMS) comprises six countries – Cambodia, Provinces of Yunnan and Guangxi Zhuang of the People’s Republic of China (PRC), Lao People’s Democratic Republic (Lao PDR), Myanmar, Thailand and Vietnam.

The role of economic corridors in GMS development is reflected in the joint statement of the Eighth GMS Ministerial Meeting, which declared, “GMS member countries will create economic corridors linking the subregion to major markets; nodal points within these economic corridors will serve as centres for enterprise development; economic corridors will be an expansion of key transport corridors so as to enhance economic activities and benefits, and over the longer term to build on the potential of the sub-region as a land bridge serving the People’s Republic of China [PRC], South-East Asia, South Asia, and East Asia.”

The development of economic corridors is expected to help achieve the vision of GMS as a prosperous, harmonious, and integrated subregion by providing increased connectivity, enhanced competitiveness and a greater sense of community. It supports the strategic thrusts of the Ten-Year GMS Strategic Framework, namely: (i) strengthening infrastructure links; (ii) facilitating cross-border trade, investment, and tourism; (iii) enhancing private sector participation and competitiveness; (iv) protecting the environment and promoting the sustainable use of shared natural resources; and (v) developing human resources and skills competencies.

Economic corridor development will bring business opportunities, investors, transportation networks, and better trade facilitation to the people living in those areas. They will also have easier access to educational opportunities, health services, public services and market access, all of which lead to poverty alleviation and an increase in well-being.¹

While the development of GMS economic corridors offers a chance for less-developed areas to link with more economically advanced members of ASEAN, there are inverse impacts on the rural population located where the corridors pass through that connect the local rural population to the economic centers developing around the corridors.

What is the impact of the GMS economic corridor development on remote populations of rural landlocked locations? Does it help disadvantaged groups connect to emerging growth centers or nodal points and facilitate them in obtaining any tangible benefits, or does it push them further into poverty, as their own local resources are impacted due to the drive for development?

Considering these critical questions, there were two main objectives² of the study:

¹ ADB GMS Development MapTool (interactive) allows the viewer to see the various projects going on in the region along with the details of the project holder and implementation time. For details please visit <http://www.gms-eoc.org/interactive-maps> accessed 6-March-2014.

² For details on Research Approach read Annex-1 in this report.

- To assess in an exemplary, though systematic, way the impact of one of the GMS corridors with regard to regional rural economic development and, in particular, assess the resulting life changes of the poor, rural population
- To identify possible adverse effects, conclude on existing challenges, give recommendations on how to counter deficits in approaches that have been implemented so far and on how to make use of existing potential for interventions from the German Technical Development Cooperation (GIZ).

The scope of this study, while considering the broad focus on economic corridor development in GMS, is narrowed down to the North-South Economic Corridor (NSEC), especially the segment that passes through Lao PDR provinces of Bokeo and Louang Namtha. Therefore, the scope took into consideration both the regional impacts and its associated local impacts of economic corridor development via the study of NSEC development impact.

The **working hypothesis**³ was developed and used as a reference point for the research team to consider throughout the research and assessment:

Poor, rural populations are impacted by the emerging growth centers or nodal points along the North-South Economic Corridor development in Bokeo and Louang Namtha provinces of the Lao PDR. They seek tangible benefits to improve their socio-economic situation hopefully leading them out of poverty while moving towards economic empowerment.

Yet, there is little evidence available about the corridor's impact, positive or negative, on the lives of poor, rural populations and their ongoing rural economic development and livelihood; this includes the coping mechanisms of the local populations and the government's response mechanisms.

In accordance with the objectives of this study, the emerging research questions and subsequent research hypothesis, both qualitative and quantitative methodologies were applied during this research. In-depth interviews, key informant interviews and direct observation were considered as data collection techniques, requiring intensive communication, interpretation and observation.

Chapter 1 of the research work focuses on the literature review on the development of GMS Economic Corridors, the vision being to create an integrated, prosperous, and equitable economy among the subregion's people for which ADB supports seven sectors, including transport, telecommunications, energy, tourism, environment, human resource development and trade and investment. As per the review, the transport infrastructure development has become the most highlighted aspect of the GMS program during the past twenty years. GMS countries decided that better connectivity amongst the countries via infrastructure improvement will promote trade and investment, stimulate economic growth and also bring about equitable economic development and poverty reduction.

What emerged was the concept of economic corridors as “...a holistic approach to the spatial development of the poorer areas of the GMS by geographically focusing and prioritizing investments in priority sectors (transport, energy, telecommunications, trade and investment, tourism, agro-industry and forestry) and also as a connector to link production, trade and infrastructure within a specific geographic framework of the centre of economic activities...”

³ For details on Research Hypothesis and Methodology read Annex-2 in this report.

The ADB, considered by the GMS as a neutral body, identified NSEC as having vast potential for development along with the recognition that the corridor encompasses some of the least developed and most ecologically sensitive areas. ADB considers NSEC's development potential as having a capacity to substantially reduce poverty and achieve more balanced and sustainable development not only within the NSEC but could also contribute to the subregion as a whole; it is a "natural economic corridor" since multimodal transport and infrastructure networks generally have a north-south orientation.

As per ADB's, Strategy and Action Plan for the Greater Mekong Subregion's North-South Economic Corridor (2010), "...[it] is now in the second stage of corridor development, trade and transport facilitation, and logistics development in line with international standards [and] will need to be a major focus of interventions in the next few years...".

The overall efforts therefore, are focused on improving the existing physical infrastructure to meet the increasing demands accompanying the ongoing and future economic integration. In order to coordinate and implement the economic corridor development measures and compliment the expanding institutional arrangements, the existing GMS Senior Officials Meeting (GMS-SOM), Economic Corridor Forum (ECF) and GMS Business Forum (GMS-BF) were adopted. Furthermore, the NSEC Chapter within the GMS-BF to promote private sector participation was created, consisting of the provincial chambers of commerce and industry of concerned NSEC provinces; it was established in order to foster closer relations and cooperation among private sector organizations and business people in the NSEC provinces and specifically advocate for policies, programs and projects that support private sector participation in the NSEC development activities.

Some of the problems and obstacles of implementing Economic Corridors that were identified include: (a.) coordination failures, (b.) economic inefficiency of some economic corridors, (c.) maintenance and repairs, (d.) problems in Myanmar and (e.) failure of CBTA implementation. (Details in Chapter 1, Section 1.3.2)

Future plan of GMS and Economic Corridors is to ensure that: (i.) Mekong subregion is more integrated, prosperous and equitable; (ii.) GMS program contributes to realizing the potential of the subregion through an enabling policy environment and effective infrastructure linkages along with development of human resource and skill competencies, and; (iii.) Ensures (GMS) development process is equitable and sustainable, while fully respecting environmental and social interests in the formulation and implementation of the GMS program.

To effectively deal with the above-mentioned issues, ADB had set up strategic framework for corridor development including a more effective focus on CBTA implementation and concentration on monitoring the results.

Chapter 2, of the research work considers the impact of economic corridor projects on economic growth, rural development and poverty reduction in GMS countries and Lao PDR. It is observed that GMS countries and Lao PDR experienced faster economic growth and higher international trade during the last decade during the implementation of the economic corridors, which also seems to complement the Lao government's development agenda (refer to Chapter 1). The changes are also visible in the economic shift towards manufacturing and service sectors.

Considering Lao PDR's macro statistics and related literature, there is huge improvement in economic performance of CLMV countries including Lao PDR after the implementation of economic corridors. The main contributions to better economic growth are international trade expansion and improvement in foreign direct investment. When economic assessment of economic corridors is taken into account, related literature suggests that NSEC is the most economically effective corridor in terms of population while SEC is more effective in terms of income.

We also assessed the impact of economic corridors on rural development and poverty reduction. Literature review suggests that economic corridors can contribute to rural development and poverty reduction via the following channels: (i.) international trade expansion which brings about production expansion and higher factor revenues, (ii.) lower import costs which result in cheaper consumption, and; (iii.) an increase in government revenues.

However, when we consider related statistics of Lao PDR, we cannot see a clear evidence to support that the implementation of economic corridors lead to income equitability and poverty reduction. The statistics show that poverty ratio in some provinces of Lao PDR along the corridor has increased during recent years. Also, we cannot see difference of education and income equitability between the communities along the corridors and other communities in Lao PDR. The only strong evidence we experience is that the provinces of Lao PDR along the economic corridors have better road and utility accessibilities. We cannot see a substantial improvement in rural development, human development and poverty reduction of the provinces located along the corridors compared with other communities located outside the corridors. As a result, the role of the economic corridors in rural development and poverty reduction in Lao PDR is still inconclusive.

In the case of Lao PDR, the National Economic Corridor Development Plan should be linked with the ongoing efforts under the 7th NSEDP focused on poverty reduction, integrating economic development with socio-cultural development and environment protection. The major directions of NSEDP 2011–2015, provide some guidelines for development planning especially on boosting economic and labour structural change through industrialization and modernization; applying modern scientific and technological methods; reducing poverty and scaling up human development; protecting and sustaining the environment and planning to mitigate climate change, especially preserving and enhancing forest cover and conserving water. Some of the key thrusts which could be strongly linked with NSEC development in Lao PDR include boosting rural development and poverty reduction; allocating land, creating stable jobs and improving livelihoods; reducing inequality between urban and rural areas; creating basic infrastructure in villages and Kumbans and establishing more development villages.

With low population growth, Lao PDR's government will find it difficult to maintain the demand for the industrial sector's manpower needs and will have to consider migrant worker recruitment from neighboring countries to fulfill the industrial growth labour demands. Laos will have to assess their present labour policy to be in line with GMS and ASEAN regional integration labour migration movement, inclusive of international labour standards and practices and their technical skills recognition will be critical. Alternatively, the Lao government will have to consider policy initiatives for better health care, free primary education facilities and up-to-date industrial and technical vocational skills development for young and middle-aged Lao citizens in order to ensure that they are a competitive labour force within both the domestic market and within post-AEC 2015 scenario.

Promoting industrial and modernization efforts will have to be strongly linked with an effective and efficient land management policy which is linked with transparent and accountable public administration of natural resources and rule of law promoted by development of the state's legal mechanisms, while promoting and encouraging SMEs and other businesses linking with GMS/ASEAN's integrated business Value Chains.

The planning and development of the 8th Five Year plan or 8th NSEDP will have to consider the major developments that have taken place due to the ongoing economic corridor development. The government will have to consider the need for strong environmental sustainability while maintaining bio-diversity and ensuring local food security needs, increasing commercial agro-business, expanding road networks between urban and rural areas, increasing labour and production and promoting local economic development activities linking to a strong land management policy implementation.

Chapter 3, is focused on the research observations and conclusions drawn specifically from the research team's travel on R3A/NSEC and field visit to the nine villages. (*Read Annex 4: Detailed Outcomes of the Field Work*)

The chapter concludes that the impact of the EC on rural development, poverty reduction and rural livelihood is as follows:

A. Economic and Income Growth of Rural Population

- i. *Increased Road Connectivity, Transportation and Mobility:* Most villagers and stakeholders, whom MI research team met with during research, agreed that there was an increased connection of their village and local area with other neighboring areas as well as provincial capitals and other markets. Such a kinship tie has helped them in technology transfer of rubber cultivation as well as cross-border trading. Due to the increased commercial activity, most of the villagers admitted that it had increased their monthly income and now most of them owned hand-tractors, pick-up trucks, motorcycles and bicycles for their farming and non-farming activities, including attending family functions, trips to the hospital and for children to attend schools in locations that may be far from their home village.
- ii. *Increased Investments and Use of Telecommunications:* According to the interviews, along with the increased road connectivity of the various villages to the economic corridor road, there was arrival of small and medium traders, intermediaries (middlemen) and investors interested in various cash crops that could be grown or collected by the villagers for sale to other local markets or barter for other products they were selling. Some of the ethnic groups were also in touch with their kith and kin across border and would use mobile phones for communication for any business opportunities that were regular or on and as-needed basis that could be explored.
- iii. *Contract Farming and Inter-community Job Creation:* As per the interviews, with the increase in the number of investors coming with offers for various commercial crop plantations and cultivation, the local farmers shared that they were able to earn income from the contract farming by renting out their land or agreeing to grow specific crops for a certain number of years. Due to lack of extra farm hands or available labour force, they would negotiate with other villagers in their community or surrounding villages who were looking for extra work. Most of them seem to agree upon a mutual barter system that helps each other with farm work as and when required.

- iv. *Access to Local and Cross-Border Markets:* The improvement in the road condition of Route No.3 and the change in available transportation means widened the villagers' access to market. In some villages, villagers organised groups by themselves and started such business as village intermediaries, traders and transportation service.
- v. *Service and Tourism Sector Development:* Some of the villages seen by the research team along the R3A were marked as Cultural Villages, supported by ADB and other international agencies in the past. However, most of the interviewees mentioned that initially they were able to attract tourists, however, now the numbers have dwindled, and most of the tourist busses would just pass their villages on R3A without a stop. Most of the tourist flow was seasonal and consisted of backpackers who were interested in visiting remote areas as opposed to high-end tourists who were interested in cities and other touristic pleasures it offered. According to the villagers, villages who have tied up with tourism agencies have somewhat benefited local villagers who would provide transportation and other services if hired.
- vi. *Land Management and Real Estate Prices:* Most of the communities who were relocated from interior locations or areas along the R3A/NSEC to areas closer or adjacent to R3A/NSEC complained about the location which impacted their current land holdings versus their original land holdings, subsistence farming practices and ability to keep big cattle and small domestic animals. According to the interviewees, the community expected better land management and market-based resettlement compensation from the government as part of the ongoing development process along the economic corridor. The loss of real estate prices for the community and other individuals only made them feel under-valued as they were small villagers in rural communities or border areas but also made them feel as second class citizens in their own country compared to the preferential treatment given to corporate sector.
- vii. *Increase in Personal Household Income and Assets:* Some interviewees mentioned that a portion of the villagers felt an immediate benefit from the advance down payment for their leased land to carry out contract farming. Some of the interviewees mentioned that with the new disposable household income, they were able to buy new mini-trucks, pick-up trucks, motorcycles, bicycles and hand tractors; additionally, they were able repair their wooden houses or build new, modern brick ones. Others used their new disposable income to buy more large and small livestock to add to their households' assets.

B. Impact on Agriculture and Natural Resources along NSEC

- i. *Expansions in Contract Farming Practices along NSEC:* During discussions with various stakeholders, it was known that most investors preferred long-term leases to the various contract farming concessions that are awarded while negotiating with government institutions. Contract farming is observed in almost all the research target villages (except Baan Bo Piet). These commercial crops cultivated under contract farming constitute a certain large share of household income (though the research team could not identify its share, because it was out of the scope of this research) in the research's target villages. In general, contract farming has widened income generation opportunities for villagers. However, rubber and banana cultivation contract farming seem to have a negative impact on rural livelihood in the area.
- ii. *Local Forest Area and Food Security Situation:* According to the interviews, while there has been an increase in commercial crop plantations, the land area remains the same for the village to

carry out more and more commercial plantations as investors demand. This has resulted in competition for space; therefore, communities are expanding the plantation areas into more and more lowland and upland areas, going beyond the community areas and into the common forest areas. Interviews revealed that the growing demand for commercial land indirectly affects NTFPs and other forest produce which are collected by the villagers on an almost daily basis for household consumption, bartering for other necessary produce and/or selling at the local market for extra income in order to buy basic household items. Most of the ethnic communities are facing more and more challenges in gathering NTFPs and other forest produce for food and household consumption. Some of them travel by foot while others by motorcycle and/or pick-up truck to cover the increasing distance of the common forest from the community area. The reduced NTFP gathering and increased time taken is impacting the village food security situation and might further escalate challenges to food security if not adequately addressed along with the impacted communities.

- iii. *Decline in Raising Large Livestock:* In some research target villages (Baan Phu Van Tai, Baan Donchai, Baan Pang Phou Leub, and Baan Nam Ngeun), a decline in the number of beef cattle and/or water buffalo was observed. According to the villagers, it was because of the shrink in grazing area as a result of the expansion of rubber cultivation. Livestock, especially large livestock such as beef cattle and water buffalo, plays an important role in rural households as a valuable asset convertible to cash, as well as an organic fertilizer provider for crop cultivation. Difficulty in livestock raising due to the expansion of rubber, banana and watermelon cultivation must have significant impact on the rural livelihood in the region.
- iv. *Difficulty in Wild Animal Hunting, NTFPs and Fuel-wood Collection:* As the rubber cultivation occupied upland area near the villages, most of the research's target villagers currently have to go deeper into the forest area than before in order to hunt wild animals as well as to collect NTFPs and fuel-wood. It means that they have to spend longer time to obtain natural food materials and fuel-wood for cooking. Such a situation resulted in hardships among the villagers, especially for poor households members who rely heavily on natural food sources for their daily food cooking and consumption.
- v. *Contamination of Drinking Water Sources:* As mentioned before, four out of nine research target villages (Baan Phu Van Tai, Baan Nam Ngao, Baan Pang Phou Leub and Baan Nam Ngeun) experienced water contamination problems. According to the villagers, the cause of water contamination is either upland rubber cultivation or banana cultivation (or both in case of Baan Phu Van Tai). In Baan Phu Van Tai, all the village households currently purchase bottled drinking water delivered by a local drinking water company. According to the villagers, chemicals have contaminated the stream, their drinking water source, since 2008-2009 when the operation of rubber/banana plantations started in the area. They experienced fatigue, headache, stomach ache, diarrhea and nervous abnormalities after drinking untreated water. Needless to say, everybody needs drinking water always, regardless of him/her being healthy or sick. Indeed a unit cost of bottled drinking water seems insignificant (a 20 liter bottled drinking water at 3,000-4,000 Kip). E.g. A rural Laos family of 5-6 could have on an average, five 20 liter bottles of drinking water, costing approximately 12 US\$/month on an average, while many of the rural villagers are only able to earn less than \$2 a day, just enough to have their day meal. Having such expenses is but a heavy burden for rural village households, especially for poor households, to buy bottled

drinking water constantly when their natural water supply is supposedly contaminated. The most negatively affected are thus the poor household from the water contamination problem.

- C. **Internal and Cross-Border Migration:** During the interviews, it was observed that, in most of the targeted villages, the community did not migrate often. Most of them were working on their own farmland, which was on contract work or rented out to companies. Only the poor households among the targeted villages were the ones who would migrate locally or to other provincial capitals for vocational jobs, i.e. construction, carpentry, electrical etc., upon failure to find any work in and around their villages. As per the Provincial Labour Departments, necessary work documents and regular checks are conducted periodically on migrant workers residing in the provinces.
- D. **Access to Educational Institutions and Facilities:** The improved access to education facilities was observed in all the research target villages. It was derived from two factors: village children use the paved R3A to either walk to their school or use bicycles or motorbikes to reach their schools. Needless to say, schooling for village children by means of a paved road is much easier than that of an unpaved road. This is especially obvious during rainy season. The villagers unanimously said that the time required for their children's schooling, especially going to secondary school (because most primary schools are located in their villages), shortened after the completion of construction of R3A.
- E. **Access to Health Institutions and Facilities and Personal Health Issues:** The improved access to health facilities were observed in all of the target villages. Similar to the improved access to educational facilities, access to health facilities improved by better road conditions via R3A as well as affecting a change in transportation means. The other obvious indicator to show the improvement of access to health facilities is the location of child delivery. In most of the target villages, most pregnant women deliver their babies at a health post or district/provincial hospital.
- F. **Public Road Safety along R3A/NSEC:** As per the discussions in target villages, with the improved road transport opening up greater access to local and cross-border markets located on R3A, there are concerns regarding the road safety of village people and livestock of located in close proximity of the road. Most interviewees in target villages expressed concerns about the increase in traffic and rise in the number of accidents and road trauma victims and survivors; according to interviewees, some cases include those who were under the age of 10. In regards to livestock lost, villagers stated that if the vehicle stopped, then they could make the driver pay for the price of the livestock as compensation. When it came to accidents involving people, compensation was difficult to measure and most seemingly depended upon on the age group involved; the target villagers were not able to provide clear response when the team probed this a bit more.
- G. **Communicable and Preventable Diseases:** During the visits to the target villages, most of the village leaders and community members, including some of the individual households interviewed, mentioned more about tuberculosis (TB), malaria, viral fever and diarrhea as the most common diseases which were affecting them. As observed, most households were not aware about simple, preventable measures they could take in order to avoid spreading TB within the family if one member is affected. This also led to spread of the disease within the village as most of them were living in a

close-knit community. The provincial tourism department officials shared that the department was working to create awareness about HIV/AIDS and other communicable diseases. However, in the absence of data, it is difficult for the team to say that measures taken to create awareness about communicable and preventable diseases were effective or not.

- H. ***Entertainment, Gambling and Prostitution:*** During the discussions with provincial tourism department officials, it was further learnt that with the expansion of the transportation corridor and the opening of casinos at border areas, there were many entertainment centers opening up along R3A. To the understanding of the officials, most people seemed to have common knowledge that some establishments maintained a restaurant and/or karaoke bar facade, while also indulging in illegal activities like prostitution behind the scenes.

Chapter 4 concludes the study and provides policy recommendations. This study considers the development of economic corridor projects, especially the NSEC in the GMS countries. From the review of literature and documents, the research team finds tremendous progress in infrastructure hardware in economic corridor development. However, multiple obstacles inhibiting other initiative implementation comes from the lack of progress on software aspects such as CBTA, coordination failure among relevant stakeholders and lack of proper involvement and engagement of all relevant stakeholders in policy formulation and its implementation. As a result, economic corridors still have limited impact on rural development.

Using some of the provincial statistics that were available, we can see that the provinces along economic corridors have much better road and electricity access. However, we cannot see much difference between the overall improvement in human development, health status and school attendance of people residing in provinces along the corridors and those of people in other provinces.

Similar to previous studies, we cannot see strong evidence to support that economic corridors promote rural development and livelihood. The only clear evidence is better access via some of the feeder roads, than previously, for communities along the corridors to the main corridor road for personal and commercial purposes.

Considering our findings from primary surveys, we find that with the changes in income, i.e. increased earnings and savings, there is some disposable income available, which is spent towards buying commercial household assets, e.g. motorcycles, pick-up trucks and/or other modes of transportation in order to travel to nearby commercial locations. With an increased amount of disposable assets bought and used, there is also increased income spent towards maintenance.

For most of the ethnic rural community, the visible change is occurring with the shifting away from subsistence agricultural farming and community barter system to a more agro-commercial and monetary-based system partially affecting their self-sufficiency and self-sustainability. The higher dependency on commercial crops for increased income makes them more and more dependent on the market demand of the product and bearing the losses along with the drop in demand.

The various ethnic groups and rural communities can physically feel the impact of the loss of biodiversity and wild animals in and around their local villages as compared to 5-10 years ago. They are now

spending more time on their traditional NTFP gathering and hunting of wild animals that they were accustomed to eating on a regular basis.

The impact is also visible on the various sources of fresh water supply in and around the local village areas due to the increased commercial cropping and use of heavy pesticides and herbicides. Requiring an in-depth scientific analysis and a coordinated response to address the water pollution, this issue affects the health and hygiene of local communities.

The local population growth around emergent commercial nodes along the economic corridor is also putting pressure on the aqua-biodiversity and ecology of the small streams, rivers, ponds and lakes in and around the economic corridor where the quality and quantity of fish stock is affected and competition for the limited resources is growing.

Access to education has improved due to the development of feeder roads and the main road, which children are presently using to commute to the schools located nearby our outside the village area; there was visible lack of proper government supported, developed and maintained schools with adequate infrastructure and quality basic, intermediary and higher education available in the village areas. The option available for most of the youth seemingly is to seek decent intermediary and higher education in the nearest big city. This increases the cost of expenses towards education, transportation and associated logistics for the parents. Parents who are able to afford this option due to their good financial income and stability send their children to access these educational opportunities. Some are fortunate to have relatives staying in provincial capitals and send their kids to stay with them and therefore able to afford the educational expenses. The poor and low-income parents in rural areas are unable to provide their children with both affordability and access to higher education. Therefore they have their children work with them in the farms or other vocational jobs to earn a living.

The children and youth of poor families, and young adults without parents (one case), interested in vocational jobs are unable to develop their vocational skills and find better employment to break the cycle of poverty. For such cases, most of the vocational schools are in locations far from their village, and requires money for the course and for their general cost of living while upgrading their skills. Most of them are unable to afford such up-gradations and therefore are unable to break out of their present economic status or get benefits of the economic growth around them.

Most of the people who were compensated adequately and had kith and kin across the borders seem to have benefited from the development of the economic corridor as they ventured into small business and were approached by other investors to be part of their supply chain.

The villagers classified as poor by the village/community leaders are the ones impacted most due to the increased investments and expansion of agro-commercial crops either in the SEZ in the border areas or in the interior areas along R3A. This is resulting in the gradual loss of local forest coverage area, NTFPs, and wild produce and animals, which form their source of food-security; land availability for traditional kitchen gardens is also dwindling. There is high possibility for these poor people or families to fall into the category of “below poverty line” and there by completely miss out on the economic benefits from corridor development.

There is also a strong chance that most of benefits and progress presently made will gradually wither away in the near future. Due to the increasingly rapid shift from an agro-based local economy to a

cash-based commercial economic setup, rural communities living along economic corridor could lapse into poverty due to lack of proper land management and local economic development setup that is sustainable, ensuring that all families (irrespective of economic status) can maintain self-sufficient livelihoods.

Proper land use and management policies and their implementation is crucial; retaining bio-diversity and sustainable agricultural practices is also necessary to ensure that local communities continue to be sufficient and self-reliant while, simultaneously, being included as part of the and value chain development via the economic corridor.

There is a strong need for sustainable agricultural and development policy that will be engaged and practiced by rural communities, along with local, district and provincial officials so that there is a common understanding of the development agenda as envisioned by Lao PDR government; their aim is to move out of the Least Developed Countries (LDC) bracket by 2020 and implement it in a participatory manner.

To develop economic corridors that have a positive and negative impact on rural development, poverty reduction and rural livelihood, we propose the following recommendations (*Please read Chapter 4, Section 4.2 for details*):

A. Policy Recommendations on Development of Economic Corridors for Positive Impact on Rural Development, Poverty Reduction and Rural Livelihoods

The twelve points include recommendations to initiate inter-provincial and inter-departmental dialogue and cooperation, improve feeder road connectivity, using agro-ecosystem analytical framework for economic corridor development, capacity building for LED, PSR and project management, development of SEZs, microfinance system development, mapping labour market and TVET requirements, CBTA implementation, Laos National GMS Project Monitoring System, strengthening GACP, PH and CO processes and considering solar power alternatives.

1. Initiating Inter-Provincial and Inter-Departmental Dialogue and Cooperation Mechanism

The establishment of an inter-provincial dialogue mechanism between Bokeo, Louang Namtha and Yunnan Province will be necessary. It could assist in solving cross-border issues including the control of chemical use on banana plantations operated by Chinese companies in Bokeo and Louang Namtha Province; additionally, border control of smuggled insecticide and herbicide which are designated by WHO as harmful, but are still produced in China and used in Bokeo and Louang Namtha Province is crucial.

2. Improvement or Establishment of Feeder Roads Connecting NSEC to Interior Rural Communities

Feeder roads to most of the interior rural communities needs to be improved or established as permanent and properly maintained roads, rather than mud-based or gravel-based, non-permanent roads. Most of these roads are either un-useable by medium-heavy vehicles or small trucks or are difficult to use during the rainy season as they become slippery. Their improvement and connection to the main R3A/NSEC will support communities immensely in their daily lives, their further integration into the growing commercial agri-business, food production base and value chain management for fresh food

delivery and in transportation of commercial and other non-commercial products within Laos or cross-border within the GMS.

3. Using Agro-Ecosystem Analytical Framework for Economic Corridor Development

In order to consider long-term strategy for economic corridor development and its inter-linkages with the rural communities that live around it, it is recommended to adopt an analytical framework of agro-ecosystems derived from the human ecology concept.

It will be useful to understand complex rural livelihoods as systems in which rural livelihood components correlates to each other. The research team strongly recommends its application to regional rural development programs, especially regarding rural livelihood improvement, implemented by the government, international development agencies and NGOs. As indicated in this research, the analytical framework of agro-ecosystems will provide these concerned development practitioners with a holistic view in planning, implementation and evaluation of regional rural development programs (*please refer to the Annex 4.2 for Village Livelihood Figures*).

The analytical framework would provide useful input for capacity building on local economic development (LED) and integrate it within the larger context of economic corridor development. It would also facilitate in mapping and assessing its impact on the natural habitat and bio-diversity in the area as well as its overall impact on the local community and where and how the interventions could be developed and implemented in a sustainable manner.

4. Capacity Building for Local Economic Development (LED), Public Sector Reform (PSR) and Project Management

Local economic development (LED) is one of the key success factors to help the poor in attaining economic benefits from the emerging economic corridor development initiatives. Without sufficient capacity building initiatives and facilitating the local stakeholders and communities, any designated zone for development would not gain benefits from increased business opportunities or job opportunities.

GIZ could take the lead and engage ADB, SDC, DFAT, SIDA, JICA, USAID, other development partners and the Lao government in identifying such business and job opportunities for local communities along ECs in Lao PDR using LED methodology. A common action plan for capacity building in a structured and phased manner for consistent growth and development of local communities could be developed and adopted in order to avoid overlap and contribute effectively and efficiently.

GIZ could further support these activities with the necessary PSR capacity building activities at the provincial and national level with an inclusive approach that engages key, local stakeholders including the provincial and national chambers of commerce in Laos. It is also recommended, that it would be critical to address necessary changes in laws that require revision or be changed according to the present and future development needs that cut across different ministries. This will require both capacity building, sharing of best practices in the region and exposure to undertake public sector reform measures and implementation for results with a time-frame approach.

It is recommended that GIZ provide technical development support for project management to the provincial and national officials, allowing them to strengthen and improve their intersecting responsibilities

and ability to link across different sectors, both vertically and horizontally, to expand development outputs, while linking it with results-based project management principles for various sectors.

5. Development of Special Economic Zones (SEZ) along Economic Corridors

Development of special economic zones is one of the initiatives from the ADB to modify transport corridors into real economic corridors, according to ADB's strategic framework in Chapter 1. As mentioned by Bin (2007) and Cheewatrakoolpong (2014), successful establishment of special economic zones will bring about job creation, higher wages, better infrastructure, increased community development and diversification from a resource-oriented economy to manufacturing sectors. Also, special economic zones can attract foreign direct investment, together with technology transfer, technical skills development and technology and knowledge spillovers to the country and communities.

6. Micro-finance System Development

According to Cheewatrakoolpong et.al. (2014), financial access is one of the main obstacles prohibiting local communities in benefitting from trade facilitation and economic corridors. Without a proper microfinance system, the poor cannot attain enough start-up capital to establish new businesses that have more opportunities from economic corridors. There are also other informal micro-finance options, which some villagers use in Laos, ranging from piecing together small-medium amount of money from multiple relatives to start a small-business and pay off gradually, to also proposing business plans to wealthier villagers in hopes of attaining small to large size loan. The range of informal micro-financing options could vary extensively.

As a result, better development of micro-finance system in Lao PDR, including higher coverage of micro-finance services in all areas, creative approaches and better financial service access by the poor, will help local communities to attain sufficient funding to start up new businesses in order to catch up with increased SME business opportunities via economic corridors development. The microfinance system policy should be inclusive of the various ethnic groups that are living near the border areas as they can play an important role in cross-border trade development, especially those who have kith and kin across the border. This could be a complementary policy action by the Lao government's post-LED assessment along NSEC.

7. Comprehensive and Integrated Land Management Policy and Initiatives for Sustainable Development

As per the Lao government's national agenda for inclusive growth and development for poverty reduction, aligning GMS Economic Cooperation Program Strategic Framework 2012-2022 with the Laos National Socio Economic Development Plan 2011-2015 and 2016-2020, will require a comprehensive Land Management Policy and Initiatives to be developed, implemented and followed assiduously. This will facilitate the Lao government in taking a critical and comprehensive look at land development to correspond with the economic corridor development actions and link it up with their overall goal of being a land-linked country out of poverty for 2020.

Such a national land management policy should include land holding rights, land acquisition, individual and community land compensation management, loss of land productivity, community rehabilitation, post-rehabilitation local economic development, bio-diversity maintenance and

sustainability, urban planning and planning control, land policies, land information and use management and sustainable development, just to name a few issues of concern.

A comprehensive land management policy initiative undertaken by the Lao government, supported by GIZ, would facilitate Laos in integrating various land associated policies and actions under single management; it will also help in effectively utilizing national natural resources in a sustainable manner while ensuring good governance principles are not only upheld but implemented for long-term results.

8. Mapping Lao PDR Labour Market Requirements and Technical and Vocational Education and Training (TVET) Skills Development

Considering the tentative initiatives that might be considered towards development of Special Economic Zones and local economic development along the economic corridor in Laos, there is no doubt that Laos would require a highly-skilled, semi-skilled and low-skilled labour force in order to meet the demands of industrial and agricultural investments and economic growth. This is a recognised fact in the country's National Socio Economic Development Plan 2011–2015, as it would be falling short of labour supply to match the growing labour needs.

It is proposed that GIZ, along with the relevant ministries (refer to figure: Tentative Stakeholders' Connection in Lao PDR) and with other key donor agencies present in Laos, engages in a comprehensive mapping and understanding of Lao PDR's industrial and agricultural growth, associated labour market requirement and the necessary skills development of the current labour force along the existing ECs. It could include youth and graduates who could avail from complementary technical and vocational education and training as part of existing school curricula.

The TVET skills development could focus on growing trends of increased industrial and agro-commercial investments and new skills development in the service sector required for the economic corridor development; examples include hotels, retail, banks, education, health, computer services, media, communications and/or recreations in the various economic and commercial activities along the economic corridors in Laos.

9. Cross-Border Trade Agreements (CBTAs) Implementation

In order to fully utilize economic corridors for trade and transport purposes, it is crucial to have CBTAs to complement all infrastructure projects. Cambodia, China and the Lao PDR have currently fully ratified all the annexes and protocols, but have yet to translate them into operational and implementable rules and orders. Myanmar, Thailand and Vietnam have yet to ratify a number of these annexes and protocols. Due to these problems, the CBTAs cannot be implemented; even the CBTA pilot project along EWEC has not been successful.) In order to acquire CBTA rights, operators need to install high deposits with the designated representatives. In addition, the demand to operate along EWEC is quite low and CBTA rights are permitted only within EWEC, not its spider road linkages.

To fully utilize GMS economic corridors, the countries have to fasten the ratification and implementation of all remaining annexes and protocols. Implementation of CBTA needs more revision to make it practical. The exchange of traffic rights and route coverage are required to expand in order to cover all key GMS border crossing points and road linkages.

The implementation of CBTA needs to resolve operational issues and constraints such as guarantee system, automation of systems and forms and vehicle insurance. Establishment of the GMS Freight Transport Association (FRETA) may provide an important foundational step towards success of CBTA implementation.

10. Developing and Sustaining Laos National GMS Project Monitoring System

According to ADB's strategic framework for GMS, successful implementation of economic corridors needs a better monitoring system. ADB, together with all related governments, have to set up an efficient monitoring system to capture problems or obstacles during the economic corridor development and implementation. GIZ could facilitate the Lao government in initial set-up of a National Project Monitoring Body on ECs, drawing from key ministerial offices. GIZ could assist the Office of the Prime Minister that will engage the GMS governing body in trouble-shooting existing and emerging bottlenecks in and related to Laos GMS Regional Integration Action Plan. It would also serve as a check and balance body, facilitating Lao government in assessing the level of development and aid effectiveness and its benefits to the Lao people.

11. Strengthening Good Agricultural and Collection Practices (GACP) and Post-Harvest (PH) for Improving Value Chain Management and Implementation of the Practice of Certificate of Origin (CO/COO)

It is recommended that GIZ consider capacity building activities for communities along ECs, local agricultural officials and provincial agricultural department officials on GAP and PH practices to further improve their skills and ability to engage in quality assurance, safety and efficacy of agricultural products and practices inclusive of sustainable agricultural practices and protect and maintain natural resources. Such activities would facilitate rural livelihood improvement and add to the skills-development of the agricultural labor workforce which is mostly based in rural areas.

It is also recommended that, with the increased agricultural farming and cross-border trade in commercial and non-commercial agricultural products, the practice of issuing the Certificate of Origin for goods (non-preferential or preferential) should be implemented or followed rigorously if already implemented. The system could move towards an electronic, CO-based system, which could enable GMS countries in accessing information on a real-time basis.

GIZ could facilitate the development of appropriate technical skills and provide infrastructural development to ensure that GACP, PH and CO practices are adhered to and maintained towards goods originating in Laos. Goods could also be appropriately recognised in the GMS/ASEAN region while being part of the small, medium or large enterprise supply and value chain along the ECs. This would enable Laos in gaining recognition as a country ensuring the quality of goods produced within its land, exported to various markets in the region and ensuring globally sustainable production management.

12. Tapping Solar Power for Clean Energy & Household Income Savings

GIZ could consider technical development in rural communities to tap solar energy especially in remote areas where it is too expensive to extend electricity power grid or put the power lines. It could facilitate the communities both as a form of clean energy providing electricity to various interior rural

communities and house-holds, and also as a form of cutting costs towards electricity and fuel-wood and increasing household income saving in the long run.

B. Policy Recommendations on Development of Economic Corridors that Have Negative Impact on Rural Development, Poverty Reduction and Rural Livelihoods

The two points include sustainable preservation of the water sources, bodies of water and bio-diversity conservation to secure multiple sources of food security at a household and community level.

1. Sustainable Preservation of the Sources of Water and Water Bodies

The most urgent issue raised from this research is the water contamination problem. Water contamination affects the agri-business and production of foods for local and commercial consumption in the rural areas. GIZ could provide technical support to the concerned government officials (provincial public health department, provincial agriculture and forestry department), who should take action immediately to investigate the quality of drinking water sources (river, stream, well and tap water) to verify water contamination. The fieldwork of this research indicates a high likelihood that banana cultivation promoted by Chinese companies is the cause of water contamination in the research target villages (Baan Phu Van Tai and Baan Nam Ngao) in Bokeo Province. It necessary to identify (a) how many the rubber cultivators actually used herbicide in their rubber cultivation, (b) what kind of herbicide they had used and (c) to figure out the quantity of herbicide used in both Louang Namtha and Bokeo Provinces.

2. Biodiversity Conservation to Secure Multiple Sources of Food Security at Community and Household Level

As mentioned before, the most negatively affected by the current rural livelihood situation in the region were poor households. They largely rely on natural food materials for their food security, but it has become more and more difficult to catch natural fish, hunt wild animals and collect wild vegetables and other NTFPs. It will be necessary to understand their time allocation for daily livelihood activities to identify feasible measures to secure their food sources.⁴ Lack of which would impact the rural poor who may be severely affected due to the shrinking natural forest area and the lack of natural food sources being available in the case that economic activity expansion becomes devoid of securing natural food sources in the long run.

We identify the following roles and responsibilities for GIZ to consider in contributing to the economic corridor development in GMS and towards AEC 2015 regional integration (*Please read Chapter 4, Section 4.4 and 4.5 for details*):

A.) Engaging Key Stakeholders and Partners in GMS on Economic Corridor Development:

GIZ country offices could map and identify key stakeholders and partners who are presently working on EC development and engage them at country and GMS level discussions to identify common and crosscutting thematic areas. GIZ could take lead in facilitating developing, “2015 – 2020 Partners Common Action Plan on GMS-EC Development” and synchronizing and aligning it with key thematic

⁴ *One of the feasible measures to secure their daily food sources will be home garden promotion (not necessarily “home garden” but including crop cultivation by using a simple “planter”).*

areas in ADB-GMS – The Greater Mekong Subregion Economic Cooperation Program Strategic Framework 2012 – 2022.

- B.) Conduct extensive investigations on the contaminated water in the region:** In cooperation with the Provincial Department of Public Health (PDPH) and Provincial Agriculture and Forestry Office (PAFO), GIZ could conduct an extensive investigation on contaminated water in the region in order to identify the villages and effects associated with water contamination. Identify the cause(s) of the water contamination in the identified villages with responsible counterparts of PDPH and PAFO. GIZ could provide technical support and facilitate establishing and maintaining a regular drinking water quality monitoring system at the provincial and the district levels with key ministries based on the analysis of the cause(s).
- C.) Conduct research/surveys on rubber and banana cultivation practices in the region:** In cooperation with PAFO, GIZ could conduct research/surveys on rubber and banana cultivation practices (especially focus on chemical use) in order to identify the impact of chemical use in the region. GIZ could provide technical support and facilitate in developing sustainably effective measures that reduce the amount of chemical inputs in rubber and banana cultivation to legally permissible levels for human consumption. GIZ could facilitate promoting effective measures among rubber and banana cultivators on organically sustainable best practice of rubber and banana cultivation.
- D.) Establish a cross-sectoral, inter-provincial policy dialogue mechanism between Bokeo and Louang Namtha Province of Laos and Yunnan Province of China in order to facilitate the quick solution of cross-border issues:** In coordination with the central government of Laos and the provincial governors of Bokeo and Louang Namtha, GIZ could support the establishment of an inter-provincial policy dialogue mechanism between Bokeo and Louang Namtha Province and Yunnan Province of China in order to facilitate quick trouble-shooting and implementing solutions related to cross-border issues. If successful, GIZ could adopt similar mechanism in other cross-border provinces along the present economic corridors to trouble-shoot cross-border issues during and post AEC 2015 integration.
- E.) Support to enhance food security for poor households in the region as a major component of livelihood improvement program:** Identify the major factors that obstruct the access of rural poor households to natural resources, focusing on natural food sources. Promote effective natural resources and bio-diversity conservation measures based on identified obstruction factors and the analyses. Promote food self-sufficiency measures such as the practice of home garden cultivation and small livestock raising (pig, chicken, etc.) to enhance the food security of rural poor households.
- F.) Develop new components of community-based tourism that enhance natural resource conservation in the region:** Conduct research/surveys with provincial tourism departments and local agents to identify the potentials of community-based tourism that enhance natural resource conservation in the region. Public-Private Partnership (PPP) could be enhanced engaging corporate sector to promote and sustain community-based tourism, natural resources, and bio-diversity conservation via their corporate-social responsibility mandate thus contributing to the overall community well-being.

G.) Promote the agro-ecosystems concept to effectively understand rural livelihood situations:

GIZ should consider further research/surveys along the economic corridors applying the agro-ecosystems concept to facilitate gaining a wider and in-depth understanding of the rural livelihood situation at the village level and holistically along the corridors. GIZ can facilitate developing the technical skills of key provincial departments using the agro-ecosystem concept to enhance their technical skills and capabilities to gain an in-depth knowledge and holistic understanding of the present rural livelihood situations along the corridors in Laos.

H.) Consider intensive base-line survey for post-AEC 2015 evaluation: GIZ could conduct an intensive base-line survey in the same nine villages (as this research) especially mapping out the key ethnic communities, their exact composition, detailed economic activity, income levels, etc., to establish a comprehensive 2015 baseline. This will facilitate GIZ Laos team having a good comparative baseline information for future comparisons on poverty reduction and rural development results monitoring and evaluation in a post AEC 2015 scenario.

I.) Pilot project on introducing and using IT to strengthen interaction between village leaders and provincial officials: GIZ could consider developing a pilot project along with provincial government stakeholders that introduces the use of IT tools and measures to have a comprehensive village database assimilating parameters required by majority of provincial offices and agencies to become a single source of information collection and data interpretation for inputs from village level. The pilot project could facilitate development of single database output relevant for provincial offices and agencies and be potential base for inputs in National Development Plan, GMS & ASEAN Regional Integration Development Plan respectively.

J.) Comprehensive and Integrated Land Management Policy: GIZ could facilitate a public debate on the various aspects of land management by engaging various stakeholders drawn from Laos government, donor community, and key international and national civil society organizations sharing inputs on existing best practices or emerging best practices. GIZ could facilitate the technical inputs in policy development and its implementation, ranging from land acquisition, compensation, sustainable development and land use. The policy could include incorporating the nuances of economic corridor development and special economic zones into an evolving land management policy for Laos and the various roles different ministries and communities could play as stakeholders for land management and development.

K.) Comprehensive Capacity Building Program: GIZ could facilitate and implement technical skills development and capacity building programs over the next 3 to 6 years for key officials and rural community members with the objective of linking these activities within their overall economic corridor development program from 2015 - 2020. GIZ could focus on the following areas for all concerned stakeholders:

- a. *Public Sector Reform (PSR):* GIZ could consider a comprehensive PSR technical skills development program on key thematic areas for government officials at various levels along with key community leaders and civil society representatives in Laos to facilitate the possible policy level reform and associated reform activities implementation. Prior to engaging key government stakeholders and partners on comprehensive and integrated land-management policy reform and development, it is suggested to focus on improving the technical skills and capacity building of

stakeholders on undertaking public sector reform activities. This could facilitate PSR on land management and land policy both within GMS and outside GMS to develop one suitable for the local context.

- b. *Local Economic Development (LED) with Inclusive Growth and Gender Integration:* EC development will require focused LED to also include ethnic groups and those living “below poverty line” and “on-poverty line” either according to Laos governments standards or as per international standards on poverty. UNDPs conceptual framework on inclusive growth and gender integration could be assimilated into the LED activities. The program could be developed in various phases with results-based M&E system being applied for impact assessment.
- c. *Micro-finance System Development:* GIZ could engage INGOs and other key stakeholders who specialize in traditional and non-traditional micro-financing activities to facilitate Laos government in assessing the present system and its lacunas. GIZ could facilitate creating thinking and doing, via exposure to good practices in the Asian region, on micro-finance system and developing a comprehensive policy encompassing traditional and non-traditional micro-financing activities linked with SME activities at village level integrated into economic corridor development activities promoting LED.
- d. *Labour Market Requirements and Technical and Vocational Education and Training (TVET) Skills Development:* GIZ could facilitate an in-depth assessment of labour demand along ECs among various agricultural and non-agricultural activities including in new investment sectors promoted by Laos government in Special/Specific Economic Zones. Labour Market assessment could consider the current technical skills available, skills required to meet the new industrial growth until 2020 and gaps in the existing skills development among the youths and existing labour force and setting up new vocational training centers and/or upgrading of existing ones. Labour assessment requires understanding Laos religio-socio-cultural cycle, the present and projected population growth rate, and the annual migration patterns of young workers to neighboring countries. Outcome of these could be effectively used to engage with National and Provincial Chambers of Commerce and Industry, GMS Business Forum and donor groups like GIZ, JICA, SDC, etc towards an integrated and comprehensive TVET skills development approach to bridge the labour market requirement in GMS countries in a post-AEC2015 integrated labour market. GIZ would also have to consider an intensive national and regional PSR in GMS labour management to ensure policy frameworks a consistent and cohesive to the growing labour demand.
- e. *Project Management with Results-Based Monitoring and Evaluation:* with the aim of setting up a National Project Monitoring Body comprised of key ministries with intersecting roles and responsibilities serving as check and balance body. GIZ could consider a comprehensive program inclusive of line ministries and inter-sectoral ministries for project management at various levels ranging from senior policy decision makers to the implementing officials. As a long-term outcome, it can facilitate the Laos government and donor community to assess aid effectiveness and development impact.

CHAPTER 1: ECONOMIC CORRIDOR DEVELOPMENT AND NORTH-SOUTH ECONOMIC CORRIDOR (NSEC) IN THE GREATER MEKONG SUBREGION (GMS)

In this chapter, we will depict the establishment of the GMS program, assisted by the ADB. We will concentrate on the infrastructure development in the GMS, namely, the Economic Corridor development. Then we will specifically discuss the North-South Economic Corridor. Towards the end of this chapter, we will consider the current status of Economic Corridor Projects and the future plan.

1.1 Greater Mekong Subregion and Economic Corridor Development

The Greater Mekong Subregion⁵ comprises six countries – Cambodia, the People’s Republic of China (only Yunnan and the Guangxi Zhuang Autonomous Region included), the Lao People’s Democratic Republic (Lao PDR), Myanmar, Thailand and Vietnam – that share the longest river in South-East Asia, the Mekong. At the beginning of the 1990s, the fall of socialism in Indochina region marked an important step towards economic development in the subregion. In 1992, with assistance from the Asian Development Bank, the six GMS countries commenced a program of economic cooperation, designed to enhance economic relations among them. The Guangxi Zhuang Autonomous Region, a province in the PRC sharing a border with Vietnam, joined the GMS in 2004. Guangxi has strong linkages with the GMS, especially in resources, culture, trade, transport and tourism.

According to ADB (1999), the objective of the GMS program is to achieve cooperation among the six countries in planning and in subregional economic development. The program is formed in a way that there is no formal institution. Instead, it is guided by several set of principles, institutional arrangements and regional agreements.

The vision of the GMS also aims to create an integrated, prosperous and equitable economy among the people in the subregion. To achieve these goals, the ADB supports seven sectors, including transport, telecommunications, energy, tourism, environment, human resource development and trade and investment.

Transport infrastructure development has become the most highlighted aspect of the GMS program during the past twenty years. The GMS countries decided that better connectivity among the countries via infrastructure improvement will promote trade and investment, stimulate economic growth and also bring about equitable economic development and poverty reduction.

⁵ *Bilateral donors include the governments of Australia, the PRC, Denmark, Finland, France, Germany, Japan, the Republic of Korea, the Netherlands, New Zealand, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Among the multilateral partners are ADB; the European Commission; the European Investment Bank; the Food and Agriculture Organization of the United Nations; the International Fund for Agricultural Development; the International Labour Organization; the International Organization for Migration; the Nordic Development Fund; the OPEC Fund for International Development; the United Nations Development Programme; the United Nations Environment Programme; the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP); the United Nations Educational, Scientific and Cultural Organization; the World Bank; and the World Health Organization.*

In 2002, the GMS countries set up the GMS Strategic Framework (GMS-SF) which focuses on five development trusts to achieve the program's goal. The five trusts include:⁶

- i) Strengthen infrastructure linkages through a multi-sectoral approach
- ii) Facilitate cross-border trade and investment
- iii) Enhance private sector participation and improve competitiveness
- iv) Develop human resources and skill competencies
- v) Protect the environment and promote a sustainable use of natural resources

As part of the GMS-SF, the GMS countries also agreed on eleven flagship programs which were introduced at the Tenth Ministerial Conference of GMS countries. Among those eleven flagship programs are the North-South Economic Corridor (NSEC), the East-West Economic Corridor (EWEC) and the Southern Economic Corridor (SEC). An economic corridor is a geographically defined area where infrastructure investments are linked directly with trade, investment and production opportunities.⁷

The projects under the Economic Corridors prioritize the improvement of existing alignments together with the establishment of road links and an international bridge within the three following transport corridors:

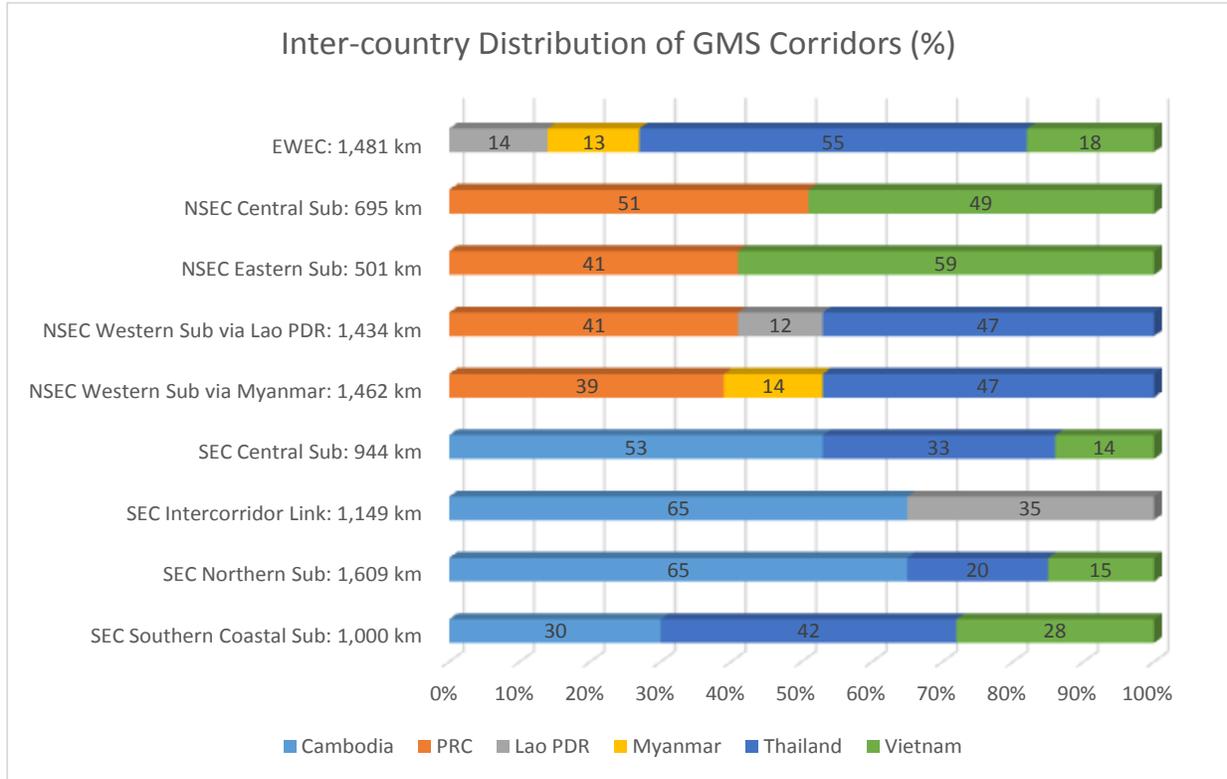
- a.) The North-South Economic Corridor (NSEC)
 - i) Route R3A: Chiang Rai-Kunming via the Lao People's Democratic Republic
 - ii) Route R3B: Chiang Rai-Kunming via Myanmar
 - iii) Kunming-Hanoi-Haiphong Multimodal Transport Corridor Project
- b.) The East-West Economic Corridor (EWEC)
 - i) Mawlamyine-Mae Sot (West)
 - ii) Mukdahan-Savannakhet-Dong Ha-Da Nang (East)
- c.) Southern Economic Corridor (SEC)
 - i) Bangkok-Phnom Penh-Ho Chi Minh City-Vung Tau Road Improvement Project

Figure1 indicates the distribution of GMS economic corridor road linkages in each of the GMS countries.

⁶ ADB (2011)

⁷ Medhi Krongkaew, 2004.

Figure 1: Inter-country Distribution of GMS Corridors (%)



Source: Srivastava, 2011

The Third GMS Summit in 1998 formulated a plan to transform transport corridors into economic corridors in order to promote higher usages of infrastructure development projects. The economic corridors have been the highlight projects of the GMS program. According to the ADB (2008), 72% of the investment projects in the GMS program assisted by ADB are in the transportation sector. Also, by the end of 2010, USD11.8 billion of the GMS program was invested in the region and more than 90% has been invested in construction and upgrading highways in the three GMS corridors.

In 2004, the ADB provided technical assistance funding for the GMS Transport Sector Strategy Study (GMS-TSS) to develop a GMS transportation strategy covering 2006–2015. From the study, the GMS-TSS expanded the original concept from three economic corridors in 1998 into nine corridors as shown in Map 2.

Map 1: GMS Regional Map and Economic Corridors



Source: ADB (2012)

The nine economic corridors⁸ are composed of:

- ii) North-South Economic Corridor : Kunming – Bangkok
- iii) Eastern Economic Corridor : Kunming – Ca Mau
- iv) East-West Economic Corridor : Mawlamyine – Da Nang
- v) Southern Economic Corridor : Dawei – Quy Nhon/Vung Tau
- vi) Southern Coastal Corridor : Bangkok – Nam Can
- vii) Central Economic Corridor : Kunming – Sihanoukville / Sattahip⁹
- viii) Northern Economic Corridor : Fangcheng – Tamu
- ix) Western Economic Corridor : Tamu – Mawlamyin
- x) Northeastern Economic Corridor : Thanh Hoa –Bangkok / Laem Chabang

Several pieces of literature have explored and studied the concept of economic corridors; Ramachandran and Line (2010) defined the concept of economic corridors as, “a holistic approach to the spatial development of the poorer areas of the GMS by geographically focusing and prioritizing investments in priority sectors (transportation, energy, telecommunications, trade and investment, tourism, agro-industry and forestry).”¹⁰ Ishida (2012) explained, “The economic corridor is a connector to link production, trade and infrastructure within a specific geographic framework of the centre of economic activities, but it will extend benefit through transport development to rural areas through linkage of production activities.”¹¹ Brunner (2013) defined economic corridors as the connection of economic nodes or hubs, which are abundant of economic resources to link demand and supply sides.¹²

Srivastava (2011) has highlighted that while regional cooperation initiatives have clearly recognised development of regional corridors as central to enhancing their effectiveness and impact, the discussion of corridor development is often characterised by fairly general formulations that are frequently difficult to pin down in terms of content or implications. Starting from the unequivocal premise that these corridors encompass improved transport infrastructure and connectivity across countries in the region, the regional corridors are then linked in general terms to increased trade and regional development.¹³

As for the ADB's action plan, Sau (2012) noted that the GMS development program and the economic corridor development consists of (i) extending the benefits of improved transport links to remote rural and landlocked locations in the GMS, which have been disadvantaged by their lack of integration compared to neighboring areas which have more advantageous locations and prosperity; (ii) providing a spatial focus for GMS activities, with the backbone, growth centers and nodal points serving as catalysts

⁸ ADB (2012)

⁹ It is recommended to change the terminus of Central Economic Corridor to Laem Chabang in THA-09-3704 HR as mentioned in ADB (2012).

¹⁰ Ramachandran P., Line L. (2011), *Integrating spatial support tools into strategic planning-SEAN of the GMS North-South Economic Corridor Strategy and Action Plan*. ELSEVIER, 31.

¹¹ Ishida M., Isono I. (2012), *Old, New and Potential Economic Corridor in the Mekong Region*. In M. Ishida (Ed.), *Emerging Economic Corridor in the Mekong Region*.

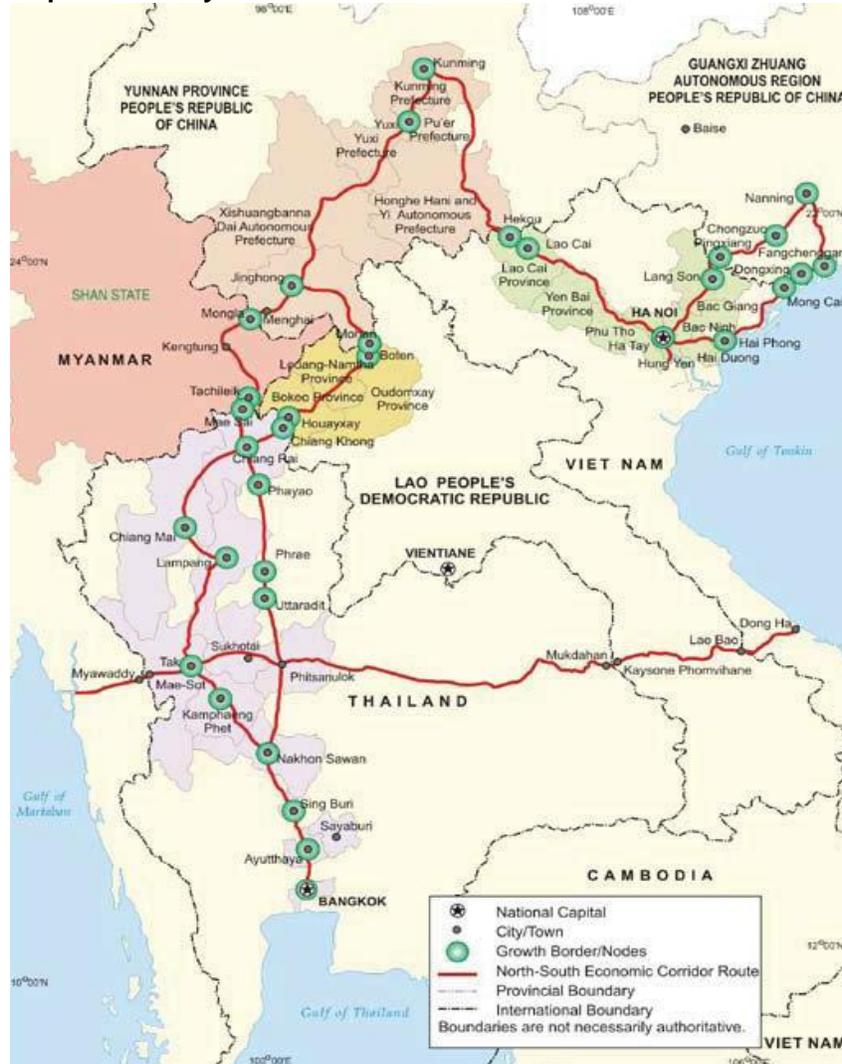
¹² Brunner, H. P. (2013). *What is Economic Corridor Development and What Can it Achieve in Asia's Subregionals? (Vol. 117)*: ADBI.

¹³ Srivastava, Pradeep, *Regional Corridors Development in Regional Cooperation (May 2011)*. Asian Development Bank Economics Working Paper Series No. 258. Available at SSRN: <http://ssrn.com/abstract=1874493> or <http://dx.doi.org/10.2139/ssrn.1874493>

to the development of surrounding areas; (iii) opening up multiple opportunities for various types of internal and external GMS investment; (iv) enhancing the effect of subregional activities through the clustering of projects; (v) serving as a mechanism for prioritizing and coordinating investment among neighboring countries and (vi) generating tangible effects.¹⁴

We will discuss more about the present status of the economic corridor implementation and related obstacles in Section 3.3.

Map 2: GMS Key NSEC Provinces/Areas and Growth and/or Border Nodes



Source: ADB (2010).

¹⁴ Sau, S. (2012). A study on cross-border trade facilitation and regional development along economic corridor in Cambodia. Retrieved 21/Jan/2014, from http://www.ide.go.jp/English/Publish/Download/Brc/pdf/08_chapter4.pdf

1.2 Development Statute of the North-South Economic Corridor (NSEC)

It was during the First GMS Summit held in Phnom Penh, Cambodia, in 2002 when the NSEC's development was integrated into the then Ten-Year GMS Strategic Framework, which was recognised as having links to major economic hubs in the northern and central parts of the GMS region.

Two different routes along the north-south axis are involved in the North-South Economic Corridor Initiative: (i) the Kunming-Chiang Rai-Bangkok via Lao PDR (R3A) and Myanmar route (R3B) and (ii) the Kunming-Hanoi-Haiphong route which connects to the existing Highway No. 1, running from the northern to the southern part of Vietnam.

The first route begins in Kunming, travels to Yuxi Municipality and Xishuangbanna Dai Autonomous Prefectures (Xishuangbanna), cuts into the Lao PDR provinces of Louang Namtha and Bokeo and the Shan State in Myanmar. The Sub-corridor then passes through Thailand's Chiang Rai Province, where the route branches into two, with one going through Chiang Mai, Lampang, Tak and Kamphaeng Phet the other runs through Phayao, Phrae, Uttaradit and Phitsanulok before reaching Nakhon Suwan where the branches rejoin, extend to Ayutthaya and finally Bangkok. The Western Sub-corridor involves the following border crossing points: (i) Mohan–Boten (in Yunnan Province and the Lao PDR), (ii) Daluo–Mengla (in Yunnan Province and Myanmar), (iii) Houayxay–Chiang Khong (in the Lao PDR and Thailand) and (iv) Tachilek–Mae Sai (in Myanmar and Thailand).¹⁵

These major routes, together with the Southern Economic Corridor that links Bangkok to Ho Chi Minh City, form a large loop or 'ring road' that covers the major cities and towns of the GMS. As a result, the NSEC provides seaport access for northern Lao PDR and southern PRC.

According to the NESDB (2001)¹⁶, the objectives of the North-South Economic Corridor flagship initiative are: (i) to facilitate trade and development between and among Lao PDR, Myanmar, Thailand, Vietnam and Yunnan Province, PRC; (ii) to reduce transport costs in the project influence area and move goods and passengers more efficiently and (iii) to reduce poverty, support development of rural and border areas, increase earnings of low-income groups, provide employment opportunities for women and promote tourism in its target area.

There are fourteen projects from NSEC initiatives in three areas including core transport and other infrastructure.

¹⁵ Excerpts from Asian Development Bank, *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010*. The development of NSEC will be pursued in three stages. The first stage is the establishment and improvement of transport links within and among NSEC countries. The objective of physically linking previously unconnected areas along NSEC has already been achieved, and the remaining task is the improvement and expansion of the existing links. This means that NSEC is already functioning as a transport corridor. The second stage is the transformation of the transport corridor into a "logistics corridor," which not only physically links the different NSEC components, but also integrates and harmonizes the corridor's policy, regulatory, and institutional framework. This would facilitate both the efficient movement of people and goods, and the provision of related services such as storage, warehousing, trucking, insurance, and freight management. The final stage is the transformation of the corridor into a full-fledged economic corridor, along which goods and services flow freely and efficiently to processing centres (in the corridor) for value-adding activities or for export through international gateways. The integration of trade, investment, and other economic activities at this stage is expected to contribute to value addition, job creation, and poverty reduction in the corridor and surrounding areas. pp 18 – 19.

¹⁶ NESDB stands for Office of the National Economic and Social Development Board of Thailand.

- i) Core Transport
 - Chiang Rai-Kunming via Lao PDR Road Improvement Project
 - Chiang Rai-Kunming via Myanmar Road Improvement Project
 - Huay Goan (Nan)-Phak Bang (Lao PDR)-Udom Chai-Boten-Chiang Rung (PRC)-Kunming Road Improvement Project
 - Kunming-Hanoi-Haiphong Multimodal Transport Corridor Project
 - Railway development
 - Development related to the Upper Lancang/Mekong River Commercial Navigation Agreement
 - Cross-border facilitation in the movement of goods and people
 - Human resource development for the transport sector
- ii) Other Infrastructure
 - Development of an electric power grid
 - Promotion of regional energy cooperation arrangements
 - Foundational development of telecommunications
 - Mekong River tourism development
 - Pre-investment study for the North-South Economic Corridor
 - Establishment of a special economic border zone in Chiang Rai Province, Thailand

The NSEC construction period covers 2002–2007. The estimated cost was US\$2.3 billion. Funding sources were the ADB and five related CLMVT governments and multi-country support. Concerning the railway development, most projects will be covered in the ASEAN Singapore-Kunming Rail Link. We will discuss more about the current status of the NSEC and its obstacles in Section 3.3.

The ADB¹⁷ (2010), with its acceptance by all GMS parties as the neutral body in the regional corridor development framework, has identified the NSEC having a vast potential for development, given the abundant natural resources available in the region, the economic diversification it provides and the close historical and cultural ties that exist among the national components. There is a recognition that the corridor encompasses some of the least developed and most ecologically sensitive areas, and that the realization of this development potential could substantially help reduce poverty and achieve a more balanced and sustainable development, not only within the NSEC but also contribute to the subregion as a whole; also, it is a “natural economic corridor” as the multimodal transport and infrastructure network generally has a north-south orientation. Strategically located between the more economically developed areas of the PRC and Thailand, it provides landlocked Yunnan Province with important sea access, serving also as a gateway for the ASEAN-PRC trade and slated to expand with the implementation of the FTA between the two. The NSEC also intersects the GMS East-West Economic Corridor (EWEC) in Thailand’s Tak and Phitsanulok provinces and thus provides access to the Andaman Sea and South

¹⁷ ADB, *Overview Greater Mekong Subregion: Economic Cooperation Program, 2012*, pp – 5. ADB’s Role: ADB plays a multifaceted role in the GMS Program as financier, providing financing and assistance to the GMS countries; provider of technical and advisory support for many activities under the GMS Program; secretariat and coordinator of the GMS Program; honest broker, supporting subregional dialogue at the political and operational levels, and among stakeholders of the GMS Program; and catalyst, by bringing together the different participants in the GMS Program and helping them reach consensus on key issues.

China Sea, thereby mutually reinforcing corridor development momentum that is necessary in the future.¹⁸

There is also the recognition that the development impetus for the NSEC can only emulate the complementarities which GMS countries could provide, yet, at present, there exists wide diversity in its topography, natural resources, structure of production, levels of income, etc. Abundant natural resources, minerals, forests and high bio-diversity exists in the northern part of the corridor where the population is still sparse and consists of many ethnic communities. These areas, therefore, have lower incomes and poverty incidences are higher than in the respective national averages. Additional factors of differences within the national components are the access to capital, technology, land availability, supply of trained workers and entrepreneurial and management skills, which are indeed necessary to overcome the isolation and under-development (ADB 2010).¹⁹

Expressed within the development framework for the GMS is the long-term vision to ensure a dynamic, progressive and well integrated NSEC which not only serves locomotive movement, but, through those movements, provides economic and social development along its north-south axis, enabling attractive economic potential from domestic and foreign investments. It is with these goals, objectives and strategic priorities that the overall goal of the NSEC is focused on reducing the existing income disparities, increasing employment opportunities, generating higher incomes and improving the living conditions of people in the corridor and its surrounding areas. The NSEC's immediate development objectives are therefore to: (i) ensure that the NSEC development is economically, socially and environmentally sustainable; (ii) enhance the competitiveness of the corridor by reducing the cost of transport and of doing business and facilitating the start-up and operation of business ventures in the corridor and (iii) make the most of underlying competitive advantages and complementarities among NSEC components, specifically by promoting NSEC areas as tourist and investment destinations and production bases.²⁰

ADB's Strategy and Action Plan for the Greater Mekong Subregion's North-South Economic Corridor (2010) accepts that, "...NSEC is now in the second stage of corridor development, trade and transport facilitation, and logistics development in line with international standards will need to be a major focus of interventions in the next few years..."²¹

The overall efforts therefore, expressed and noted, must be focused on improving the existing physical infrastructure to meet the increasing demands accompanying the ongoing and future economic integration. In order to coordinate and implement the economic corridor development measures and compliment the expanding institutional arrangements, along with the existing GMS Senior Officials Meeting (GMS-SOM), Economic Corridor Forum (ECF)²² and GMS Business Forum (GMS-BF), were

¹⁸ Asian Development Bank, *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010.*

¹⁹ Asian Development Bank, *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010.*

²⁰ Asian Development Bank, *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010, pp 18.*

²¹ Asian Development Bank, *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010.*

²² ECF was established in accordance with Article 4 of the Memorandum of Understanding "Toward Sustainable and Balanced

adopted. Furthermore, the NSEC Chapter within the GMS-BF to promote private sector participation was created, consisting of the provincial chambers of commerce and industry of the concerned NSEC provinces in order to foster closer relations and cooperation among private sector organizations and business people in the NSEC provinces and specifically advocate for policies, programs and projects that support private sector participation in the NSEC development activities.²³

1.3 Current Status of the Economic Corridors and Their Obstacles

1.3.1 Current Status of the Economic Corridors

In this section, we will assess the current status of the Economic Corridors and consider the bottlenecks and gaps in the overall corridor network as suggested by the ADB (2012). We will focus on three main economic corridors here namely, the NSEC, the EWEC and the SEC.

1.3.1.1 North-South Economic Corridors (NSEC)

The NSEC is one of the central corridors in the GMS, since it passes the center of the GMS region and intersects with all the other eight GMS economic corridors²⁴. Also, the NSEC connects with the northern and eastern regions of the PRC via its national road network then connects to the southern part of Thailand by passing through Bangkok via Highway No. 4 to the Thailand-Malaysia border check point. As a result, it will connect with the ASEAN highway network under the ASEAN Connectivity Master Plan.

Development of the Greater Mekong Subregion North–South Economic Corridor and Enhanced Organizational Effectiveness for Developing Economic Corridors” signed by the GMS ministers on 31 March 2008 in Vientiane, Lao People’s Democratic Republic (PDR). The ECF, covering NSEC, EWEC, and SEC, will serve as the main advocate and promoter of economic corridor development in the GMS. It will raise the profile and increase awareness of the needs and priorities of economic corridor development and enhance collaboration among areas along GMS economic corridors and among GMS forums and working groups. The ECF will: (i) Provide a platform for strengthening cooperation among areas in EWEC, NSEC, and SEC and among the GMS forums and working groups; (ii) Serve as a venue for networking and sharing of information and views among central and local officials, businesspeople, and international agencies on strategies, approaches, programs, and projects to accelerate economic corridor development; (iii) Highlight concerns, approaches, initiatives, and priorities in the transformation of transport corridors into economic corridors; (iv) Discuss the implementation of strategies and action plans for economic corridor development, identify gaps in implementing such strategies and action plans, and propose actions to resolve implementation issues; (v) Help increase the involvement of local authorities and communities, encourage and support the Governors Forum, and expand the participation of the private sector in economic corridor development; (vi) Bring issues to the attention of higher authorities that they need to resolve; And (vii) Assist in mobilizing technical and financial resources for economic corridor development. The ECF will be a standing body dealing with economic corridor development within the GMS organizational framework. It will recommend measures to the GMS Ministerial Conference to promote economic corridor development. For details, read Asian Development Bank, Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010, pp 21 - 23

²³ ADB. 2010. Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor, 2010, pp 21 - 24.

²⁴ ADB (2012)

Table 1: Current Status of the NSEC

Country	PRC	Lao PDR	Thailand
Route	Kunming - Mohn	Boten - Houay Xai	Chiang Kong - Chiang Rai - Bangkok
Status	Continuous expressway either constructed or presently under construction / upgrading without significant infrastructure gaps or bottlenecks.	Designated in Lao PDR as NR3, the improvement of the 247 km route was completed in 2008. Most significant present concern is the provision of a sufficient budget to carry out periodic and routine maintenance.	Thailand is upgrading two rural roads, no. 1020 and 1152, with a distance of approximately 145 km in total with 4-lane roads. These two roads connect Chiang Kong and Chiang Rai. The road upgrading project is planned to be done by 2015. Some parts have been completed.
Connecting Bridge		The fourth Thailand-Lao PDR friendship bridge connecting Houay Xai-Chiang Kong was opened in 2013.	

Source: ADB (2012), and some updated information by the author.

According to the ADB (2012), there are no substantial gaps or bottlenecks along the NSEC. However, the problem is congestion on the Thai side's 4-lane road connecting to the Sadao border check point. Yet, with the assistance from the ADB, Thailand has a plan to construct a motorway from Hat Yai to the Sadao border.

The route is shown in Map 4 as a part of the IMT-GT projects in Thailand. The project is undergoing a feasibility study.

We do not consider the current status of the R3B which connects Bangkok-Kunming via Mai Sai-Takilek due to internal political conflicts in Myanmar. As a result, the Route R3B is unusable right now.

Map 3: IMT-GT Projects in Thailand



Source: IMT-GT Roadmap for Development 2007-2011, ADB

1.3.1.2 East-West Economic Corridor (EWEC)

The EWEC is a key GMS corridor since the formulation of the GMS in 1992, because it connects four GMS countries. As a result, the project has started before the NSEC. However, the EWEC mainly passes small cities as well as agricultural and forest areas. It connects only a few large cities such as Da Nang, Khon Kaen and Phitsanulok. Also, it does not pass near major cities or industrial zones. As a result, the EWEC has a lower utilization rate than what the ADB expected and it is suffering from a lack of maintenance as well²⁵; the status is shown in Table 2.

²⁵ ADB (2012)

Table 2: Current Status of EWEC

Country	Myanmar	Thailand	Lao PDR	Vietnam
Route	Mawlamyint - Myawaddy	Mae Sot - Khon Kaen - Mukdahan (border with Lao PDR)	Savannakhet - Dane Savanah	Lao Bao - Dong Ha
Status	Thailand gave a financial grant to Myanmar via the NEDA to upgrade and realign the initial 46 km from Myawaddy to Kawkaeik. The whole project will go to Thaton with the total distance of 196 km to connect with the AH1.	Thailand plans to upgrade the current local road from Tak Province to Mae Sot to be a 4-lane road. The project has been delayed due to the inadequate funding failure of the 2 billion baht infrastructure project in Thailand. The construction of this project will close the last gap in Thailand.	The road link was realigned and improved with the assistance from the government, JICA and ADB. The JICA section needs maintenance and/or major repairs. The Lao PDR government collaborates with the assistance of JICA on maintenance work.	The upgrading of Highway 9 was financed by the ADB with the major constraint being a lack of maintenance.
Connecting Bridge		The second Thailand-Lao PDR friendship bridge connecting Mukdahan-Savannakhet was opened in 2005.		
	The second Thailand-Myanmar friendship bridge linking Mae Sot-Myawaddy is planned for completion by the end of 2014.			

Source: ADB (2012), and some updated information by the author.

1.3.1.3 Southern Economic Corridor (SEC)

The SEC is considered to be the most economically efficient economic corridor, because it passes through several big cities including Bangkok, Phnom Penh, and Ho Chi Minh City. It also gives access to the seaport in Vung Tau and the Dawei deep sea port and a special economic zone in Myanmar. The current state of the SEC is shown in Table 3.

Table 3: Current Status of SEC

Country	Myanmar	Thailand	Cambodia	Vietnam
Route	Dawei-Bong Ti	Baan Pu Ron-Kanchanaburi-Bangkok-Aranyaprathet	Central Sub-corridor	
			Poipet-Sisophon-Phnom Penh-Bavet	Moc Bai-Hochiminh-Vung Tau
			Northern Sub-corridor	
			Sisophon-Stu Treng-Le Thanh	Moch Den-Pleiku-Quy Nhon
Status	Apart from the Dawei Deep Sea Port and Special Economic Zone Project, the road from the port of Dawei to Kanchanaburi along the SEC will be upgraded. However, an Italian-Thai company's right to develop the Dawei project was revoked in 2013. Right now the SPV between the Thai and Myanmar government is finding a partnership that helps to invest in this project.	Thailand has a plan to construct the Bang Yai-Bang Pong-Kanchanaburi motorway, with a total length of 98 km. The project was planned for completion in 2014, but it has been delayed due to the political instability during the beginning of this year. Also, the Department of Highway has a plan to further the motorway to Baan Pu Ron (the border check point with Myanmar) but it's currently under a feasibility study. Baan Pu Ron has been upgraded from the status of temporary crossing point to permanent border check point.	Central Sub-corridor	
			Road sections from Poipet to Phnom Penh have been upgraded. Roads from Phnom Penh to Bavet are being upgraded with Japan's assistance. Also, JICA gave a grant of US\$134 million to build a new Mekong River Bridge at Neak Luong, and it is under construction.	The entire length of the Vietnam's central Sub-corridor section has been upgraded and will eventually connect to Ho Chi Minh City Ring Road 3.
			Northern Sub-corridor	
			The Sisophon to Siam Reap road was upgraded with ADB's assistance. Beyond Siam Reap, a new road was to be built from Siem Reap to Stung Treng through a jungle alignment, but it has not been done and it became the major gap in this sub-corridor. The road from Stung Treng to Le Thanh at the Vietnam border is in fair condition.	From the Vietnam border to Pleiku (highway 19), there is a narrow road; beyond Pleiku until Quy Nhon the road widens and serves as a main national route connecting Highway 1 traffic with communities in the western highlands of Vietnam.

Source: ADB (2012), updated some information by author.

1.3.2 Obstacles of Implementing Economic Corridors

Even though there has been substantial completion of the economic corridors during the past twenty years of the GMS formation, many studies, such as the one from the ADB (2008) and Cheewatrakoolpong (2009), criticize their true success, especially in regard to poverty reduction and rural development. More details of such literatures will be discussed in Section 4. In this section, we summarize the problems and obstacles of implementing economic corridors.

1.3.2.1 Coordination failures

Cheewatrakoolpong (2009) points out coordination failures in the GMS's initiative formulation and implementation, both at a subregional and domestic level. A lack of a permanent body within the GMS and direct corresponding agents in each respective country cause inconsistencies in the implementation. Also, the study shows that the important stakeholders such as local communities, private sector and businesses play no roles in the initiative formulation and implementation of the GMS. As a result, some economic corridor projects have a low rate of usage.

1.3.2.2 Economic inefficiency of some economic corridors

Ishida (2007) assesses economic efficiency of three major economic corridors in the GMS and finds that the EWEC is the least efficient one. According to Srivastava (2011), there is a saying in the private sector that "the EWEC is leading from "nowhere to nowhere". Tarnovskaya (2011) indicates that very few trucks from Thailand want to go to Da Nang in Vietnam and no Vietnamese logistics operators express any interest in going to Thailand. Also, most shipments from Thailand go to Hanoi and Ho Chi Minh City, not to Da Nang. Since the EWEC is the only pilot project of the CBTA via trilateral MOUs, it is not efficiently used in terms of corridor trade.

To deal with this problem, transforming this transport corridor into an economic corridor is needed, especially in regard to the development of the border's special economic zones which were planned but delayed.

1.3.2.3 Maintenance and repairs of roads established under the economic corridors

Many countries, such as Lao PDR, face challenges maintaining and repairing their respective sections of the economic corridors. As a result, some completed sections of the economic corridors are not in good condition. Also, it is important for the countries to establish road linkages between local roads and economic corridors. However, these establishments have been slow or have not been completed.

1.3.2.4 Problems in Myanmar

Conflicts between minority groups and the central government in Myanmar make the Route R3B of the NSEC unusable. Also, Myanmar needs huge improvements and realignments in domestic road linkages in order to make Myanmar's part of the economic corridors successful. Some of the projects such as the Dawei Special Economic Zone have been delayed and have no sign of success which may cause the implementation failure of SEC.

1.3.2.5 Failure of CBTA implementation

Initiated in 1999, the CBTA aimed at reducing obstructions in cross-border transportation and supporting the usages of economic corridors through improvements in transportation facilitation, including single-window/single-stop customs inspection, a one-stop service, cross-border movement of persons, transit traffic regimes, road vehicle requirements for cross-border traffic eligibility and exchange of commercial traffic rights; improvements regarding infrastructure creation and upgrades including road and bridge design standards, road signs and road signals were also emphasized²⁶

The CBTA aimed to be implemented by 2006. However, it has been delayed and still cannot be fully implemented. To implement a CBTA, contracting countries have to adopt 17 annexes and 3 protocols. Cambodia, China and Lao PDR have fully ratified all the annexes and protocols but have yet to translate them into operational and implementable terms requiring necessary implementing rules, office memorandums and other bureaucratic orders. Myanmar, Thailand and Vietnam have yet to ratify a number of these annexes and protocols. Due to these problems, the CBTA cannot be implemented.

As a result of the delay of CBTA implementation, while trilateral MoUs among Thailand-Lao PDR-Vietnam have been signed in order to implement the pilot project of CBTA's along the EWEC under the scope that is allowed by domestic laws of all countries, there are still a lot of problems to use the CBTA. For example, the feeder or the domestic road linkages are not included in the CBTA; only the EWEC is included while the EWEC has low demand for trade. Also, logistics operators have to install high deposits to be able to operate on the EWEC.

Without the full implementation of the CBTA and the revision of it to match users' demand, the success of this economic corridor is still vague.

1.4 Chapter Conclusions: Future Plan of the GMS and Economic Corridors

In this chapter, we have seen the development of economic corridors, their current status, problems and obstacles and their future plan. We can see that there is substantial advancement in the establishment of economic corridors, specifically the NSEC; however, the GMS countries are not able to fully obtain benefits from the economic corridor initiatives due to several obstacles including coordination failures among relevant stakeholders, economic inefficiency of some economic corridors' routes, lack of maintenance and repairs of roads established under the economic corridors, conflicts in Myanmar and failure of CBTA implementation.

To achieve the goals of the GMS as mentioned in Section 1.1, the GMS has to set up a strategic framework for the next ten years (2012–2022). According to the ADB (2011), the vision and goals of the strategic plan are similar to the last one including:

- The GMS countries envision a Mekong Subregion that is more integrated, prosperous and equitable.
- The GMS program will contribute to realizing the potential of the subregion through:

²⁶ www.adb.org/GMS/Cross-Border/default.asp

- Enabling policy environment and effective infrastructure linkages that will facilitate cross-border trade, investment, tourism and other forms of economic cooperation
- Developing human resources and skill competencies.
- To ensure that this development process is equitable and sustainable, environment and social interests will be fully respected in the formulation and implementation of the GMS program.

We can see from the strategic framework's goal that infrastructure development is still one of its key visions. Also, we can see the importance of increasing stakeholder involvement in the last vision of the GMS.

To achieve these goals, the GMS set up their plans as follows:

1. A more effective focus on the software aspects (or CBTA implementation) of the program as a complement to a continued focus on the hardware
2. More selectivity and prioritization of the focus areas within sectors, including less on information sharing and more on decision making
3. Close linkages to the broader regional integration such as ASEAN, ASEAN+6 and IMT-GT to have more clarity of regional issues that should be covered by the GMS program and avoid intersections among regional agreements
4. More attention on the linkages across different sectors
5. Rebalance attention and resources and keep in mind organizational capacities and the potential for results-based achievements
6. Increase effectiveness in regard to monitoring results and other improvements with respect to the program implementation²⁷

The overall result framework of the GMS strategic framework 2012–2022 can be summarized in Figure 2. The result framework will describe the expected regional impacts and outcomes under the GMS strategic plan. It also describes initiatives of GMS to reach such outcomes and impacts and the responsible GMS bodies. We can see that the establishment of economic corridors is one of the expected outcomes from the result framework.

²⁷ ADB (2011)

Figure 2: GSM Strategic Framework: Overall Results Framework 2012–2022

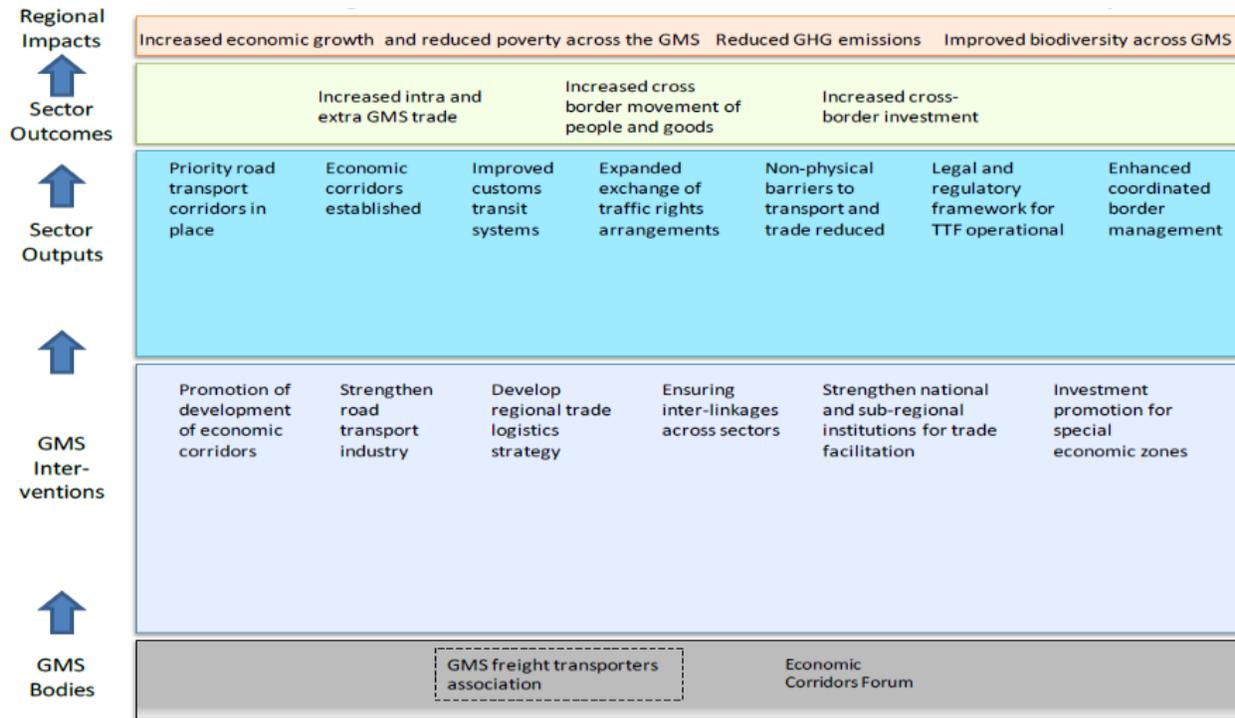
Regional Impacts	Increased economic growth and reduced poverty across the GMS									Reduced GHG emissions			Improved biodiversity across GMS						
Sector Outcomes	Increased intra and extra GMS trade	Increased cross-border investment	Increased use of energy by all sectors and communities particularly the poor	Increased access to information and communications	Increased tourism with reduced negative impacts	Increased sustainable agricultural production	Increased conservation of nature	Improved labor migration	Reduced human trafficking										
Sector Outputs	Economic corridors established	All GMS countries connected to a GMS rail network	Non-physical barriers to transport and trade reduced	Increased generation of low carbon, and renewable sources	Increased connection of GMS country power systems	Improved functioning of regional power market	Improved tele-communications linkages amongst GMS countries	Enhanced Information Superhighway Network (ISN) infrastructure	Improved tourism infrastructure (pro-poor, pro-women, and environmentally friendly)	Science based regional safety standards operational	Increased resilience of agriculture to climate change	Strengthened protected area networks	Enhanced labor migration management systems	Increased social protection for migrant workers	Increased cooperation in anti-human trafficking				
GMS Interventions	Promotion of development of economic corridors	Strengthen national and sub-regional institutions for trade facilitation	Sub-regional transportation infrastructure and systems planning	Promotion of environmentally sustainable regional power trade planning	Promotion of environmentally friendly oil and natural gas logistics and network		Build capacity for use of advanced technology	Promotion of information and communication (ICT) technology especially for rural dwellers	Capacity building and training of government officials, tourism and hospitality enterprises	Upgrading of tourism training facilities	Drafting of science-based harmonized GAP and food safety standards	Regional sustainable biofuel and biomass policy	Promotion of short-cycle market-linked cropping systems	Strengthening WGE and NSUs	EOC operating as GMS environmental referral and service center	Assessing sufficiency of environmental and social safety guarantee systems	Promotion of regional cooperation in education and skills development	Supporting communicable disease control and HIV and AIDS prevention	
GMS Bodies	Transport Forum	Economic Corridors Forum	Sub-regional Energy Forum	Tele-communications Forum	Tourism Working Group	Working Group on Agriculture	Working Group on Environment	Working Group on Human Resource Development											

Source: ADB (2011)

We will focus on the aspect of the GMS economic corridor development in the strategic plan. According to the ADB (2011), the new vision for an economic corridor development will focus on further infrastructure development to include border towns and local roads. Also, the concentration will be shifted to the implementation of the CBTA and the software of transport and trade facilitation to further promote economic corridor usage. Lastly, the growth of special economic zones along the corridor and better investment promotion will be one of the key success factors of economic corridors.

The summarised results framework of the GMS corridor development represented via Figure 3, has some visible result commonalities with Figure 2 which are marked with red circles.

Figure 3: GMS Corridor Development Results Framework of the GMS Strategic Framework 2012–2022



Source: ADB (2011)

CHAPTER 2: IMPACT OF ECONOMIC CORRIDORS ON ECONOMIC GROWTH, RURAL DEVELOPMENT AND POVERTY REDUCTION

In this chapter, we will illustrate the impact of economic corridors on economic growth, rural development and poverty reduction. We will start with a literature review on how economic corridors or improvement in infrastructure can affect economic growth and rural development. Then we will depict Lao PDR's plan on rural development and growth. Lastly, we will show how economic corridor improves the economic growth and rural development in Lao PDR.

2.1 Impact of Economic Corridors on Economic Growth

2.1.1 Literature Review on Impact of Infrastructure Improvement and Trade Facilitation on Economic Growth

Previous literature points out the importance of better road infrastructure and its correlation to economic growth via the channel of trade promotion. The paper of Wilson, Mann and Otsuki (2004) includes road infrastructure as one method to facilitate trade. Several reports point out that the improvement in trade facilitation can promote international trade. Wilson, Mann and Otsuki (2004) consider the effect of trade facilitation improvement in 75 countries using the gravity model. The study divides trade facilitation into four aspects, namely, customs procedures, infrastructure, port efficiency and regulatory environment. It finds that the improvement in trade facilitation increases trade flows by US\$377 billion. Also, improvement in infrastructure has the greatest impact, followed by port efficiency. Similar to the previous study, Hausmann, Lee and Subramanian (2005) employ the gravity model to quantify the effect of total time, using customs procedures, technical control and in-land transportation on trade flows. The study finds that the logistics and transaction times have a significant effect on trade flows with the larger impact on exporters than importers. Also, a decrease in transaction cost significantly raises trade flows.

Bin (2007) and Cheewatrakoolpong et al. (2014) provide linkages between trade facilitation and economic growth. Both studies show that trade facilitation results in higher economic growth via international trade. With better trade facilitation, including road linkages, a country increases trade flows. As a result, the domestic production expands and domestic production factors gain higher revenue. Similarly, Fujimura and Edmonds (2008) estimate the impact of road infrastructure in the GMS Subregion on trade and foreign direct investment (FDI); the study finds that road infrastructure can promote trade (both import and export) in major goods while the result for FDI is inconclusive. However, Kumar and Srivastava (2011) also suggest that the promotion of foreign direct investment from improvement in infrastructure is another explanation of why trade facilitation can bring about higher economic growth, particularly in case of the GMS countries.

2.1.2 Related Macro-economic Figures

Considering the impact of the economic corridor projects, the GMS region, especially CLMV countries, shows a rapid growth rate during the last decade. Termittayapaisith and Kumpa (2011) claim

that rapid integration with the global economy through both trade and investment channels are the key success factors of GMS's growth. As suggested by Kumar and Srivastava (2011), both channels are promoted by economic corridors. According to Table 4, we can see that GMS countries have rapid growth rates after the implementation of major economic corridor initiatives. The EWEC and NSEC began in 2002 and were completed in 2007. Trilateral MoUs among Thailand-Lao PDR-Vietnam to implement a CBTA were signed in 2009. GMS countries have higher growth than other ASEAN countries. Also, most GMS countries except Thailand were quite resilient to the global financial crisis in 2008–2009.

Table 4: GMS Economic Growth

Average annual GDP growth rates in the GMS economies (%)				
	1994–1996	1997–1999	2000–2009	2010–2013
Cambodia	6.98	7.50	8.33	6.95
PRC	12.65	9.04	10.21	8.76
- Guangxi Zhuang, AR	11.58	5.29	17.19	19.77
- Yunnan	12.30	7.99	14.95	20.43
Lao PDR	7.37	6.04	6.85	8.22
Myanmar	6.95	7.48	36.16	18.19*
Thailand	8.04	-2.48	4.06	4.33
Vietnam	9.24	6.23	6.64	5.83
GMS5	7.72	4.95	12.41	8.70
ASEAN5	7.81	0.72	4.73	5.89

*2010-2011

Source: World Bank, CEIC²⁸

Table 5 shows the population and income size of GMS countries. We can observe high variation among those countries. Also, we can see that CLMV countries experienced a sharp increase in GDP per capita in the last decade.

Table 5: Selected Indicators in GMS Countries

Selected Indicators of GMS economies				
	Population in 2013 (millions)	GDP in 2013, current US\$ (billions)	GDP per capita in 2000, current US\$ (billions)	GDP per capita in 2013, current US\$ (billions)
Cambodia	15.1	15.2	293.6	1,006.6
PRC	1,357.4	9,240.3	949.2	6,807.4
- Guangxi Zhuang, AR	47.2	232.3	559.7	4,921.1
- Yunnan	46.9	189.4	566.6	4,037.4
Lao PDR	6.8	11.1	326.3	1,632.4
Myanmar*	61.0	55.4	177.6	908.3

²⁸ GMS-5 stands for GMS countries except PRC since only two provinces in PRC are included in GMS.

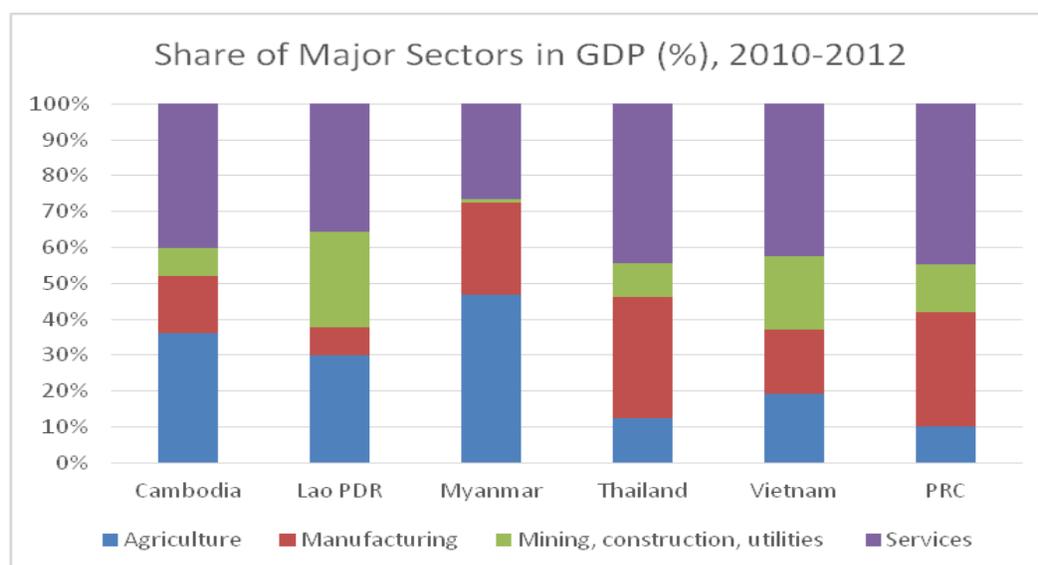
Thailand	67.0	387.3	1,943.2	5,780.6
Vietnam	89.7	171.4	401.5	1,910.8

*2012

Source: World Bank, CEIC, ADB

Chart 1 shows the composition of GDP in GMS countries. We can see the difference in economic structure across these countries. Thailand, the PRC and Vietnam have large manufacturing sectors while Cambodia, Lao PDR and Myanmar concentrate more on agriculture. Also, Lao PDR and Myanmar have a higher share in the mining sector, while Thailand and the People’s Republic of China have the highest share in services. Nevertheless, both the Lao PDR and Cambodia enjoy high contribution of the manufacturing sector to GDP, especially in textiles and garment production.

Chart 1: Share of Major Sectors in GDP (%), 2010–2012



*2009–2011

Source: World Bank, CEIC

As for the gap between Thailand and the rest GMS countries, Table 5 shows that the PRC did catch up with Thailand very fast during the last decade while the gaps between Thailand and CLMV countries gradually decrease.

Since international trade is one of the important channels that make economic corridors contribute to economic growth, we will review some trade statistics here. Table 6 shows that GMS countries have had a high growth in both exports and imports over the last decade.

Table 6: Total Exports and Imports of GMS Countries

Exports						
	2000		2008		2012	
	US\$ (billions)	Growth Rate (%)	US\$ (billions)	Growth Rate (%)	US\$ (billions)	Growth Rate (%)
GMS	335.80	-	1,681.36	-	2,412.57	-
PRC	249.20	27.84	1,430.69	17.26	2,048.78	7.92
GMS5***	86.60	-	250.67	-	363.79	-
Cambodia	1.39	**7.90	4.36	23.42	7.84	16.91
Lao PDR	0.52	-0.15	1.46	19.63	3.40	10.85
Myanmar	1.37	32.08	6.25	16.04	8.48	*19.33
Thailand	68.82	17.79	175.91	14.54	229.54	0.31
Vietnam	14.50	**3.77	62.69	29.08	114.53	18.19
Imports						
	2000		2008		2012	
	US\$ (billions)	Growth Rate (%)	US\$ (billions)	Growth Rate (%)	US\$ (billions)	Growth Rate (%)
GMS	307.36	-	1,402.10	-	2,197.70	-
PRC	225.09	35.84	1,132.56	18.45	1,818.20	4.29
GMS5	82.27	-	269.54	-	379.50	-
Cambodia	1.44	**4.74	4.42	24.24	7.06	14.96
Lao PDR	0.77	19.12	2.41	18.84	4.55	27.81
Myanmar	2.50	-3.60	3.39	9.41	6.53	*55.48
Thailand	61.92	23.08	178.61	24.24	247.58	8.36
Vietnam	15.64	**3.72	80.71	28.60	113.78	6.59

*2011 instead of 2012

**2001 instead of 2000

*** PRC not included.

Source: UNCOMTRADE, World Bank, CEIC

As for intra-GMS trade, Table 7 shows that intra-GMS trade plays a crucial role in Cambodia, Lao PDR and Myanmar. However, intra-GMS trade is less important for Thailand and the PRC.

Table 7: Intra-GMS Trade

Intra-GMS trade (%)						
	Total Exports			Total Imports		
	2000	2008	2012	2000	2008	2012
Cambodia	3.33	4.28	2.82	22.09	26.45	26.10
Lao PDR*	34.67	51.23	49.84	59.39	79.60	88.94
Myanmar	13.31	55.00	45.74	16.74	19.37	19.10
Thailand	3.01	5.71	7.50	1.09	3.09	3.29
Vietnam	4.06	4.81	5.51	6.12	6.78	6.06

*2002, 2008 & 2011

Source: UNCOMTRADE, World Bank, IMF, CEIC

Also, as border trade might play a more important role in the usage of economic corridors, we consider border trade statistics here. We can see that the border trade improved a lot in the last decade. According to Cheewatrakoolpong et al. (2014), the completion of the Thailand-Lao PDR second friendship bridge along the EWEC in 2006 brings about significant improvement in Thailand's border trade with Lao PDR along the corridor. In 2012, the level of border trade with Lao PDR in Mukdahan, a province on the EWEC, are three times as much compared to such trade in 2005.

Table 8: Border Trade of GMS Countries

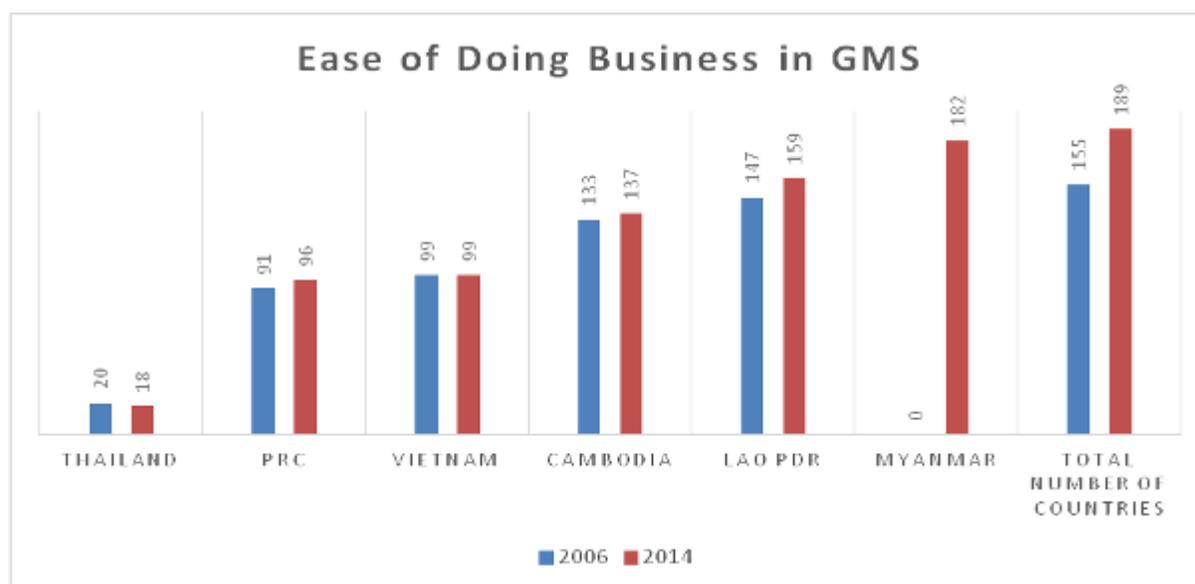
Share of Intra-regional Trade to Total Trade of GMS (%)			
	1992	1997	2002
Cambodia	20.1	40.0	24.5
Lao PDR	63.3	66.8	67.8
Myanmar	23.4	17.5	35.6
Thailand	2.8	4.6	8.9
Vietnam	4.7	8.9	13.9

Source: Consumer Unity & Trust Society, Hanoi

Apart from a trade channel, improvement in investment is another important explanation why economic corridors can improve economic growth. Economic corridors facilitate access for GMS countries to various ports and the neighboring countries; they also improve necessary infrastructure. As a result, economic corridor projects make GMS countries more attractive to foreign investors.

Chart 2 shows the World Bank's Ease of Doing Business Index. We can see that most GMS countries still have an indecent investment environment for foreign investors. However, we also see improvement during the past years, especially in the case of Thailand.

Chart 2: Ease of Doing Business in GMS Countries²⁹



Source: World Bank

Also, Table 9 shows the logistics and infrastructure level of GMS countries. We can see that GMS countries, particularly Lao PDR, Myanmar and Cambodia, still have a low level of development in logistics system and infrastructure. However, we see some improvement during the past few years.

Table 9: Logistics Performance Index and its Component, 2007 and 2012

LPI and its components from 1 (low) to 5 (high), 2007 and 2012												
	LPI		Customs		Infrastructure		Logistics Competence		Tracking & Tracing		Timeliness	
	2007	2012	2007	2012	2007	2012	2007	2012	2007	2012	2007	2012
Cambodia	2.50	2.56	2.19	2.30	2.30	2.20	2.47	2.50	2.53	2.77	3.05	2.95
China	3.32	3.52	2.99	3.25	3.20	3.61	3.40	3.47	3.37	3.52	3.68	3.80
Lao PDR	2.25	2.50	2.08	2.38	2.00	2.40	2.29	2.49	1.89	2.49	2.83	2.82
Myanmar	1.86	2.37	2.07	2.24	1.69	2.10	2.00	2.42	1.57	2.34	2.08	2.59
Thailand	3.31	3.18	3.03	2.96	3.16	3.08	3.31	2.98	3.25	3.18	3.91	3.63
Vietnam	2.89	3.00	2.89	2.65	2.50	2.68	2.80	2.68	2.90	3.16	3.22	3.64

Source: World Bank

As for FDI, Table 10 shows stocks of FDI and cumulative FDI flows in GMS countries. We can see that there is a huge increase in inward FDI to GMS countries, especially in CLMV countries during the last decade. Economic corridor projects result in better connectivity of the GMS countries and in an improvement of necessary infrastructure, which in turn increases private investment. So the projects

²⁹ The level of the index shows the ranking of surveyed countries. As a result, the lower the number, the better the level of doing business in that country. The rank is out of 155 countries in 2006 and 189 countries in 2014. Ease of doing business is an index provided by the World Bank. The index from ease of doing business project provides objective measures of business regulations and their enforcement across 189 economies and selected cities at the subnational and regional level. Trading across borders are one of the topics in the index construction. More information can be found at www.doingbusiness.org.

complemented the economic reforms of the CLMV countries which, in turn, contributed to the sharp improvement of inward FDI in the region.

Table 10: Stock and Flows of Inward FDI of GMS Countries (US\$ billions)

Stock and Flows of Inward FDI							
	Stock of Inward FDI					Cumulative Flow of Inward FDI	
	1990	2002	Increase 1990–2002	2013	Increase 1990–2013	1990–2001	2002–2013
	US\$ (billions)	US\$ (billions)	%	US\$ (billions)	%	US\$ (billions)	US\$ (billions)
Cambodia	0.04	1.87	4,866	9.40	24,800	1.54	7.89
Lao PDR	0.01	0.62	4,814	2.78	22,042	0.61	2.17
Myanmar	0.28	3.73	1,229	14.17	4,941	4.00	12.14
Thailand	8.24	39.92	384	185.46	2,150	40.32	93.18
Vietnam	0.24	17.44	7,078	81.70	33,530	15.97	65.76
PDR	20.69	216.50	946	956.79	4,524	378.02	1,082.54
World	2,081.39	7,638.09	267	25,464.17	1,123	6,284.71	15,396.26

Source: UNCTAD

Additionally, Table 11 illustrates that intra-GMS investment plays a very important role in FDI inflows between the GMS countries, relative to the rest of the world. The PRC and Thailand are major investors in the CLMV countries. As a result, better connectivity via economic corridors will promote even more intra-regional investment.

Table 11: Intra-GMS Cumulative FDI Flows

Bilateral cumulative FDI flows (US\$ millions), 2000–2008												
		FDI Outward by						FDI inflow to GMS5				
		Cambodia	Lao PDR	Myanmar	Thailand	Vietnam	PRC	GMS5	PRC	ASEAN5	ROW	Total Inward FDI
FDI Inward to	Cambodia	-	-	-	264	228	586	492	586	402	1,725	3,205
	Lao PDR	0.03	-	0.45	152	24	79	176	79	20	612	886
	Myanmar	-	-	-	295	5	815	300	815	206	2,167	3,488
	Thailand	16	-36	21	-	0.33	198	1	198	13,982	46,039	60,221
	Vietnam	2	25	-	705	-	584	732	584	3,854	22,419	27,588
	Outward to GMS5	18	-11	21	1,417	257	2,261	-	-	-	-	-
Total	-	-	-	-	-	-	1,702	2,261	18,463	72,962	95,388	

Source: ASEAN Secretariat, ASEAN FDI Database

In conclusion, since the creation of the economic corridor projects in 2002, we can see rapid growth in GMS countries, especially in the CLMV countries. The important channels that influence how economic corridors can promote economic growth come from international trade and inward FDI. This section provides several statistics and figures to highlight this point.

2.1.3 Economic Assessment of the Economic Corridors

The literature concerning economic assessments of economic corridor projects usually consider the usage level and the economic worthiness as an economic corridor. Many studies criticize economic benefits of such projects, especially in the case of the EWEC and its benefits to local communities along the corridors.

Ishida (2005) compares the effectiveness of three economic corridors, namely the NSEC, EWEC, and SEC. The study considers population density and income level of local communities along these corridors. It finds that the NSEC passes the densest populated areas of the three corridors. Population along the NSEC accounts for 19.3% of the total population in GMS countries. In contrast, the SEC is the economic corridor with the highest income level since the corridor passes through big cities including Bangkok, Phnom Penh and Ho Chi Minh City. However, the EWEC may be the least economic effective project; its population along the corridor is around 6.3% of the total population in the GMS countries, and it only passes through low-income provinces.

Nevertheless, Ishida (2005) points out one possible benefit of the EWEC, which is the connection with the Da Nang seaport in Vietnam. This route reduces transportation costs when shipping products through the Pacific Ocean and the Indian Ocean compared to the Strait of Malacca. Furthermore, the EWEC has potential for creating more trade between Southern China and India. The corridor also helps to distribute income to local communities along the corridor.

Table 12: Population and Income Level of Provinces and Prefectures along the Three Economic Corridors

Population and Income Level of Provinces and Prefectures along Three Economic Corridors									
	Thailand		Cambodia	Lao PDR	Myanmar	Vietnam		Yunnan	GMS
	Population	Income	Population	Population	Population	Population	Income	Population	Population
East-West Corridor	7,849 (12.4)	799		834 (14.7)	4,247 (8.1)	2,412 (3.0)	258		15,336 (6.3)
North-South Corridor									
-Kunming-Bangkok	16,123 (25.7)	3,668		283 (5.0)	5,061 (9.7)			8,935 (20.6)	
-Kunming-Hai Phong						11,209 (14.1)	288	10,192 (23.5)	
Subtotal	16,323 (25.7)	3,668		283 (5.0)	5,061 (9.7)	11,209 (14.1)	288	14,179 (32.7)	47,055 (19.3)
Southern Corridor									
-Vung Tau-Bangkok	9,717 (15.3)	4,932	5,648 (49.4)			9,432 (11.8)	563		
-Phnom Penh-Banteay M*			5,527 (48.3)						
-Kampong Cham-Sihanoukville**			4,571 (40.0)						
-Ca Mau-Trat	204 (0.3)	1,434	845 (7.4)			2,742 (3.4)	678		
-Quy Nhon-Stung Treng			175 (1.5)			2,578 (3.2)	573		

Subtotal	9,921 (15.6)	4,860	10,142 (88.7)			14,752 (18.5)	586		34,815 (22.5)
Economic Corridors Total	25,812 (40.7)	3,355	10,142 (88.7)	1,117 (19.7)	9,308 (17.8)	28,373 (35.6)	440	14,179 (32.7)	88,932 (34.8)
Total	63,430 (100.0)	2,008	11,438 (100.0)	5,679 (100.0)	52,171 (100.0)	79,727 (100.0)	440	43,331 (100.0)	255,776 (100.0)

*Phnom Phen-Banteay Meanchov Route by way of Kampong Cham and Siem Reap

**Kampong Cahm-Sihanoukville Route is part of Route 6 (Lao PDR-Cambodia)

Source: Ishida (2005)

Ishida (2007) compares the effectiveness between the EWEC and the Bangkok-Hanoi road using an index adjusted from the gravity model. However, with the limitation of data availability, the standard gravity model cannot be conducted, so Ishida (2007) uses independent variables in the gravity model, namely gross regional product, gross regional product per capita and population density to compute an index weighted by the distance of the projects.

The study finds that the Bangkok-Hanoi road is more economically effective than the East-West Economic Corridor, since it passes two important cities, namely, Bangkok and Hanoi; while the EWEC runs through low income and lightly populated provinces. The result is supported by a survey conducted by Japanese firms which put a higher importance on the Bangkok-Hanoi road, since both of these two cities are Japanese production bases. The road project can reduce the transportation time between Bangkok and Hanoi from 10-15 days by ship down to 3 days by road.

Ishida (2007) also compares the Bangkok-Hanoi road with the other corridors, namely the North-South Economic Corridor and the Southern Economic Corridor. The study finds that the road project has almost the same level of effectiveness compared with the NSEC. However, the central SEC along Bangkok-Phnom Penh has a higher effectiveness than the Bangkok-Hanoi road.

Table 13: Weighted Index of the Bangkok - Hanoi Road and the EWEC³⁰

Ratio of Weighted Economic Indicators of the Bangkok-Hanoi Road to those of the EWEC						
	Length (km)	Total Area	Population	Population Density	GRP	GRP/Cap.
Thailand	2.4	1.8	2.2	1.6	1.8	0.9
Lao PDR	1.0	1.0	1.0	1.0	1.0	1.0
Vietnam	0.9	1.0	1.7	1.9	2.7	1.8
Myanmar	-	-	-	-	-	-
All	1.1	0.9	1.6	2.1	2.0	1.3

Source: Ishida (2007)

³⁰ The index weighs economic indicators of the Bangkok-Hanoi Road to those of the EWEC. As a result, if the index is less than 1, the Bangkok- Hanoi road is more effective. Otherwise, the EWEC is more effective.

Table 14: Weighted Index of the Bangkok-Hanoi Road and the NSEC³¹

Ratio of Weighted Economic Indicators of the BHR to those of the NSEC							
		Length (km)	Total Area	Population	Population Density	GRP	GRP/Cap.
Bangkok-Kunming	Simple	1.24	1.40	0.74	0.53	1.10	0.58
	Weighted	1.24	1.44	0.85	0.46	2.14	1.42
Kunming-Haiphong	Simple	0.53	0.66	0.64	0.97	0.30	0.47
	Weighted	0.53	1.64	1.85	1.84	1.85	0.74

Source: Ishida (2007)

Table 15: Weighted Index of the Bangkok-Hanoi Road and the SEC³²

Ratio of Weighted Economic Indicators of the BHR to those of the SEC							
		Length (km)	Total Area	Population	Population Density	GRP	GRP/Cap.
Central Sub-corridor	Simple	0.70	0.56	1.70	3.02	6.86	4.04
	Weighted	0.70	0.52	0.79	2.06	3.61	2.89
Coastal Sub-corridor	Simple	0.62	0.33	0.87	2.62	7.82	9.00
	Weighted	0.62	0.50	0.55	1.00	3.09	4.80
Northern Sub-corridor	Simple	0.59	0.59	0.14	0.23	0.00	0.03
	Weighted	0.59	1.14	0.39	0.22	0.30	0.36

Source: Ishida (2007)

Oehlers (2007) points out that the lack of economic effectiveness of economic corridors comes from the fact that the projects concentrate mainly on infrastructure development. The economic corridor projects neglect to improve necessary institutional requirements. As a result, their economic effectiveness are quite limited.

Similarly, Cheewatrakoolpong (2009) shows that there are coordination failures among relevant stakeholders in both formulation and implementation of economic corridor initiatives. Only the ADB and each respective central government have a high influence in the initiative formulation and implementation process. As a result, the effectiveness and the usage of economic corridor projects are not impressive.

2.1.4 Impact of Economic Corridors on Lao PDR's Economic Growth

After the East Asian financial crisis in 1997, Lao PDR enjoyed a high and stable growth rate, especially after 2005 when economic corridors were implemented, as seen in Chart 3.

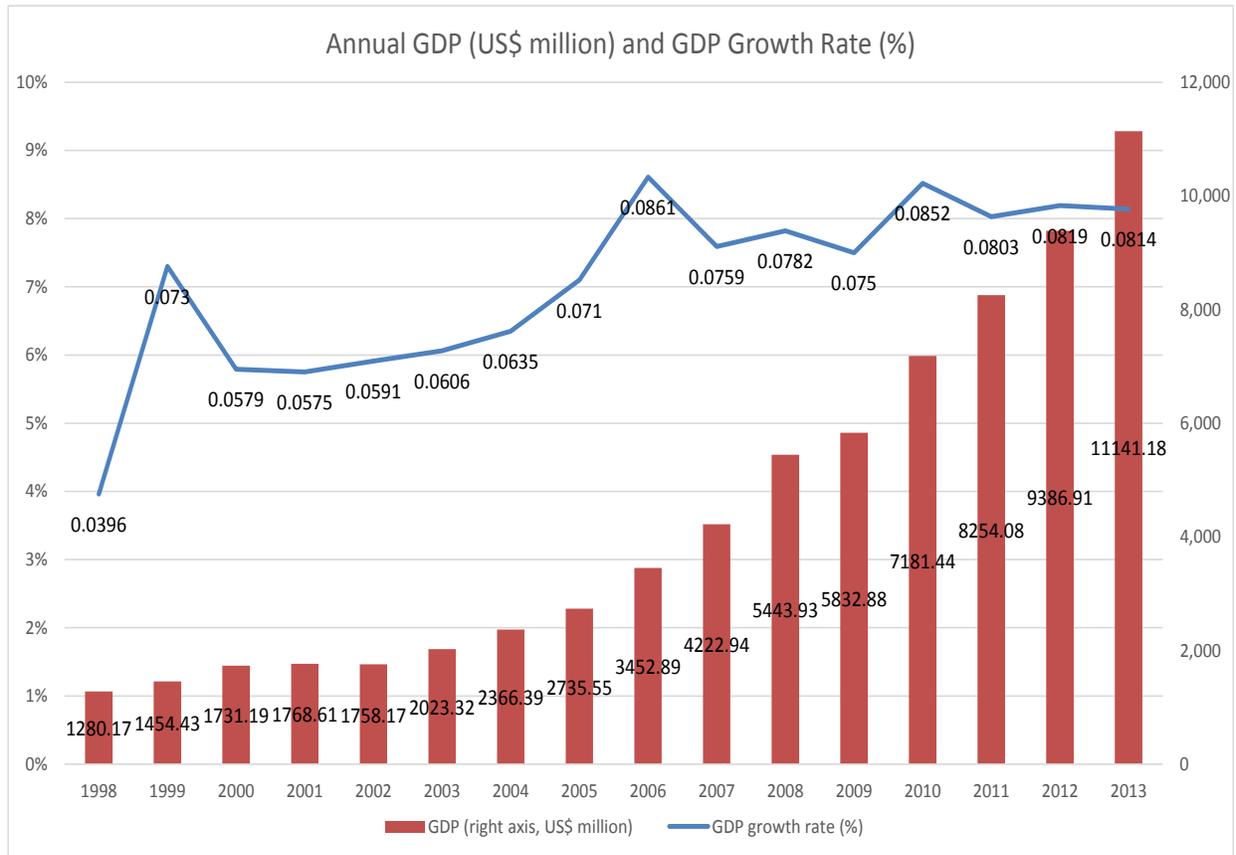
Also, Chart 4 shows that Lao PDR experienced a change in the composition of its economic activities. Since the middle of the last decade, around the time of the economic corridors' implementation,

³¹ The index is weighs economic indicators of the Bangkok-Hanoi Road to those of the NSEC.

³² The index is weighs economic indicators of the Bangkok-Hanoi Road to those of the SEC.

Lao PDR has increased its share in the manufacturing sector while decreasing its respective share in the agriculture sector.

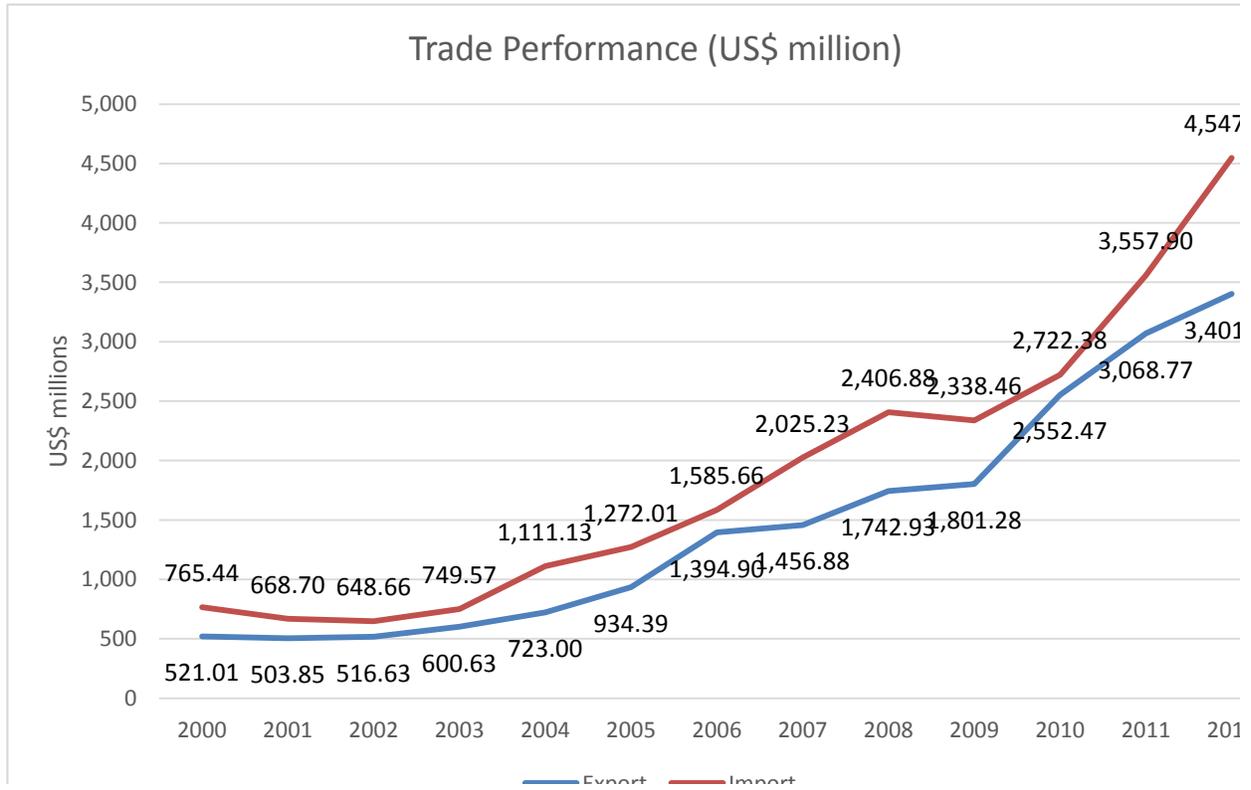
Chart 3: GDP and GDP Growth of Lao PDR



Source: World Bank

Considering the impact of the economic corridors on Lao PDR's international trade, Chart 4 shows that Lao PDR experienced a sharp increase in both exports and imports. This change started around 2005–2006 when the economic corridors were implemented. As a result, the economic corridors have contributed to a large trade expansion in Lao PDR as suggested by Fujimura and Edmonds (2008).

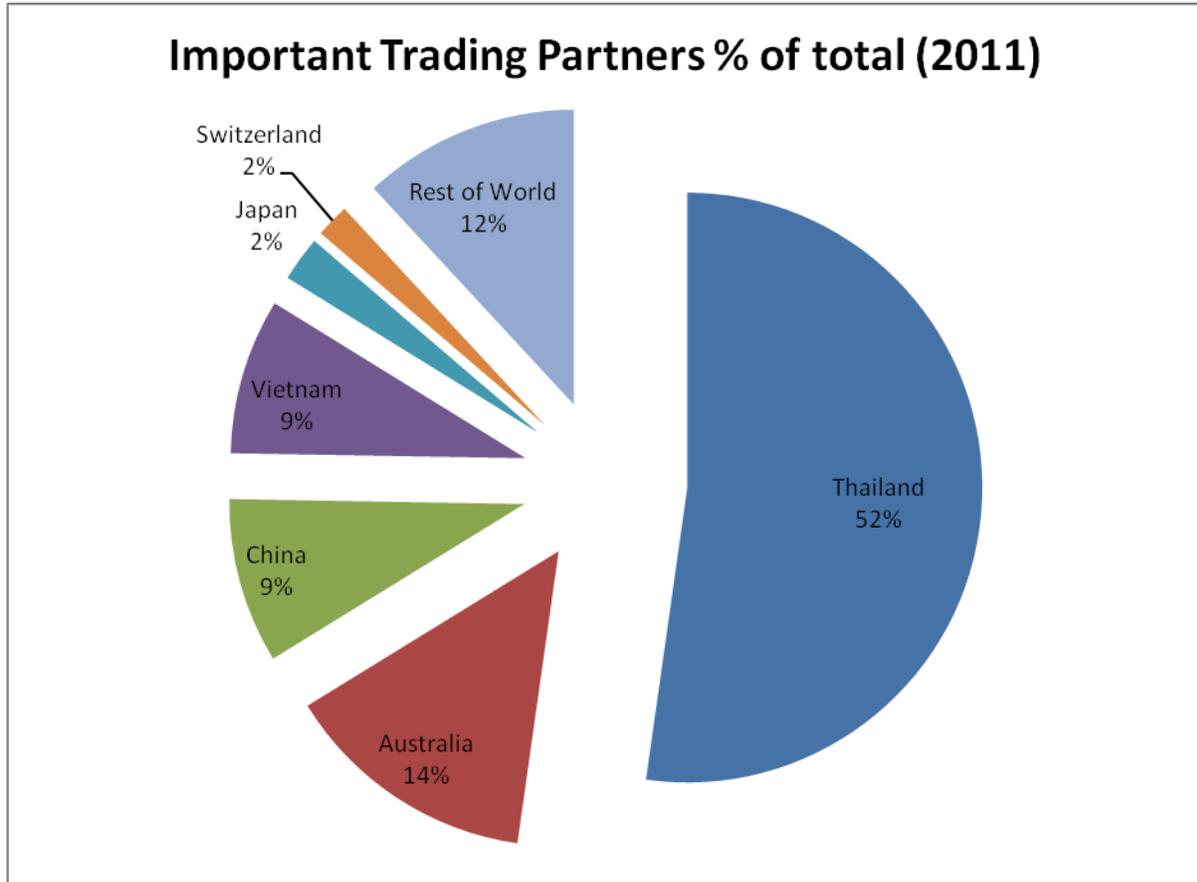
Chart 4: Trade Performance in Lao PDR (2000–2012)



Source: World Bank

Regarding important trading partners, Chart 5 shows that Thailand remains the single most important trading partner for Lao PDR, capturing more than 50% of Lao PDR's total trade while, within the GMS, Vietnam and the PRC are the next significant trading partners.

Chart 5: Important Trading Partner of Lao PDR (2011)

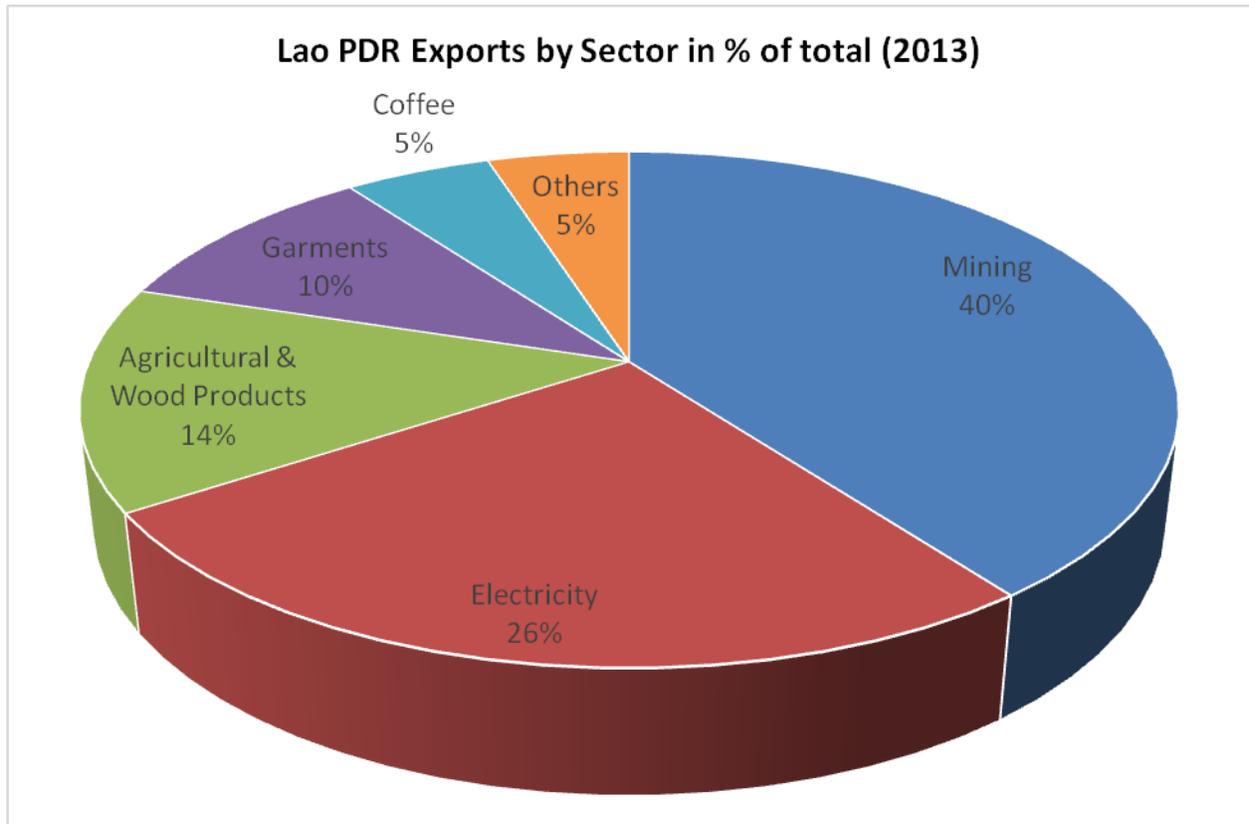


Source: CEIC

If we consider the major export products, we can see that the most important exports from Lao PDR are mineral products and hydro-electricity, which capture together around 66% in 2013. According to Leebouapao (2011), mineral products are exported to ASEAN countries (63%), South Korea (13%) and the PRC (4%), while hydroelectricity is exported to Thailand. Other important exports consist of agricultural and textile products. The main export destinations for textiles are EU countries, thanks to the Generalized System of Preferences (GSP) privilege.

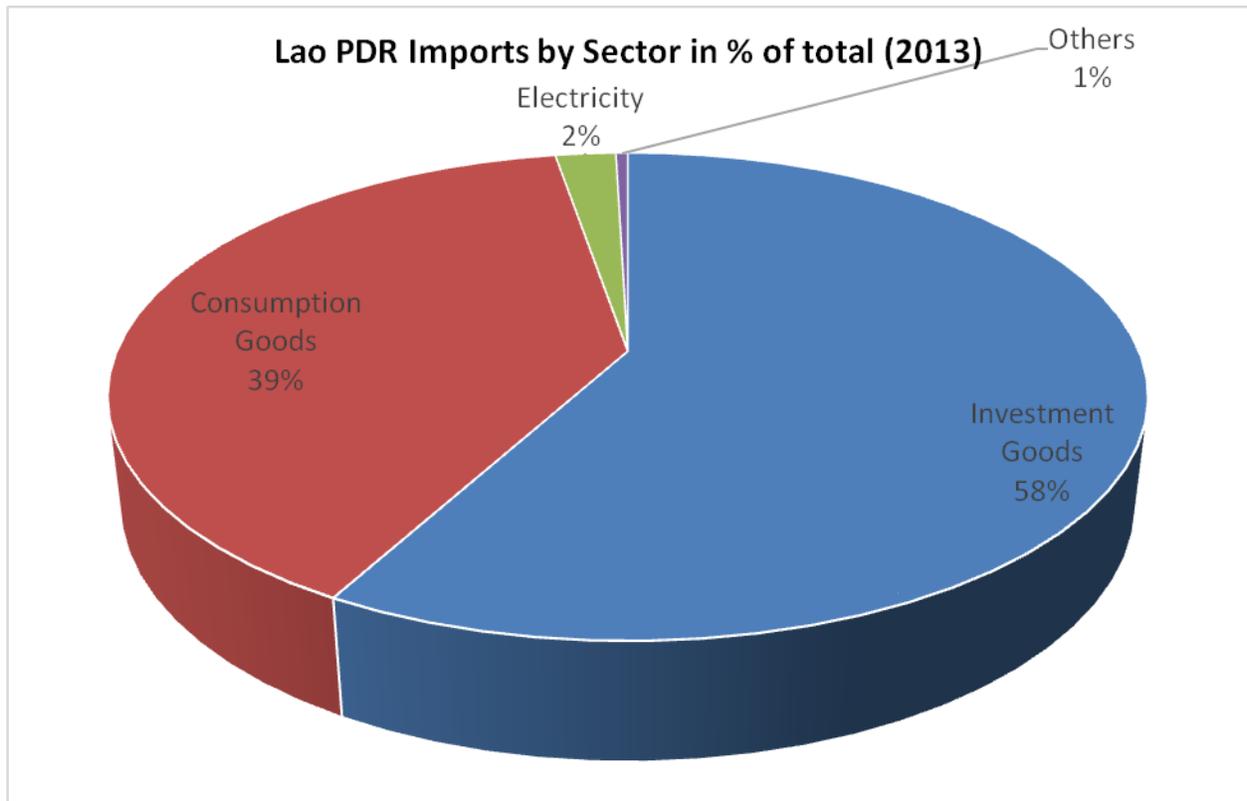
Major import products are comprised of consumption and electrical goods such as fuel, machinery, electrical appliances, automobiles and automotive parts. Most of them are imported from Thailand and the PRC.

Chart 6: Exports by Sector of Lao PDR (2013)



Source: CEIC

Chart 7: Imports by Sector of Lao PDR (2013)

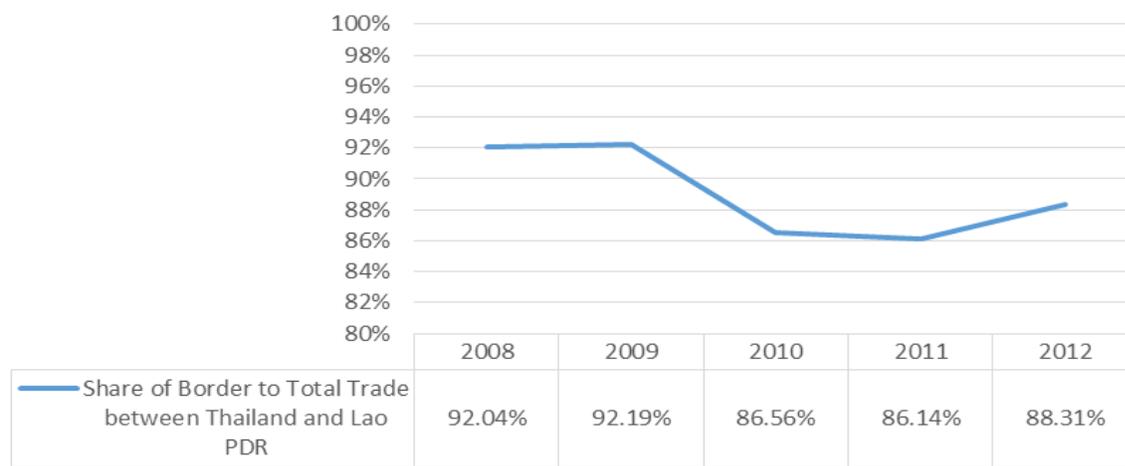


Source: CEIC

Also, border trade plays a very important role in Lao PDR. As for Thailand, border trade with Lao PDR captures around 90% of total trade between Thailand and Lao PDR as seen in Chart 9.

Chart 8: Share of Border to Total Trade between Thailand and Lao PDR

Share (%) of Border to Total Trade between Thailand and Lao PDR



Source: Division of Information Technology, department of Foreign Trade with the Cooperation of the Department of Customs

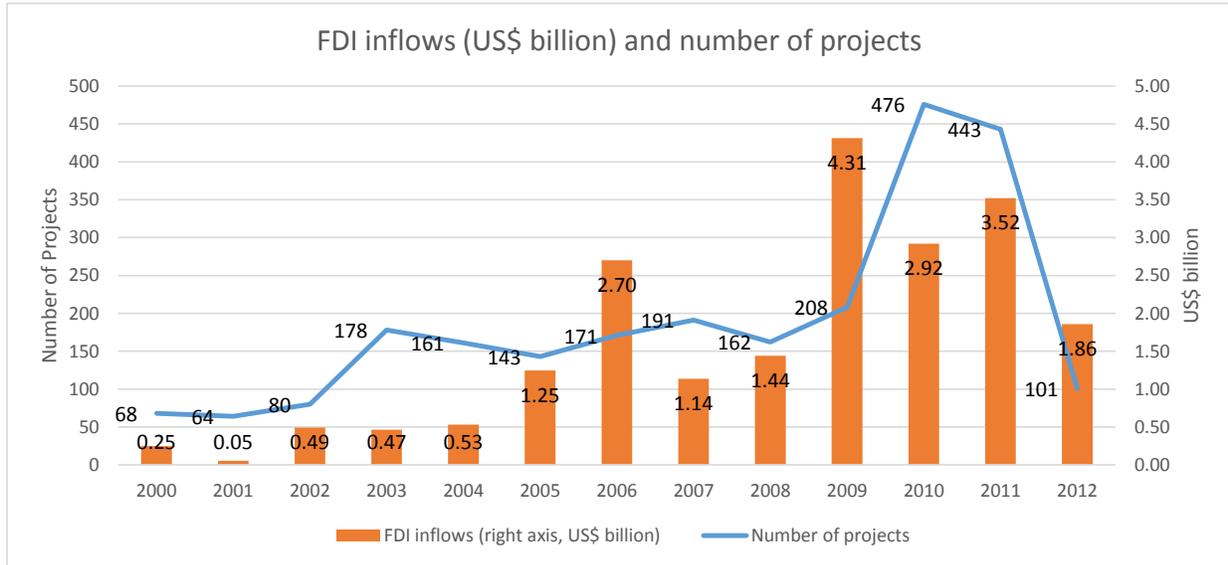
According to the Lao PDR National Statistical Centre (2006), in 2005 32.1% of total trade between Lao PDR and the PRC is targeted for Yunnan Province. Also, in 2005, Lao PDR's exports to Yunnan Province jumped by 77%, covering more than half of all total exports from Lao PDR to the PRC.

The trade statistics above point out the importance of Lao PDR's border trade. Also, border trade relies more on road infrastructure than other trade, which are usually shipped by sea. Therefore, economic corridors play a vital role in the Lao PDR's trade expansion, confirmed by the above statistics. It also facilitates Laos to use the economic corridors to changes its status from land-locked to land-linked country integrated with GMS.

As mentioned by Kumar and Srivastava (2011), investment is also another important channel in which road infrastructure contributes to economic growth; we consider the FDI performance of Lao PDR here. Similar to the trade performance, we can see that Lao PDR has a much higher FDI inflow after the implementation of the economic corridors (2005–2006).

Chart 9 illustrates a sharp increase in FDI inflows and a number of approved projects during 2005–2011 compared with the beginning of the decade. Also, Lao PDR started its investment promotion law in 2009 which may have also contributed to a higher growth of its FDI inflows.

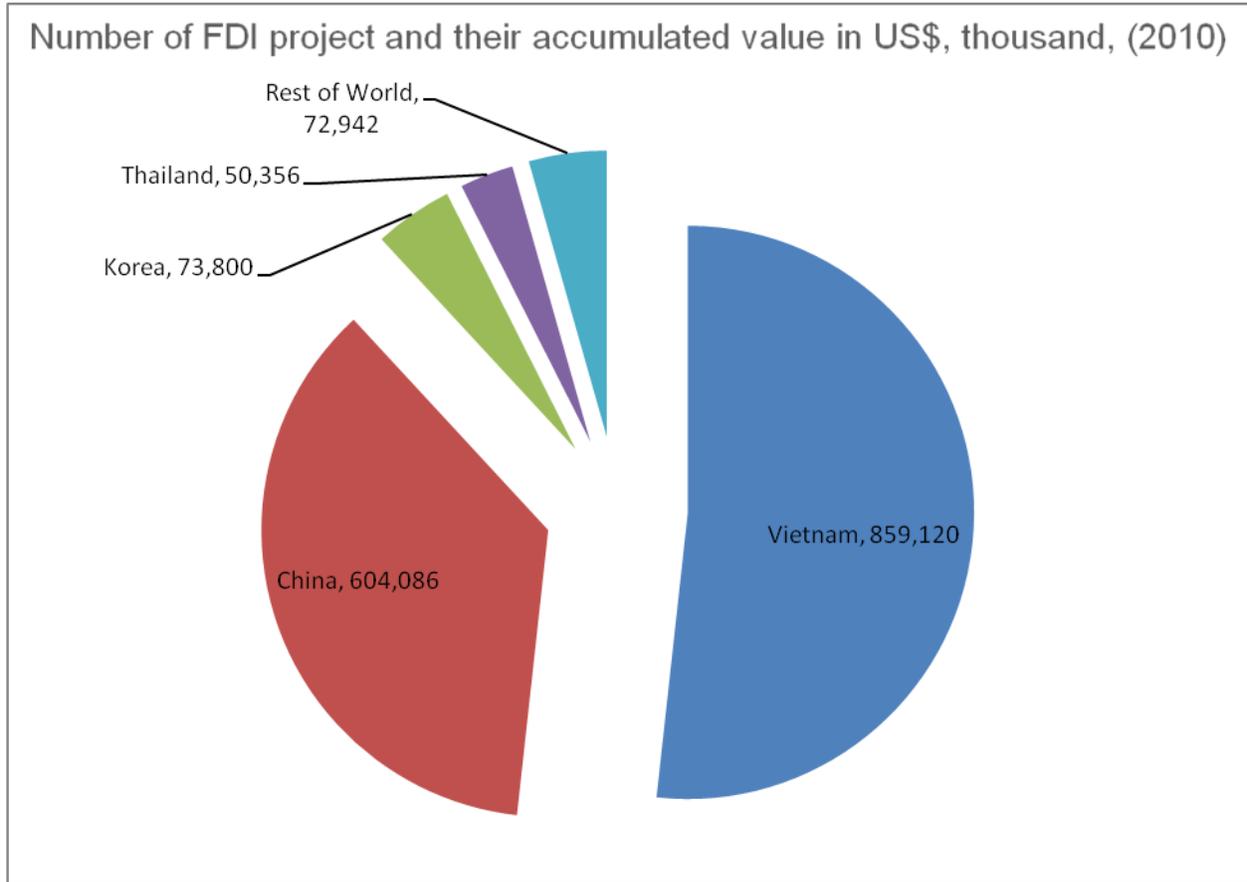
Chart 9: FDI Inflows and Number of Approved Projects in Lao PDR



First line: Number of projects – Second line: Value of FDI – Third line: Percentage of total value of FDI
Source: CEIC

Most of the foreign investors in Lao PDR come from the other GMS countries. Chart 10 shows that the major investors in Lao PDR are Vietnam, the PRC and Thailand; these three countries accounted for approximately 90% of total FDI to Lao PDR. These countries share borders with Laos and due to its geo-strategic location presently as a land-locked country, investing and developing road linkages in Lao PDR would be beneficial to change it to being a land-linked country benefiting from the economic corridor development during post-AEC 2015 integration.

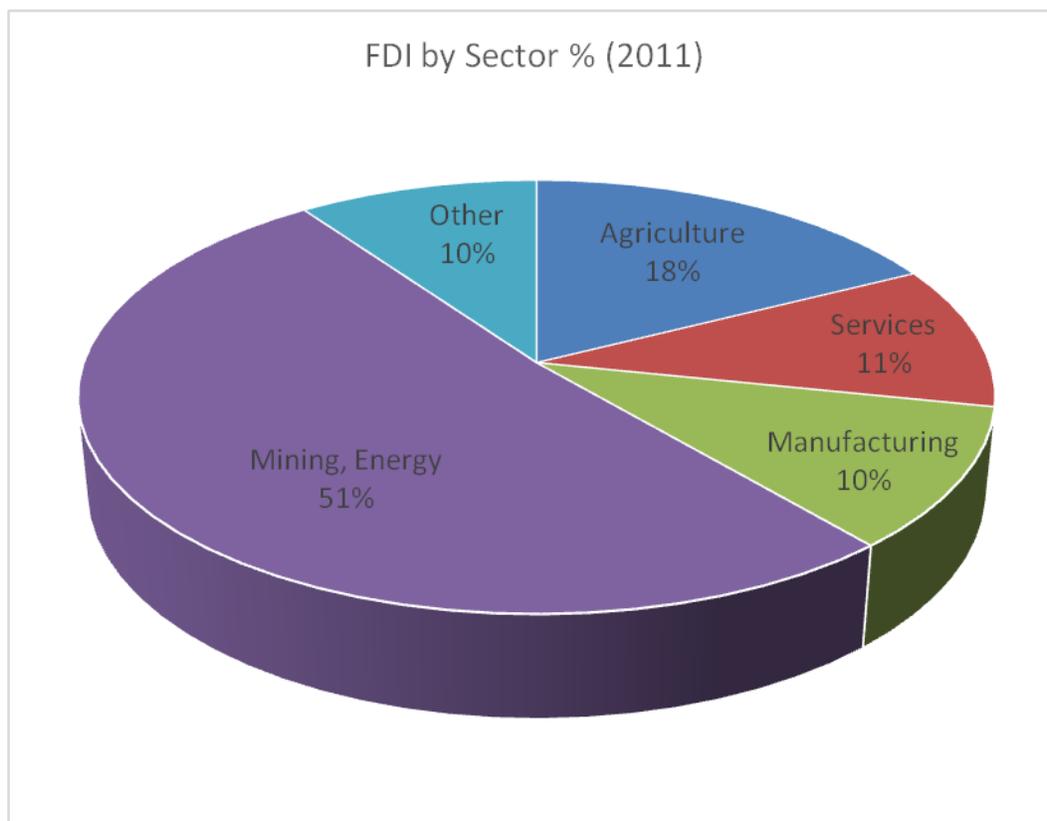
Chart 10: Number of FDI Projects and their Accumulated Value in Lao PDR



Source: CEIC

Chart 11 depicts the sectors that have the largest investment in Lao PDR; it shows that most foreign investors focus on the mining and energy sector, which accounts for around 50% of total investment in Lao PDR. However, according to Suvannaphakdy (2013), this sector contributes minimally to domestic employment. It employs only around 0.4% of the total labor force. As a result, the investment might not bring about poverty reduction or human development in Lao PDR. We will discuss more on this issue in Section 4.2. For the manufacturing sector, most investment is in textiles and garment due to Lao PDR's eligibility for the GSP privilege in developed countries.

Chart 11: FDI by Sector in Lao PDR (2011)



Source: CEIC

In conclusion, complementing the literature that links improvement in road infrastructure with economic development, we can see a huge improvement in the Lao PDR's economic performance after the implementation of the economic corridor projects. The important channels are international trade expansion and foreign investment promotion.

2.2 Impact of Economic Corridors on Rural Development and Poverty Reduction

The Greater Mekong Subregion is experiencing rapid economic growth, which has led to a large reduction in poverty; nonetheless, the development gap of the GMS countries is still lagging the other six ASEAN countries. One of the important goals of the GMS program, initiated by the ADB, is to promote poverty reduction in the subregion via sustainable and equitable economic growth. As stated in the sustainable development strategy for the Greater Mekong Subregion, *"the people of GMS will have a standard of living on par with that of developed economies and a quality of life that is the best in the world."*³³ To achieve such goals, the ADB has initiated economic corridors and CBTA as the two central initiatives of the GMS program to reduce poverty and promote rural development via trade. However, several pieces of literature, such as Oehlers (2007) and Cheewatrakoolpong (2009), doubt that the GMS

³³ UNEP (2008)

program achieves the goals mentioned in Section 2.1. Therefore, this section will discuss the impact of the economic corridors on rural development and poverty reduction.

The concept of rural development is identified differently in each country and continent. Japan identifies a rural area as a population density having less than 4,000 or 5,000 people per square kilometre. Most rural people in developing countries have depended on local agriculture, forestry and fisheries to maintain their livelihoods.³⁴ JICA defines, "...*rural development [...] as the improvement of sustainable livelihoods (especially impoverished groups), with careful attention paid to local characteristics.*"

GIZ identifies four components as the strategy to respond to poverty reduction for regional rural development: (i) *economic dimension*: food and cash, (ii) *socio-cultural dimension*: interaction with people, (iii) *political and institutional dimension*: power and capacity and (iv) *ecological dimension*: managing natural resources in a sustainable manner, to address problems related to rural and regional development.³⁵ These four dimensions are similar to the concept of sustainable development, including the economic, social, environmental, and institutional dimensions, which are being used by the United Nations as indicators to measure sustainable development comparisons at a national level.³⁶

2.2.1 Literature Review on the Impact of Infrastructure Improvement and Trade Facilitation on Rural Development and Poverty Reduction

There is various literature explaining why improvement in road infrastructure and other trade facilitation can contribute to rural development and poverty reduction. These pieces of literature provide both theoretical frameworks and empirical studies.

On the theoretical framework side, Bin (2007) lists the channels in which infrastructure improvement can help rural development and poverty reduction. The channels are comprised of:

- i) International trade expansion, resulting in an increase in production and higher factor revenues.
- ii) Lower import costs which brings about cheaper consumption.
- iii) An increase in government revenue from tax and tariff revenues which can be redistributed to low-income people.

Cheewatrakoolpong et al. (2014) adds more channels where infrastructure improvement can contribute to rural development and poverty reduction. Specifically, an increase in international trade also brings about more market access and business opportunities to local communities. As a result, this study points out the importance of a better microfinance system to promote gains of local communities and low-

³⁴ JICA Research Institute, *Approaches for Systematic Planning of Development Projects (Basic Education/ Anti-HIV/AIDS Measures/ Promotion of Small and Medium Enterprises/ Rural Development)*, Chapter – 4 *Effective Approach for Rural Development* full paper available at http://jica-ri.jica.go.jp/IFIC_and_JBICI-Studies/english/publications/reports/study/topical/spd/pdf/chapter4.pdf

³⁵ Theo Rauch, Matthias Bartels, Albert Engel. 2001. *Regional Rural Development: A regional response to rural poverty*, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. Full document available at <http://www.mekonginfo.org/assets/midocs/0001529-society-regional-rural-developmenta-regional-response-to-rural-poverty.pdf>

³⁶ UN DESA, 2011, *Indicator of Sustainable Development: Guidelines and Methodologies* <http://sustainabledevelopment.un.org/content/documents/guidelines.pdf>

income people from economic corridor projects, since microfinance will provide them with funding to open up businesses that benefit from better road linkages.

In our study, we also find that the cross-border movement of people from better connectivity acts as a channel by which economic corridors can contribute to rural development and poverty reduction. Economic corridors result in easier access for rural area residents to travel to urban areas or more developed countries; as a result, people in rural areas now have access to schools or training. Furthermore, better road infrastructure brings about foreign investment and trade which causes technology and knowledge transfer and exchange. Hence, we adjust the original framework provided by Bin (2007) into Figure 4. The framework in Figure 4 will be used as our analytical framework for our survey analysis in Chapter 3.

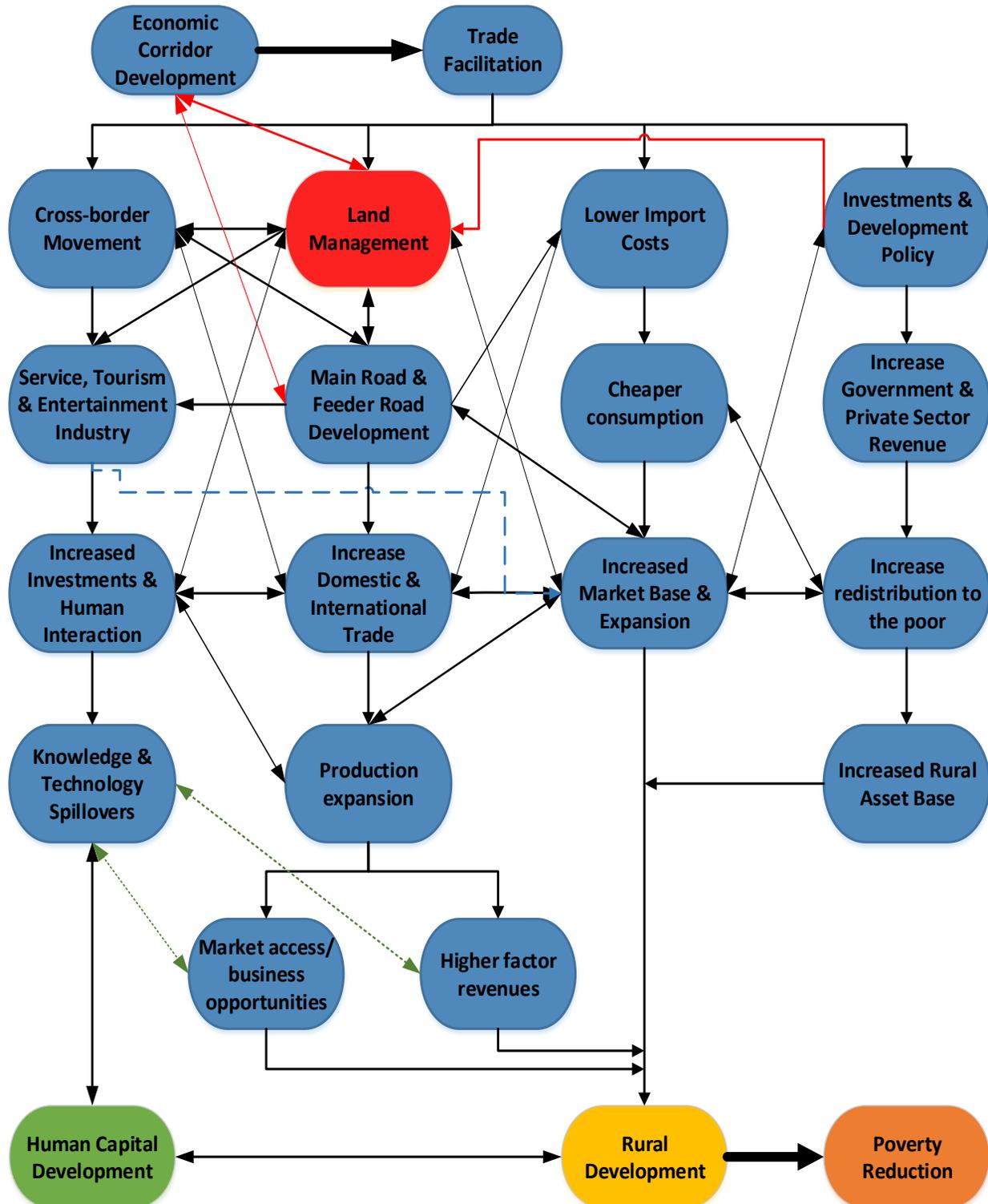
As for empirical studies, Stone et al. (2010) employs the computable general equilibrium model to quantify the impact of economic corridors on economic opportunities and poverty reduction in GMS countries. The study simulates the effect of improvement in road infrastructure via the reduction of transportation costs and time. It finds that economic corridors can promote poverty reduction through an increase in endowment prices, namely, labor, capital and land. The study also shows that economic corridors could move out 400,000 people in GMS countries from extreme poverty (living on US\$1 per day) and 1.75 million people from the US\$2 per day poverty line. Also, the positive impacts on income and poverty reduction are more significant in Lao PDR and Cambodia.

Menon and Warr (2006) also use the computable general equilibrium model to see the impact of road improvement on poor communities in Lao PDR. The study divides rural roads into three categories, namely, no vehicle access, dry season only access and all weather access. The study finds that road improvement can reduce poverty via higher income and lower consumption costs.

There are also qualitative studies considering the impact of improvement in transport infrastructure and trade facilitation on rural development and poverty reduction. Cook et al. (2005) studies the impact of transport and energy infrastructure on poverty reduction in the case of China, Thailand and India. For Thailand, the study considers the impact of rural transport improvements, rural electrification, urban electrification and long-distance transport roads and railways on poverty reduction in three rural sites, namely the provinces of Nakhon Ratchasima, Buri Ram and Nakhon Si Thammarat. The study finds many benefits of transport and electricity improvements for poor communities. The main benefits range from greater access by teachers, health care providers, security services, nongovernment organizations (NGOs), higher travel safety, more opportunities to access common resources and greater employment opportunities in various locations. Another interesting finding from this study is that the improvement in transport and energy does not change the poor's occupation or employment pattern. However, the mentioned improvement brings about higher productivity. In short, the study supports that improved access to transport infrastructure and electricity contributes to a poverty reduction in Thailand.

Phyrum et al. (2007) considers the social and economic impact of the Southern Economic Corridor on Cambodia. The survey from this study shows that 70% of local residents experienced better standard of living after a road rehabilitation. However, the majority of local residents did not have any awareness of the potential benefits to their careers or businesses from the development of the corridor. The main reasons for the reluctance to switch jobs or start a new business comes from a lack of capital or skills.

Figure 4: Graphical Representation of Tentative Impact of Economic Corridor on Rural Economic Development and Rural Livelihood



Source: Sanjay Gathia, Mekong Institute (2014), revised from Cheewatrakoolpong et.al. (2014) and Bin (2007)

Cheewatrakoolpong et al. (2014) considers the impact of the EWEC on poverty reduction in Mukdahan and Nakhon Phanom Province in Thailand. The study finds that the EWEC contributes to trade expansion, higher per capita income and lower numbers of people under the poverty line within the two provinces. The EWEC's effect on poverty reduction is brought about by job creation, an increase in business opportunities and investment, an increase in land and real estate prices, trade expansion for agricultural and village products and more service sector opportunities such as tourism, health care and educational services.

An increase of agricultural production as well as technology spillovers and transfers in the agricultural sector are other important factors that road infrastructure can promote in rural development. Singh (2007) studies agriculture and rural development in the Greater Mekong Region; he recommends five important points regarding bottlenecks of agriculture and rural development in the Mekong region. First, better technology and the increase of public investment are important to enlarge an economy of scale in agriculture, from staple agriculture to high value commodities. Second, a diversification of the agriculture products and markets, as well as state-owned enterprise reforms will create more opportunities for rural growth. Third, Vietnam and Cambodia should pay more attention to the management of natural assets for broad-based growth (land, water and forest). Fourth, the role of education specific to agricultural knowledge in the GMS is still a looming challenge in agriculture practice and development. Fifth, small farmer groups should have special support to be organized into cooperatives keeping their interests of prime concern.³⁷

On the other hand, several development agencies like the ADB, USAID, and the Swiss Agency for Development and Cooperation (SDC) have been cooperating in regard to environment and agriculture strategies including food security, which might directly impact the improvement of rural development in the Mekong region.

USAID's 2011–2015 strategy identifies sustainable natural resource management, agriculture policies and household capacity enhancement to meet food security as priority activities. SDC's strategy for the period of 2013–2017 has focused on land and forest governance, use of agriculture land and agriculture practice in the Mekong region due to the direct negative impacts from foreign direct investment regarding land (SDC, 2013).

The Mekong Forum 2013³⁸ identified two main issues related to rural development in the GMS that envisions a GMS geared towards more inclusive and equal growth. First, how can the Mekong countries move rural farmers and local producers from subsistence farming to modern farming system without losing their land rights and access to natural resources? Second, how can trade facilitation and business development services within and between the GMS countries be improved to promote rural non-farm employment, community-led business enterprises and enhance competitiveness of local SMEs and small producers? Third, how can the new generation develop the skills, knowledge and attitude required to compete in a modern, more diversified and competitive work environment? Fourth, how can regional economic integration be achieved without the free movement of workforce between the six member

³⁷ Singh, A. S. (2007). *Agriculture and Rural Development in the Greater Mekong Sub-Region The important Nexus*, SDC: Policy Brief

³⁸ Mekong Forum 2013: <http://www.mekongforum.com/mekongforum2013/>

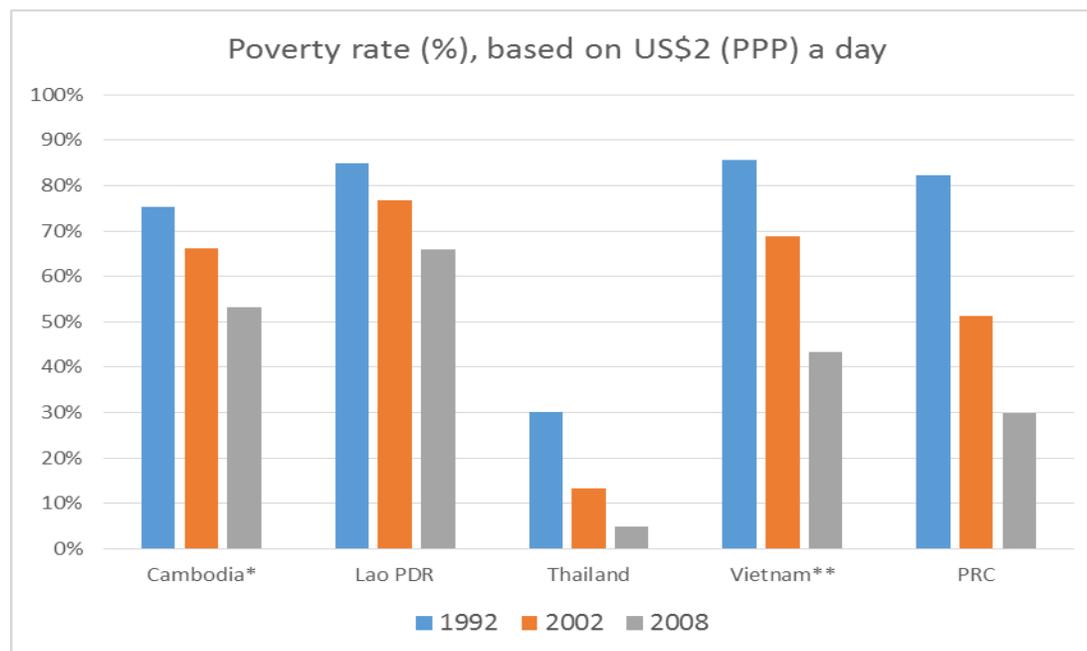
countries? The first two questions have provided a good perspective of key challenges in rural development in the GMS region regarding the context of rural development.

2.2.2 Related Macroeconomic Figures

In the last section, we will summarize literature that explains why economic corridors can promote rural development and poverty reduction. In this section, we will illustrate some important statistics and figures to support this argument.

Section 2.1.2 shows that the GMS countries benefit from trade expansion and growth stimulation after the implementation of the respective economic corridors. However, we still see a big gap between Thailand and the CLMV countries. If we consider poverty reduction, Chart 12, shows that there is a reduction in the poverty rate of GMS countries during the last decade, especially in case of the PRC and Vietnam. However, we still do not see a substantial improvement in Lao PDR. Also, poverty reduction in the PRC and Vietnam may result from economic reforms and WTO accession, not directly from the economic corridor projects. As a result, the figure does not give a clear picture regarding the role of the economic corridors on poverty reduction.

Chart 12: Poverty Rate Based on US\$ 2 a Day in GMS Countries



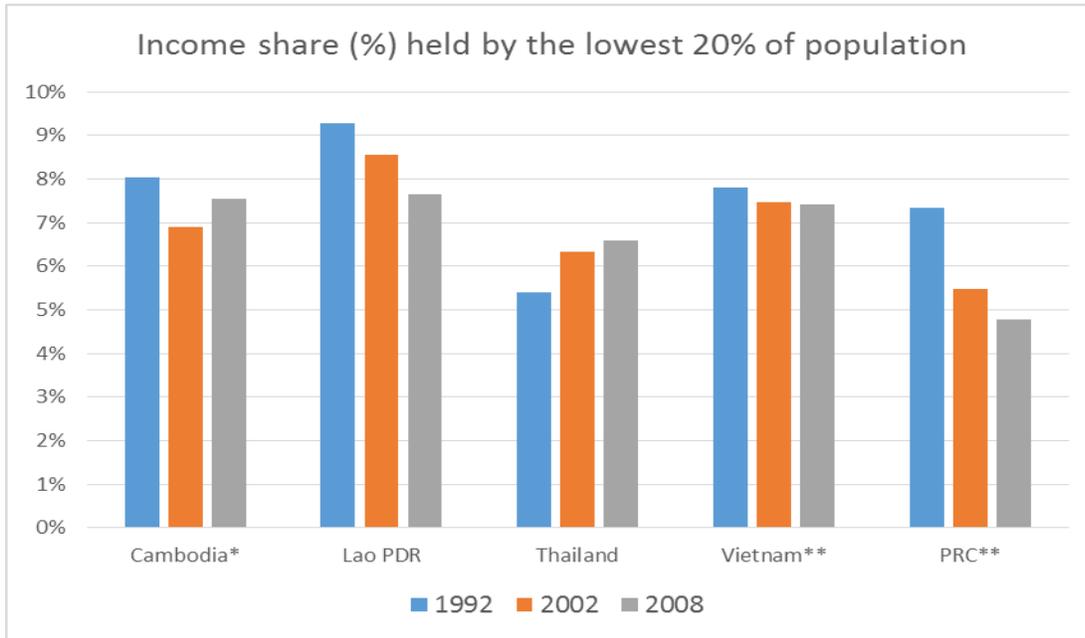
*1994 and 2004 **1993
Source: World Bank

Chart 13 depicts income disparity amongst GMS countries. We can see that all countries exhibit higher income disparity in the last decade except for Thailand.

The Gini Coefficient in Chart 14 also indicates the same picture. As a result, even though the GMS countries were successful in growth stimulation and poverty reduction during the last decade, when

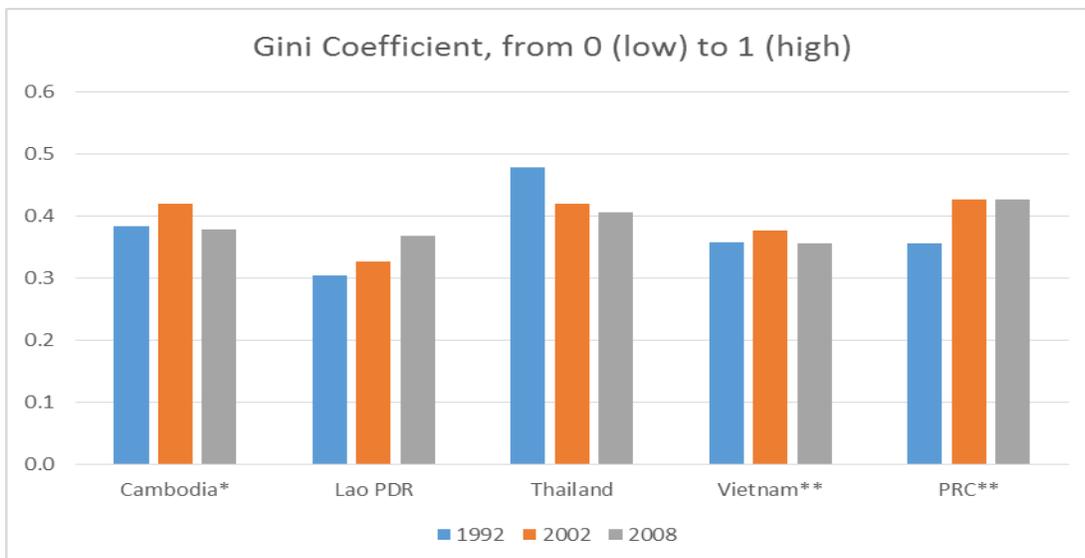
the economic corridors were implemented, the division of economic benefits is not equitable. The gap between the poorest and richest becomes even wider.

Chart 13: Income Share Held by the Lowest 20% of Population in GMS Countries



*1994 and 2004 **1993
Source: World Bank

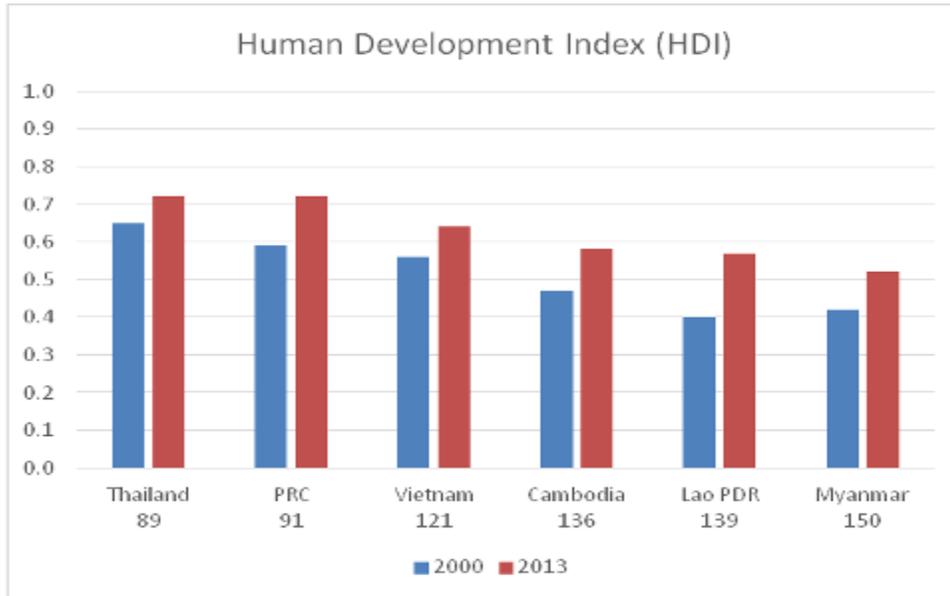
Chart 14: GINI Coefficient in GMS Countries



*1994 and 2004 **1993
Source: World Bank

Regarding human development, Chart 15 shows that all GMS countries have climbed up the human development index over the last decade. The most significant improvement can be seen in the PRC, Cambodia and Myanmar.

Chart 15: Human Development Index (HDI) in GMS Countries



Source: UNDP

Table 16 shows the Human Development Index (HDI) component; we find that life expectancy at birth gains the largest improvement during the last decade as improvement in road infrastructure provides better access to health care services. Also, in the case of Lao PDR, Cambodia, the PRC, Vietnam and Myanmar, we can see a rapid increase in years of schooling.

These findings are consistent with Menon and Warr (2006) which indicates that rural people living in the areas with inadequate roads have lower rates of school attendance, lower per capita expenditures on education, higher rates of sickness and lower likelihood of seeking treatment when ill. As a result, better road infrastructure can promote rural development via improved health conditions and higher opportunities to attend schools.

Table 16: Components of Human Development Index in GMS Countries

Components of HDI								
	Life Expectancy at Birth (years)		Mean Years of Schooling (adults age 25+)		Expected Years of Schooling		GNI per Capita at PPP (2013 US\$)	
	2005	2013	2005	2013	2005	2013	2005	2013
Thailand	68.4	74.4	5.9	7.3	13.5	13.1	8,657	13,840
PRC	72.6	75.3	7.1	7.5	10.7	12.9	4,798	11,886
Vietnam	73.8	75.9	4.9	5.5	10.4	11.9	2,460	5,066
Cambodia	59.4	71.9	5.7	5.8	9.7	10.9	1,635	2,905
Lao PDR	63.4	68.3	3.9	4.6	9.0	10.2	1,832	4,506
Myanmar	60.6	65.2	3.5	4.0	8.9	8.6	1,192	4,141

Source: UNDP (2009), World Bank

Similarly, some social indicators in Table 17 show that the CLMV countries have much better access to water sources and sanitation facilities during the last decade when economic corridors have been implemented.

Table 17: Selected Social Indicators in GMS Countries

GMS Social Indicators (% of population with access)				
	Improved Water Source		Improved Sanitation Facilities	
	2000	2012	2000	2012
Cambodia	42	71	16	37
Lao PDR	46	72	28	65
Myanmar	67	86	61	77
Thailand	92	96	91	93
Vietnam	77	95	54	75
PRC	80	92	45	65

Source: World Bank

In conclusion, we cannot see clear evidence that the implementation of economic corridors can contribute to income equitability and poverty reduction. However, the improvement in road infrastructure can promote rural and human development due to better access to necessary resources, schools and health care services.

2.2.3 Impact of Economic Corridors on Lao PDR's Rural Development and Poverty Reduction

Section 2.2.1 provides literature explaining the reasons why economic corridors can help rural development and poverty reduction. In section 2.2.2, we can see that Lao PDR does not gain a lower

income disparity and has just slightly lowered the poverty rate after the implementation of economic corridors. However, we can see a significant improvement in rural and human development.

Table 16 and 17 show that Lao PDR has a much better access to water sources, health care services and increased opportunities to attain an education.

Our findings in Section 2.2.2 complement Menon and Warr (2006). Their study points out the importance of the road infrastructure for rural development.

As shown in Table 18, before the implementation of the economic corridor projects, almost 50% of rural households in Lao PDR were located in areas with no road access in any season or only dry season access.

Table 18: Number of Rural Households near Road Access

Lao PDR: Numbers of Rural Households near Road Access					
Road access	Code	Number of Households		Percent of Households	
		LECS 2 1997-1998	LECS 3 2002-2003	LECS 2 1997-1998	LECS 3 2002-2003
No access any season	HR1	2,146.0	2,052.0	31.2	31.6
Dry season access only	HR2	1,934.0	1,050.0	28.1	16.2
All season access	HR3	2,794.0	3,386.0	40.7	52.2
All rural households		6,874.0	6,488.0	100.0	100.0

Source: Menon and Warr (2006)

Also, Menon and Warr (2006) point out the differences in poverty, standard of living and social indicators correlating to road access. As shown in Table 19, better road access brings about higher consumption expenditure, lower poverty incidence, higher school attendance, lower rates of sickness and higher access to health care services. Their study also conducts a simulation using the general equilibrium model as mentioned in Section 4.2 to show that an improvement in the road infrastructure via a reduction of transport costs can significantly reduce the poverty incidence, since such improvements can generate higher income earning opportunities and lower consumption costs. The study also mentions that an improvement from no access roads to dry season only (dirt and gravel) roads can cause a poverty reduction of 17 times more than improvement from dry season only roads to all season (paved) roads.

Similarly, our findings in Section 2.2 show an improvement in school attendance, access to water resources, health care services and better life expectancy at birth.

Table 19: Welfare of Rural Households by Road Access (2002–2003)

Lao PDR: Welfare of Rural Households by Road Access (2002–2003)				
Welfare Indicator	No Road Access	Dry Season Access Only	All Season Access	All Rural
	HR1	HR2	HR3	HR4
Real consumption expenditures per person (thousand Kip)	1,712.6	1,917.0	2,280.0	2,070.1

Poverty incidence	45.57	36.05	28.64	34.17
School attendance	51.90	70.48	80.67	69.41
Females (%)	47.54	67.82	80.00	67.06
Males (%)	56.27	72.98	81.37	71.72
Average expenditure on education (Kip per student/mo)	65,152	86,973	111,963	96,209
Proportion of persons who became ill in the last 4 weeks (%)	15.63	13.37	13.31	14.07
Of those ill, those who did not seek treatment (%)	89.80	83.16	80.69	84.35

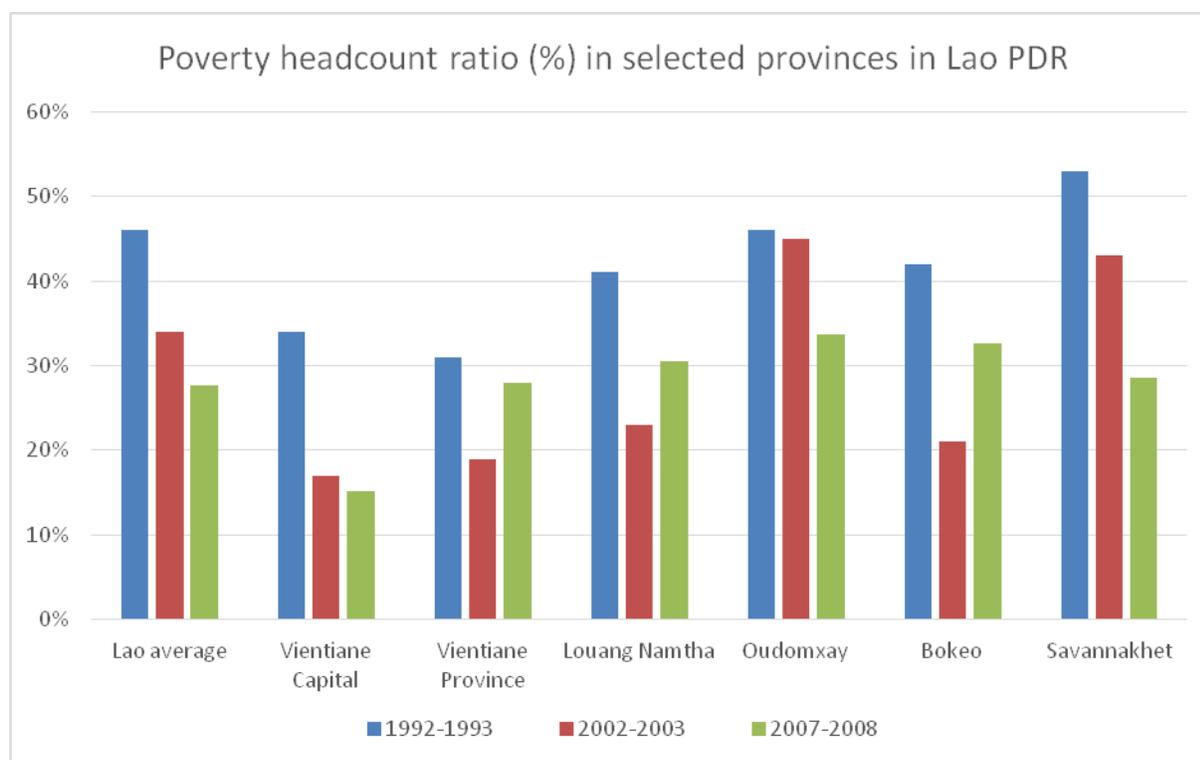
Source: Menon and Warr (2006)

If we consider provincial data, Chart 16 shows poverty ratios in each province.

There are four provinces along the economic corridors: Oudomxay, Bokeo and Louang Namtha on NSEC and Savannakhet on EWEC. Even though we can experience an impressive poverty reduction after the implementation of the economic corridors in Oudomxay and Savannakhet, the poverty ratio went up between 2002 and 2008 in Bokeo and Louang Namtha, contrary to our expectation.

This confirms our findings from Section 2.2 that economic corridors have an inconclusive role in poverty reduction and promotion of income equitability.

Chart 16: Poverty Ratio in Selected Provinces of Lao PDR



Source: UNDP (2009)

However, considering human development as shown in Table 20, we can see a massive rise in the level of development amongst all provinces along the economic corridors, similar to our findings in Section 2.2.

Table 20: Human Development Index in Selected Provinces of Lao PDR

Human Development Index, from 0 (low) to 1 (high)		
	1995	2005
Vientiane Capital	0.52	0.69
Phongsaly	0.18	0.28
Louang Namtha	0.15	0.32
Oudomxay	0.20	0.31
Bokeo	0.20	0.37
Luangprabang	0.23	0.41
Huaphanh	0.22	0.39
Xayabury	0.31	0.49
Xiengkhuang	0.28	0.43
Vientiane Province	0.36	0.52
Borikhamxay	0.29	0.46
Khammuane	0.29	0.37
Savannakhet	0.29	0.40
Saravane	0.25	0.31
Sekong	0.20	0.31
Champasak	0.33	0.47
Attapeu	0.24	0.33

Source: UNDP (2009)

If we consider rural development in detail, we can see that the provinces along the corridors have much higher average years of schooling, as shown in Table 21.

Table 21: Average Number of Schooling Years

Average Number of Schooling Years				
	2002–2003		2007–2008	
	Male	Female	Male	Female
Vientiane Capital	8	7	10	9
Phongsaly	4	4	7	5
Louang Namtha	5	4	7	5
Oudomxay	4	3	8	5
Bokeo	4	4	8	6
Luangprabang	5	4	9	7
Huaphanh	5	4	9	7
Xayabury	6	5	9	8
Xiengkhuang	5	4	9	8
Vientiane Province	6	5	9	8

Borikhamxay	5	5	9	9
Khammuane	5	4	9	7
Savannakhet	5	5	8	7
Saravane	4	4	8	6
Sekong	4	3	8	6
Champasak	5	5	10	8
Attapeu	5	4	9	8

Source: UNDP (2009)

However, this trend is countrywide so economic corridors may not play an important role here. However, we can see a sharp increase in accessibility to roads and electricity after the implementation of the economic corridors and infrastructure development for communities located in provinces along the economic corridors in comparison to the rest of the country 10 years ago, as shown in Table 22.

Table 22: Access of Electricity or Road Infrastructure

	Percentage of Villages							
	With Electricity		Accessible during Dry Season		Accessible during Rainy Season		Bus Stop Availability in Village	
	2002-2003	2007-2008	2002-2003	2007-2008	2002-2003	2007-2008	2002-2003	2007-2008
Vientiane Capital	100	100	100	100	100	100	98	88
Vientiane Province	54	84	93	100	92	100	74	76
Louang Namtha	6	52	47	100	34	89	34	74
Oudomxay	9	33	51	100	26	65	26	52
Bokeo	14	54	76	95	44	65	46	58
Svannakhet	35	69	96	100	64	87	44	69

Source: UNDP (2009)

In conclusion, we cannot see strong evidence to support the theoretical claim that economic corridors contribute to poverty reduction in the communities along the projects. Also, apart from better road and utility accessibilities, we cannot see a substantial improvement in the rural development compared with other communities located outside the economic corridors.

As a result, we can only conclude that the economic corridors improve road infrastructure, accessibility to utilities, health care services and schools. However, the role of the economic corridors in rural development in Lao PDR is inconclusive. Our findings are similar to Andriessse and Phommalath (2012) who study the impact of the EWEC on rural development in communities of Savannakhet Province. Their study finds that the implementation of the EWEC results in the increased movement of labor from Savannakhet's communities to Thailand, a normal phenomena, between the two countries even before the economic corridor was envisioned. However, this movement along the corridor and into Thailand does not promote the community development that the ADB expected.

2.3 Seventh Five-Year National Socio-Economic Development Plan (NSED) of Lao PDR

The last section points out that, even though the implementation of economic corridors can promote Lao PDR's economic growth via trade and investment, Lao PDR cannot benefit from the

corridors to attain poverty reduction and rural development. As a result, the government's strategic plan to promote rural development is a crucial factor for Lao PDR in order to create a linkage between road infrastructure improvement and rural development.

The major long term development plan for Lao PDR is the Seventh Five-Year National Socio-Economic Development Plan (NSEDP 2011–2015 or NSEDP-7)³⁹. The plan draws strengths from the internal environment, which is a politically stable Lao PDR, having a strong social order, market economy and centralized political system to be engines of socio-economic development.

Lao PDR is recognizing the need for a commercialized economy, established via an expanding production base; the government intends to undertake an effective and optimum utilization of natural resources, mainly land, forests, water, humid weather, quantity of rain and minerals for planting industrial wood with high value, intensifying rice yield rates and promoting an organic (non-chemical) agriculture base.

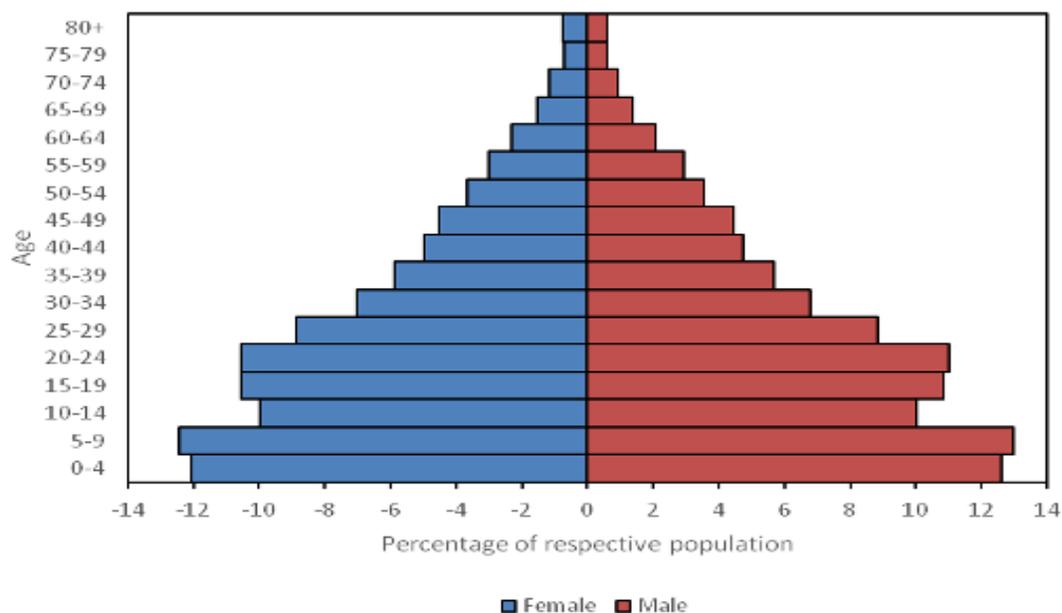
The growth plan takes into account that Lao PDR is centrally located within the GMS, linking up with other ASEAN countries, PRC, Korea and Japan; therefore, it is in the best geographical position to construct cross-border service centers that connect other countries, regions and the wider global economic framework.

The NSEDP 2011-2015 states that, "...majority of the population of the Lao PDR is young, with 50% of the total population under the age of 20..." The policy also estimates that by 2015, there will be 2.54 million aged 0-14 years; 4.1 million aged between 15-64 years. It further projects that the labor force, which increased from 51% in 1995 to 57% in 2005, will increase further to 60% by 2015, (see Chart 18).

Lao PDR's government has recognized that within the projected development plans, the young workforce will induce positive impacts, yet, there is a need to empower this young population to become a productive workforce that contributes to national development, effectively and efficiently matching the regional and international competitiveness which the country will face during the upcoming regional integration into AEC 2015.

³⁹ Lao PDR NSEDP 2011 – 2015 full document available at
http://www.undp.org/content/dam/laopdr/docs/Reports%20and%20publications/LA_7th%20NSEDP_Eng.pdf

Chart 17: Lao PDR Government Population Projection for 2015



Source: Lao PDR Population Census 2005

The plan also takes into account the internal constraints largely that Lao PDR’s economy still relies largely on natural resources, semi-processed activities and agriculture products. Furthermore, manufacturing is still nascent and the scarcity of human resources hinders the country to compete effectively in the global market economy; also, its status as one of the least developed countries contributes to the notion that there is still a lot of poverty.

2.3.1 NSEDP 2011–2015 Targets

The overall targets of the NSEDP 2011–2015⁴⁰ are to:

1. Maintain economic growth in a stable and progressive manner at more than 8% per year. GDP per capita estimation for 2015 is approximately US\$1700 per person per year at current prices.
2. Achieve the MDGs (including poverty reduction) and full integration with the ASEAN Community by 2015, acquire modern technologies and infrastructure and establish a diverse economic foundation to help the country graduate from LDC status by 2020.
3. Ensure sustainable development by integrating economic development with socio-cultural development and environment protection to the nation’s advantage.
4. Ensure political stability, fairness, order in the society and maintain public security and support for regional and international integration.

⁴⁰ The following paragraphs are excerpts from Lao PDR NSEDP 2011 – 2015, pp 79, full document available at http://www.undp.org/content/dam/laopdr/docs/Reports%20and%20publications/LA_7th%20NSEDP_Eng.pdf

2.3.2 NSEDP 2011–2015 Major Directions

The major directions of NSEDP 2011–2015⁴¹ set to achieve the above overall targets are:

1. Developing a strong and stable macroeconomic foundation to ensure strong growth; focusing on market-responsive mechanisms under the state; ensuring security and steady, macro-economic and economic growth. Boosting the economic and structural labor change through industrialization and modernization; applying modern scientific and technological methods; promoting cultural and social development; reducing poverty and scaling up human development; protecting and sustaining the environment and planning to mitigate climate change, especially preserving and enhancing forest cover, and conserving water; raising the efficiency of the production processes; working on comparative advantages of different economic sectors and supporting small and medium enterprises.
2. Finding solutions to endemic poverty; boosting rural development and poverty reduction (in line with building capacity along the four goals and four targets); allocating land, creating stable jobs, and improving livelihoods; ensuring fairness in society; reducing inequality between urban and rural areas, rich and poor people and all genders through encouraging knowledge and education for everyone; preventing diseases and providing better health care; creating basic infrastructure in villages and Kumbans; establishing more development villages and reducing the risk of unexploded ordnances (UXO).
3. Expanding human resources, promoting Lao culture and maintaining societal harmony in line with economic development; building upon the material and moral threads of the society; improving the capability of civil staff through educational reforms, for instance, improving and widening educational opportunities; nurturing an intellectual environment throughout society by strengthening higher education and encouraging local talent, promoting better health and hygiene awareness; building up capable management staff, highly experienced technical staff and skilled workers; developing human resources amongst people in localized surroundings (especially for rural development); promoting gender equity, empowering women and protecting children's rights; promoting policies for empowering youth in order that they become harbingers of socio-economic development; preserving and expanding the beautiful customs of the Lao people, along with widening international cultural exchanges and improving the information sector.
4. Strengthening public administration from a central to grass roots level; promoting democracy through the state's legal mechanisms where the central level administrates while the local/grass roots level implements; ensuring equality and fairness in society; controlling corruption; promoting savings and avoiding unnecessary expenditures; resolving social issues uniformly across the country in a timely manner by creating structures at different levels and delineating the roles between central and local authorities, while expanding ownership of creativities and promoting local potentials and, lastly, implementing laws approved by the National Assembly in all sincerity.

⁴¹ The following paragraphs are excerpts from Lao PDR NSEDP 2011 – 2015, pp 79 – 81, full document available at http://www.undp.org/content/dam/laopdr/docs/Reports%20and%20publications/LA_7th%20NSEDP_Eng.pdf

5. Ensuring defense and security nationwide; encouraging stable politics, peace and social order; improving mechanisms, regime and regulations regarding human migration; and strengthening and modernizing the armed forces.
6. Mobilizing social forces for development; regenerating natural resources to utilize them more effectively and sustainably; expanding friendship and cooperation with countries in the region and beyond; enlarging linkages and competitive capacities at the international level through local and foreign investments; creating comprehensive infrastructure systems and formulating policies to encourage investments into every economic sector, especially in pre-identified hubs.
7. Promoting industrialization and modernization, with a focus on sectors and regions where there are supportive conditions and potentials; reducing development gaps (with other nations); implementing mega-projects most effectively to create a strong industrial foundation and encouraging SME cooperative and household enterprises to utilize newer technologies to improve their productivity as well as increase their effectiveness.

2.4 National Growth and Poverty Eradication Strategy (NGPES)

Apart from the NSEDP 2011–2015, the Lao PDR government has a development agenda called “The National Growth and Poverty Eradication Strategy (NGPES)” with the particular aim to leave the UN’s list of LDC by 2020 and to achieve the Millennium Development Goals (MDG) by 2015.⁴²

Under the broad framework of the NGPES, the Lao PDR government’s long-term national development goal is focused on, “...sustained equitable economic growth and social development, while safeguarding the country’s social, cultural, economic and political identity...” and for this the policy outlines three main foundations: moving consistently towards a market-oriented economy, building up necessary infrastructure throughout the country and improving the well-being of the people through greater food security, extension of social services, environmental conservation and enhancement of spiritual and cultural life of Lao PDR’s multi-ethnic population. In November 2000, an additional strategic, medium-term approach was unveiled by the Lao PDR government which states, “*Fighting Poverty through Human Resource Development, Rural Development and People’s Participation*”, it refined its 2020 vision further by outlining its specific poverty reduction targets for 2005, 2010 and 2020 while prioritizing industrialization and modernization.

To achieve the development goal by 2020, Lao PDR needs to achieve two out of three criteria to qualify for the graduation, in particular:

- i) The Gross National Income (GNI) per capita; the threshold for graduation is \$1,086.
- ii) The Human Asset Index (HAI); the threshold for graduation is more than 86.
- iii) The Economic Vulnerability Index (VI); the threshold for graduation is less than 32.

In 2011, Lao PDR had a GNI per capita equal to \$1,156, HAI equal to 62.3 and VI equal to 59.9. As a result, Leebouapao (2011) suggests that the Lao PDR government should concentrate on the first

⁴² Lao PDR NGPES full document available at <http://www.la.undp.org/content/dam/laopdr/docs/Reports%20and%20publications/Lao%20PDR%20-%20NGPES%20-%20Main%20Document.pdf>

two criteria. Also, Leebouapao (2011) gives policy recommendations for the Lao government to achieve its development goal by 2020 as follows:

1. Increase labor and production productivity, diversify the economy for growth with equity and improve macro-economic management to ensure economic stability.
2. Foster human capital to improve human development index and HAI.
3. Ensure environmental sustainability.
4. Develop economic infrastructure, which includes the expansion of domestic road networks between urban and rural areas, modernization of international airports, promotion and utilization of the economic corridors and other infrastructure projects from regional cooperation and encouragement of Public-Private-Partnership for infrastructure projects.
5. Increase in firm competitiveness via reduction of transportation cost, promotion of high quality products, improvement in investment climate, capacity building and R&D.
6. Develop a sustainable social safety net.

2.5 Chapter Conclusions

Multiple pieces of literature provide a theoretical framework to support the notion that better road infrastructure, such as economic corridors, can contribute to economic growth. The macro-economic figures in this chapter indicate the same conclusion. We observed that GMS countries and Lao PDR experienced faster economic growth and higher international trade during the last decade after economic corridors were implemented. Also, we can see a change in the economic structure of GMS countries and Lao PDR that shows a movement toward manufacturing and service sectors.

When Lao PDR's macro statistics are considered, we can see that Lao PDR has made a huge improvement in economic performance after the implementation of economic corridors. The main contributors to better economic growth are international trade expansion and improvement in foreign direct investment in Lao PDR.

Considering the impact of economic corridors on rural development and poverty reduction, literature suggests that economic corridors can contribute to these two interconnected issues via international trade expansion which brings about production expansion and higher factor revenues, lower import costs which result in cheaper consumption, and increase in government revenues. However, when we consider related statistics of Lao PDR, we cannot see clear evidence to support that economic corridor implementation leads to income equitability and poverty reduction. We can only observe better access to necessary resources such as water and utilities, schools and health care services.

When we observe Lao PDR provincial data, we cannot see the differences between improvement in poverty reduction and human development such as better education of the provinces along economic corridors and the other provinces. Also, the country experienced a higher poverty ratio between 2002 and 2008 in some provinces along the corridors. The only strong evidence we note is that the provinces along the economic corridors have better road and utility accessibilities. We cannot see a substantial improvement in rural development, human development and poverty reduction of the provinces located along the corridors in comparison to other communities located outside the corridors. As a result, the role of the economic corridors in rural development and poverty reduction in the Lao PDR is still inconclusive.

In the case of Lao PDR, any of the economic corridor development plans should be linked with the ongoing efforts under the 7th NSEDP focused on poverty reduction, integrating economic development with socio-cultural development and environmental protection. The major directions of NSEDP 2011–2015 indicate that there will be establishment of various guidelines for development planning especially in regard to boosting the economic and labour structural change through industrialization and modernization; applying modern scientific and technological methods; reducing poverty and scaling up human development; protecting and sustaining the environment and planning to mitigate climate change, especially preserving and enhancing forest cover and conserving water. Boosting rural development and poverty reduction; allocating land, creating stable jobs and raising livelihoods; reducing inequality between urban and rural areas; creating basic infrastructure in villages and Kumbans and establishing more development villages are some of the key thrusts which could be strongly linked with NSEDP development in Lao PDR.

With low population growth, the Lao government would find it difficult to maintain the demand for the industrial sector's manpower needs and will have to consider migrant workers recruitment from neighboring countries in order to meet the demands by assessing their present labour policy for it to be in line with GMS and ASEAN regional integration labour migration movement and technical skills recognition. Alternatively, the government will have to consider policy initiatives for better health care, free primary education facilities and up-to date industrial and technical vocational skills development for the young and middle-age Lao citizens in order to ensure that they are a competitive labour force both within the domestic market and within the post-AEC 2015 scenario.

Promoting industrial and modernization efforts will have to be strongly linked with an effective and efficient land management policy; additionally, reinforcing transparent and accountable public administration of natural resources and rule of law through developing the state's legal mechanism while promoting and encouraging SMEs and other businesses.

The planning and development of the 8th Five-Year plan, or 8th NSEDP, will have to consider the major developments that have taken place due to ongoing economic corridor development. The government will have to consider the need for strengthening environmental sustainability, maintaining biodiversity, ensuring local food security needs, increasing commercial agro-business, expanding of road networks between urban and rural areas, increasing labour and production and promoting local economic development activities linked to strong land management policy implementation.

CHAPTER 3: CONCISE FIELD-RESEARCH OBSERVATION'S & FINDING CONCLUSIONS

This section aims to review the survey analysis, with the purpose of assessing the impact of one of the GMS corridors in regard to regional rural economic development and the resulting life changes for the poor, rural population. For details on target villages please refer to Annex 2: Detailed Outcomes of Field Work in this report.

As described in the literature review above, there are a number of changes in the research target villages after the completion of Route No.3A construction and its related socio-economic activities began.

The overall impact (positive or negative) is, therefore, assessed on overall economic growth and income of the poor, impact on agriculture and forest areas, migration flow (local and cross-border) and social impacts.

The literature review in the above chapters regarding the impact of economic corridors on rural development and poverty reduction provides linkages between economic corridors and rural development/poverty reduction as also show in the Figure 2.

In this chapter, we refer to such framework to analyze the impact of NSEC on rural development, rural livelihood and poverty reduction using the survey data collected. Based on the leading research questions, research framework and the feedback received by the key stakeholders interviewed the following has emerged:

3.1 Hypothetical Framework of the Impact of NSEC on Rural Livelihood

As a dictionary term, impact means the powerful effect that something has on something else. In development studies, for instance, it is defined as the longer-term, largely indirect consequences of the program or project for the beneficiaries and any other people.⁴³ Taking into account the nature of NSEC as a regional development context, this study defines impact as the long-term, both positive and negative, consequences of a regional development for a certain large number of beneficiaries and any other people in the region.

As an outcome of the fieldwork, the research team proposes a hypothetical framework (Table 23) of the impact of NSEC on rural livelihood in Bokeo and Louang Namtha Province. This hypothetical framework is composed of two major parts:

- (i) Topographic distribution of livelihood components; for example, residential area, lowland, river, upland, forest and village extremities (neighbor villages, other villages/town or China/Thailand)
- (ii) Changes observed in the research target villages after the completion of Route No.3 construction, including the major findings of the fieldwork (refer to Diagram of the Hypothetical Framework of the Impact of NSEC on Rural Livelihood)

The hypothetical framework of NSEC's impact on rural livelihood indicates the same or similar patterns that will likely be observed in each category in other regional villages under the same or similar

⁴³ Dale (1998) *Evaluation Frameworks for Development Programmes and Projects*. Sage Publication, New Delhi

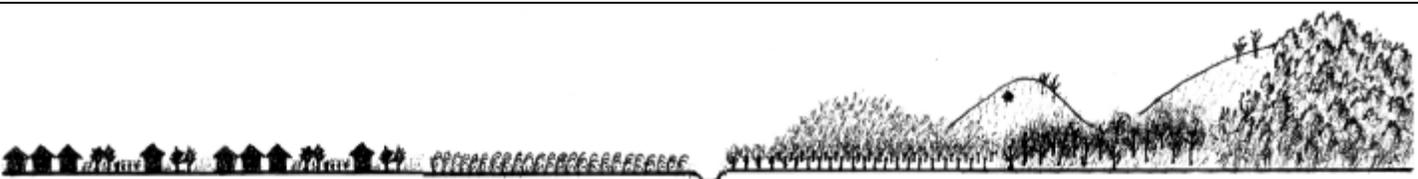
topographic characteristics. The research team believes this hypothetical framework will provide development practitioners and other concerned government officials with a practical overview to understand NSEC's regional impact on rural livelihood. For instance, if DAFO of Vieng Phoukha District had adopted this hypothetical framework, the staff might have noticed that Baan Nam Ngeun was not appropriate as a target village to promote a bio-gas system utilizing cow dung as material for natural gas production, because pasture area had already shrunken as rubber cultivation area expanded in the village.

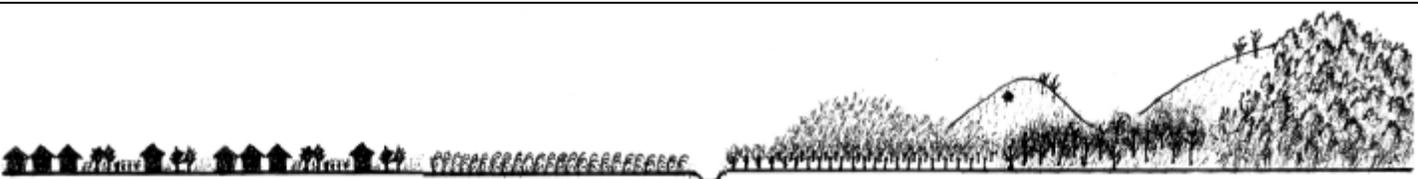
In the use of this hypothetical framework, it is important to analyze the inter-connectedness between each component. For example, the drastic decline in available numbers of wild animals and NTFPs near the village has resulted in the current situation in which villagers now have to go deeper forest to hunt wild animals and collect NTFPs. This means they have to spend a longer amount of time to obtain these natural food sources. Such time intensive foraging and hunting has resulted in the use of herbicides for controlling weeds in rubber cultivation areas in some villages; this minimizes the household labor input (i.e. chemical sprays versus manual weeding with machetes).

Similarly, the use of chemicals in rubber and banana plantations in upland areas resulted in the contamination of drinking water sources (though it was not scientifically verified at the moment). As a result, some villagers have to buy bottled drinking water. Bottled drinking water became available for these villagers because the market access improved; therefore local drinking water companies expanded their delivery service to the village. Yet villagers have to buy bottled drinking water regardless of having a stable source of income or not.

The government's relocation policy increased some village populations in the region. Rural villagers largely rely on natural food materials for their food security. As a result, it became more and more difficult to catch natural fish in the river and stream, hunt wild animals and collect NTFPs, fuel-wood and wild vegetables in the forest area nearby. Needless to say, the most negatively affected by the relocation and increased population of villages are the poor households who were competing for depleting natural resources in a competing environment.

Table 23: Diagram of the Hypothetical Framework of the Impact of NSEC on Rural Livelihood



						Neighbor Villages, Other Villages/Towns or China/Thailand
Area	Residential Area	Lowland	River	Upland	Forest	
Water Sources	Drinking Water: Tap water, well, bottled water Daily Use: Tap water, well, pond, river water	Rain water, irrigation (in some villages)	River	Rain water, stream, spring water (often used for tap water source)	Rain water, stream, spring water (often used for tap water source)	- Local drinking water companies deliver bottled water to villages
Food Sources	Home Garden: Onion, cabbage, basil, Chinese cabbage, flowering cabbage, chili, pumpkin, galangal, eggplant, garlic, lettuce, shallot, cucumber, coriander, long bean, tamarind, mango, papaya, lime, jackfruit, banana, coconut, pomelo, etc. Livestock: Chicken, duck, pig, goat	Rice	Fish	Rice, maize	Mushrooms, wild vegetables, bamboo shoot, rattan shoot, rat, birds, squirrel, frog, snake, deer, wild pig, etc.	- Various kinds of vegetables and fruits, fish, animal meats are purchased in markets - Chinese traders sell fish in villages
Income Sources	Crops: Cabbage Livestock: Beef cattle, water buffalo, goat, pig Others: Business, wage work	Rice, watermelon, mak nam man, mak daeng, sugarcane		Rubber, banana, maize, cardamom, Job's tears	Broom grass, cardamom, bitter bamboo shoot, nam tiang, kii sii	- Wage work at neighbor's farm or other villages/towns - Business in urban areas
Others	Pasture for livestock	Pasture for livestock (dry season)		Pasture for livestock, source of fuel-wood	Source of fuel-wood	- Technology transferred from China (rubber) - Materials transferred from

					Thailand (fingerling)
Changes in the Past 10 Years	<ul style="list-style-type: none"> - Access to education facilities improved - Access to health facilities improved - Access to market improved - Some villagers have to buy bottled drinking water because of contamination of their drinking water sources - The government's relocation policy increased village population 	<ul style="list-style-type: none"> - Chinese companies introduced new crops under the contract farming - Grazing area shrank due to watermelon cultivation during dry season 	<ul style="list-style-type: none"> Chemical/artificial fertilizer is often used in upland rice cultivation - Numbers of natural fish reduced - Chemicals used in rubber and banana plantations contaminated water sources - Grazing area shrank as rubber and banana plantations expanded 	<ul style="list-style-type: none"> - Number of wild animals and NTFPs drastically reduced near the village - Villagers have to go deeper into the forest to hunt wild animals and collect NTFPs and fuel-wood 	<ul style="list-style-type: none"> - Number of (Chinese) companies contracted with farmers drastically increased - Number of Chinese traders visiting villages increased

Source: Tetsuya Kanno, Sanjay Gathia, Thiphaphone Phetmany, MDP Research Team, Mekong Institute, June 2014, based on data and information obtained during the fieldwork in targeted villages located on R3A.

3.2 Impact of Economic Corridor on Rural Economic Development and Rural Livelihood

This chapter has been written post-data collection from primary information about the R3A section in Laos. Most of the views reflected in this section are based on the verbal information provided by the different local stakeholders.

In this chapter, we show the results from secondary data and literature which concludes that economic corridors have positive impacts on economic growth. However, the impact of the economic corridors on rural development, poverty reduction and rural livelihood is still inconclusive. In the next section, we will illustrate our survey results to consider whether economic corridors can contribute to the three mentioned aspects or not.

3.2.1 Economic and Income Growth of Rural Population

During the interviews with relevant stakeholders, which included the provincial government agencies, local village entrepreneurs, village heads and villagers themselves; verbal confirmation was given to the research team by that most of the community did benefit from the corridor economically. The fact that more and more goods, investors and other traders were coming from across the border, specifically Chinese and Thai investors, and the community was benefitting from this.

Most stated that with the increased income from contract farming, livestock sales and increased mobility have affected lifestyle changes as well.

3.2.1.1 Increased Road Connectivity, Transportation and Mobility

Most villagers and stakeholders, whom MI research team met with during research, agreed that there was an increased connection of their village and local area with other neighboring areas as well as provincial capitals and other markets. According to the interviews, this was also increasing their connectivity with their ethnic kith and kin who were living in other parts of the country or across borders in Thailand or China; they could now get connected with more ease than before when the corridor was non-existent. In Baan Nam Ngeun and Baan Soun Ya, some villagers indicated an important role of strong ethnic, group-based kinship ties with their counterparts in China. Such a kinship tie has helped them in technology transfer of rubber cultivation as well as cross-border trading.

In some of the target villages just next to R3A, a few shop owner's informally tied up with some of the lorry drivers who frequently traverse R3A; this informal system has been arranged in order to bring products or other necessary items to and for their extended family, kith-an-kin across the border in exchange and/or barter for various products or food they would have.

In Baan Prang, the largest fishpond owner has five ponds and manages fish raising with the help of his Thai son-in-law (a truck driver), who supplies him with necessary fingerlings and feed from Thailand. This is a case of cross-border technology transfer through a kinship tie between Laos and Thailand.

Due to the increased commercial activity, most of the villagers admitted that it had increased their monthly income and now most of them owned hand-tractors, pick-up trucks, motorcycles and bicycles for

their farming and non-farming activities, including attending family functions, trips to the hospital and for children to attend schools in locations that may be far from their home village.

3.2.1.2 Increased Investments and Use of Telecommunications

According to the interviews, along with the increased road connectivity of the various villages to the economic corridor road, there was arrival of small and medium traders, intermediaries (middlemen) and investors interested in various cash crops that could be grown or collected by the villagers for sale to other local markets or barter for other products they were selling. Most of the stakeholders mentioned that the investments were mostly for cash crops which include banana, rubber, Job's tears, watermelon, etc. Most were Chinese investors who were interested in long-term contractual farming focused on the cash crops, and that they paid good money. Only recently, there was an interest by one Chinese investor to grow a small-scale bio-oil plant under contract farming arrangement..

As per the interviewees, due to the availability of mobile phones and network connectivity in and around the village areas (especially in mountainous regions), most of the villagers would use them to be in touch with small and medium traders or intermediaries about any small business opportunities that would be available. Some of the youngsters were using this to be in touch with various small vocational job shops, i.e. garages, carpenter and/or electronics, so as to find any temporary jobs that would fetch them extra income during non-farming seasons. Some of the low-income households would also use mobile phones to be in touch with other contract farmers who may require extra farm hands or other odd jobs.

Some of the ethnic groups were also in touch with their kith and kin across border and would use mobile phones for communication for any business opportunities that were regular or on an as-needed basis that could be explored. They also could access information from their network of small and medium traders or intermediaries on product supply and demand or regarding livestock sales. This was mostly in border areas where mobile networks of neighboring countries were accessible on the local sim card of that country.

3.2.1.3 Contract Farming and Inter-community Job Creation

As per the interviews, with the increase in the number of investors coming with offers for various commercial crop plantations and cultivation, the local farmers shared that they were able to earn income from the contract farming by renting out their land or agreeing to grow specific crops for a certain number of years. Concerns were expressed to the research team about the ongoing fluctuation in rubber prices as most of them were going to tap rubber from the plantations in a year or upon the trees' maturity.

Upon agreeing for the contract farming, some villagers were also under pressure to cultivate their land according to the investors requirement, however, due to lack of extra farm hands or available labour force, they would negotiate with other villagers in their community or surrounding villages who were looking for extra work. Most of them seem to agree upon a mutual barter system that helps each other with farm work as and when required.

3.2.1.4 Access to Local and Cross-Border Markets

The improvement in the road condition of Route No.3 and the change in available transportation means widened the villagers' access to market. In some villages, villagers organised groups by themselves and started such business as village intermediaries, traders and transportation service.

On the other hand, the numbers (and frequency) of outside intermediaries and traders coming to the villages also increased. These intermediaries and traders are not only Laotian but also Chinese and Vietnamese. The villagers can buy foods and goods from these intermediaries and traders, while they can sell their produces and products to these outsiders.

3.2.1.5 Service and Tourism Sector Development

According to the interviews, there was increase in the service and tourism sectors along the R3A in Louang Namtha and Bokeo Province.

Some of the villages seen by the research team along the R3A were marked as Cultural Villages, supported by ADB and other international agencies in the past. However, most of the interviewees mentioned that initially they were able to attract tourists, however, now the numbers have dwindled, and most of the tourist busses would just pass their villages on R3A without a stop. Some of the interviewees felt that most of them changed their lifestyle to suit modern living standards, and they no longer followed traditional lifestyle as in the past; most tourists that had come earlier for a unique cultural experience; now with the changes, perhaps the tourist attraction has been lost.

Most of the interviews mentioned that they would get tourists who would come for a short time to the village, either to buy locally made souvenirs or for a one to two day eco-tourism backpacking trip into the natural forest areas nearby.

Villagers mentioned that there was little income earned from it as it was not a constant flow of tourists and that most villages had agreed service provision on a rotational basis to the eco-tourist agencies they had tied up with to become porters and local forest guides. Most of the tourist flow was seasonal and consisted of backpackers who were interested in visiting remote areas as opposed to high-end tourists who were interested in cities and other touristic pleasures it offered.

According to the interviews, most of the investors who came would also stay in hotels and guesthouses in nearby provincial towns or at convenient locations near the village for visiting their areas of interest at their convenience. Due to the increase in the arrivals of investors, some villagers had made small investments in building guesthouses, especially in the small provincial capital towns of Houay Xai, Vieng Poukha and Louang Namtha to cater to such clients, including development of various eco-tourism concepts that cater to backpackers. According to the villagers, villages who have tied up with tourism agencies have somewhat benefited local villagers who would provide transportation and other services if hired.

As per the information provided by the officials, most of the eco-tourism projects in the two provinces were being coordinated by the provincial tourism offices in cooperation with the agents and village community leaders.

3.2.1.6 Land Management and Real Estate Prices

Most of the communities who were relocated from interior locations or areas along the R3A/NSEC to areas closer or adjacent to R3A/NSEC complained about the location which impacted their current land holdings versus their original land holdings, subsistence farming practices and ability to keep big cattle and small domestic animals. Some of the villagers in the border areas who were moved out of the Special Economic Zones (SEZ), complained about the non-competitive market price forced upon the villagers towards the price of their houses and land they had to give up, while big concessions' and tax-benefits were given to the corporate sector investing in their former land holdings.

Some were upset that proper resettlement of the community was not done and the kind of house and personal land that was taken by the government or lost in the process of R3A development, was not adequately compensated with similar value and assets. As per the interview in Bo Piet and Bo Ten near the Chinese border, most struggled to start new commercial activities or occupations again, with less monetary compensation, including decrease land area allocated to them. This resulted in a negative feeling towards the R3A development and associated activities, including the corporate sectors that are operating there, as expressed by interviewees.

According to the interviewees, the community expected better land management and market-based resettlement compensation from the government as part of the ongoing development process along the economic corridor. The loss of real estate prices for the community and other individuals only made them feel under-valued as they were small villagers in rural communities or border areas but also made them feel as second class citizens in their own country compared to the preferential treatment given to corporate sector.

3.2.1.7 Increase in Personal Household Income and Assets

Some interviewees mentioned that a portion of the villagers felt an immediate benefit from the advance down payment for their leased land to carry out contract farming. As per the target village community, it resulted in the increase in their personal household income and the household assets they owned, either commercial or agricultural.

Some of the interviewees mentioned that with the new disposable household income, they were able to buy new mini-trucks, pick-up trucks, motorcycles, bicycles and hand tractors; additionally, they were able repair their wooden houses or build new, modern brick ones. Some villagers were buying new TVs and other household gadgets that would suit their daily household needs, including new mobile phones and/or smartphone's as their lifestyles were changing. Others used their new disposable income to buy more large and small livestock to add to their households' assets.

3.2.2 Impact on Agriculture and Natural Resources along NSEC

3.2.2.1 Expansions in Contract Farming Practices along NSEC

During discussions with various stakeholders, it was known that most investors preferred long-term leases to the various contract farming concessions that are awarded while negotiating with

government institutions. This was with an eye to increase investments with certain tax-benefits for a long-term investment plan. For the small-contract farmers, having long-term contracts meant that their income during the non-productive years was limited to monthly rentals, while most of their time was spent managing and taking care of the contract crop with little or no opportunity for additional income.

As per the interviews, many of the farmers were able to gain good monthly rentals due to the land fertility, location and proximity to the R3A and the kind of crop and price on yields per-hectare. Additionally, it was observed that trade facilitation along the economic corridors has facilitated exporting, importing and consumption of agricultural and non-agricultural products across borders as the opportunities for both the rural and border communities in the provinces along the R3A to deliver products in short period of time. For most of the agricultural business, more commercial crop farming means good money as fresh produce can be transported and/or exported quickly and, perhaps, to new market areas while maintaining its quality and in larger quantities.

Northern Lao PDR has plenty of natural resources; there is fertile land for plantations and most investors see it as a good area for agriculture and agricultural processing where rice, rubber, large livestock, soybean, banana and watermelons can be grown on a large scale. As per interviews with provincial departments, such investments are already being planned under the overall supervision of the Provincial Governor's Office and implemented by the Provincial Department of Planning and Investments.

Contract farming is observed in almost all the research target villages (except Baan Bo Piet). These crops under the contract farming include rubber, Job's tears, banana, maize, sugarcane, watermelon, mak nam man⁴⁴ and mak daeng⁴⁵. Banana cultivation (including its seedling cultivation) in Bokeo Province and the dry season cultivation of watermelon in Louang Namtha Province on leased farmland from villagers to private enterprises were recently introduced by Chinese companies. These commercial crops cultivated under contract farming constitute a certain large share of household income (though the research team could not identify its share, because it was out of the scope of this research) in the research's target villages.

In general, contract farming has widened income generation opportunities for villagers. However, rubber and banana cultivation contract farming seem to have a negative impact on rural livelihood in the area.

The most widely observed crop under contract farming in the research's target villages was rubber. Under rubber cultivation contract farming, contract farmers manage land and labor, while the company provides seedling, technologies and marketing (purchased rubber latex at a guaranteed price).⁴⁶ It takes seven to eight years for rubber trees to reach a maturity level that is adequate for rubber latex extraction. Until rubber trees' branches and leaves grow large enough to shade the soil beneath, there is a high need and input for intensive weeding. There are two options to manage weeding problems during this immature period. The first is to use herbicide. The second is to weed manually with by farmers or wage laborers. The villagers prefer herbicide use to manual weeding because the former costs lesser

⁴⁴ English name Kao Oil Tree or Vernicia Montana tentatively.

⁴⁵ Red fruit, several palm fruits are called so in Laos.

⁴⁶ In a case of Baan Prang, the sales price of rubber latex price in 2013 was about 14,300 Kip/kg (400,000 Kip for 28 kg of rubber latex).

than the latter.⁴⁷ As mentioned later again, according to the villagers in some target villages (Baan Phu Van Tai, Baan Pang Phou Leub and Baan Nam Ngeun), the use of herbicide for weeding during the immature period of rubber trees resulted in water source contamination in upland areas.

According to villagers from Baan Phu Van Tai and Baan Nam Ngao, similar water contamination problems occurred in the area where Chinese companies recently started to cultivate banana and banana seedlings in Bokeo Province. Some of them experienced unusual symptoms such as eye problems, headaches and rashes/itching on their skin soon after the banana plantation operation began. Currently, due to the lack of clean, healthy drinking water, they are forced to buy bottled drinking water.

Because the scientific verification of the contaminated water was beyond the ability of the research team, further detailed investigation will be required on this water contamination issue.

3.2.2.2 Local Forest Area and Food Security Situation

According to the interviews, while there has been an increase in commercial crop plantations, the land area remains the same for the village to carry out more and more commercial plantations as investors demand. This has resulted in competition for space; therefore, communities are expanding the plantation areas into more and more lowland and upland areas, going beyond the community areas and into the common forest areas. Interviews revealed that the growing demand for commercial land indirectly affects NTFPs and other forest produce which are collected by the villagers on an almost daily basis for household consumption, bartering for other necessary produce and/or selling at the local market for extra income in order to buy basic household items.

Interviewees also expressed that there has been local population growth in combination with an increase in commercial plantations, resulting in competition for local resources and pressure for the community to seek more and more from nearby common areas. Impact is seen on the local forest produce; the community is finding it more and more difficult and time intensive to gather natural produce as they are facing depletion along with a loss of biodiversity.

As revealed in the interviews, most of the ethnic communities are facing more and more challenges in gathering NTFPs and other forest produce for food and household consumption. Some of them travel by foot while others by motorcycle and/or pick-up truck to cover the increasing distance of the common forest from the community area. The reduced NTFP gathering and increased time taken is impacting the village food security situation and might further escalate challenges to food security if not adequately addressed along with the impacted communities.

3.2.2.3 Decline in Raising Large Livestock

In some research target villages (Baan Phu Van Tai, Baan Donchai, Baan Pang Phou Leub, and Baan Nam Ngeun), a decline in the number of beef cattle and/or water buffalo was observed. According

⁴⁷ According to the villagers in Baan Bo Piet, they use 30 liter of herbicide for 600 rubber trees in the first year, and its use gradually reduce to 20 liter in the second year and 10 liter in the third year. If manual weeding is applied by hiring laborers, it costs 1,000 Kip/tree.

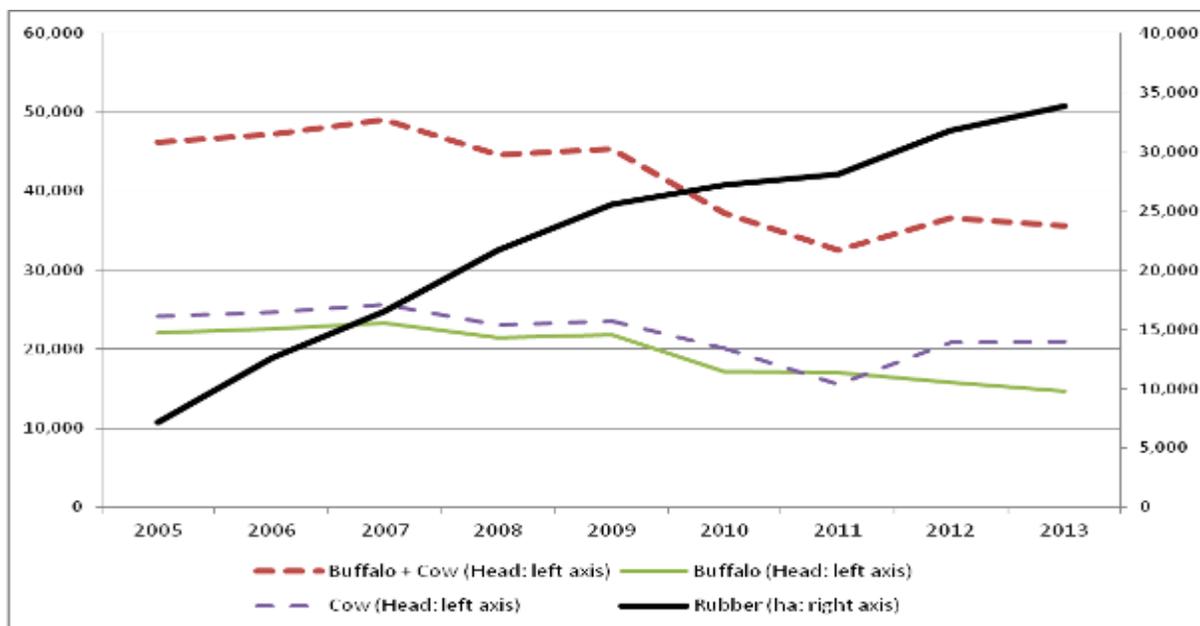
to the villagers, it was because of the shrink in grazing area as a result of the expansion of rubber cultivation. For example, in Baan Phu Van Tai, approximately 20-30 households have been negatively affected in regard to their livestock grazing due to the land closure of banana/rubber plantations in the area.

In Baan Nam Ngeun, five village households installed bio-gas systems for cooking which was introduced by DAFO in 2013. However, these bio-gas system users face difficulty in collecting enough amount of cow dung (100-200 kg/week) to maintain the system, as the number of beef cattle has declined since the introduction of rubber cultivation in the village 10 years ago.

The newly introduced watermelon cultivation in lowland areas during the dry season has also negatively affected livestock raising. During the dry season, the paddy field had been used as a grazing area for livestock; however, some villagers in Baan Nam Ngeun and Baan Prang began cultivating watermelon there.

The provincial statistical data on the cultivation area of rubber and the total number of large livestock (buffalo and cow) in Louang Namtha Province from 2005 to 2013 seems consistent with our fieldwork observation. The factors of declining numbers of large livestock might have not only been the expansion of rubber cultivation area, but also other factors including banana and watermelon cultivation during dry season. Refer to Chart 18 below.

Chart 18: Area of Rubber Cultivation and Total Number of Large Livestock, Louang Namtha Province (2005–2013)



Source: Statistical data obtained from PAFO Louang Namtha
Remark: Data in 2009 was only 9 months.

Livestock, especially large livestock such as beef cattle and water buffalo, plays an important role in rural households as a valuable asset convertible to cash, as well as an organic fertilizer provider for crop cultivation. Difficulty in livestock raising due to the expansion of rubber, banana and watermelon cultivation must have significant impact on the rural livelihood in the region.

3.2.2.4 Difficulty in Wild Animal Hunting, NTFPs and Fuel-wood Collection

As the rubber cultivation occupied upland area near the villages, most of the research's target villagers currently have to go deeper into the forest area than before in order to hunt wild animals as well as to collect NTFPs and fuel-wood. It means that they have to spend longer time to obtain natural food materials and fuel-wood for cooking. Such a situation resulted in hardships among the villagers, especially for poor households members who rely heavily on natural food sources for their daily food cooking and consumption.

3.2.2.5 Contamination of Drinking Water Sources

As mentioned before, four out of nine research target villages (Baan Phu Van Tai, Baan Nam Ngao, Baan Pang Phou Leub and Baan Nam Ngeun) experienced water contamination problems. According to the villagers, the cause of water contamination is either upland rubber cultivation or banana cultivation (or both in case of Baan Phu Van Tai).⁴⁸

In Baan Phu Van Tai, all the village households currently purchase bottled drinking water delivered by a local drinking water company. According to the villagers, chemicals have contaminated the stream, their drinking water source, since 2008-2009 when the operation of rubber/banana plantations started in the area. They experienced fatigue, headache, stomach ache, diarrhea and nervous abnormalities after drinking untreated water. During discussions with villagers, most of them showed ignorance towards proper health and hygiene issues pertaining to the use of "suspected" contaminated water and believed that the contaminated water in their village could be drinkable if boiled for 20-30 minutes.⁴⁹

In Baan Nam Ngao, the villagers still use wells and the river as their drinking water source at the time of this research. However, many villagers began to suffer from unusual symptoms such as eye problems, headache and rashes/itching of the feet and arms after the villagers planted banana under contract farming from this year. A young villager claims that he noticed, about two months ago, that he began to suffer from rash/itching on his feet and arms after bathing in the river. The villagers believe these unusual symptoms are caused from the chemicals used in banana plantation, because the first appearance of these unusual symptoms among the villagers coincided with the time of initial banana cultivation in the village.

In Baan Nam Ngeun, the villagers used well water for drinking, which, again, they believe became unusable due to water contamination by village toilet drainage and a lignite mine operation nearby⁵⁰. The

⁴⁸ It is noteworthy that these villages (except Baan Nam Ngeun) are located downstream of watershed of either Ngao River (Baan Nam Ngao and Baan Pang Phou Leub) or other river (Baan Phu Van Tai).

⁴⁹ In the absence of a proper scientific bio-chemical verification, the team does not completely attribute this as per the villager's disposition. The team strongly recommends proper testing and verification as a way to determine the exact cause, which could be chemical, biological or even due to natural causes.

⁵⁰ These are verbal claims made by the villagers who believe it to be so without scientific validation. MI's research team strongly recommends a proper scientific validation and verification as a way to determine the exact root cause.

lignite company constructed a tap water system in 2003. It drew fresh water from the upland area, 3 kilometres away from the village. However, it was suspected of contamination by the use of chemicals at upland area. Since 2010, the villagers have been forced to buy bottled drinking water.

Similarly, the gravity water supply system in Baan Pang Phou Leub was installed in 1998; however it has been unusable since the water source in the upland area was contaminated by chemical use there. Currently, all the village households have to buy bottled drinking water every time the drinking water company's truck comes to the village.

Needless to say, everybody needs drinking water always, regardless of him/her being healthy or sick. Indeed a unit cost of bottled drinking water seems insignificant (a 20 liter bottled drinking water at 3,000-4,000 Kip). E.g. A rural Laos family of 5-6 could have on an average, five 20 liter bottles of drinking water, costing approximately 12 US\$/month on an average, while many of the rural villagers are only able to earn less than \$2 a day, just enough to have their day meal.

Having such expenses is but a heavy burden for rural village households, especially for poor households, to buy bottled drinking water constantly when their natural water supply is supposedly contaminated. The most negatively affected are thus the poor household from the water contamination problem.

As mentioned before, the scientific verification of the contaminated water was beyond the ability of the research team. However, the research team believes that this water contamination issue needs urgent action to solve the problem. Further detailed investigation will be required immediately. According to an officer of Provincial Department of Planning and Investment of Bokeo, the provincial government decided to halt the issue of banana cultivation concessions by the end of June 2014.

3.2.3 Internal and Cross-Border Migration

During the interviews, it was observed that, in most of the targeted villages, the community did not migrate often. Most of them were working on their own farmland, which was on contract work or rented out to companies. Only the poor households among the targeted villages were the ones who would migrate locally or to other provincial capitals for vocational jobs, i.e. construction, carpentry, electrical etc., upon failure to find any work in and around their villages.

According to the interview with provincial government officials, cross-border migration was mostly in the SEZ where big businesses had set up commercial establishments like large hotels, casinos and entertainment areas as Lao nationals were not allowed to work in such establishments, except for local logistical activities. The casino in Thong Pheung and the Fifth Thai-Lao Friendship Bridge in Huayxai both had mostly Myanmar and a few Chinese nationals working in these establishments. As per the Provincial Labour Departments, necessary work documents and regular checks are conducted periodically on migrant workers residing in the provinces.

3.2.4 Access to Educational Institutions and Facilities

The improved access to education facilities was observed in all the research target villages. It was derived from two factors: village children use the paved R3A to either walk to their school or use bicycles or motorbikes to reach their schools.

Needless to say, schooling for village children by means of a paved road is much easier than that of an unpaved road. This is especially obvious during rainy season. The villagers unanimously said that

the time required for their children's schooling, especially going to secondary school (because most primary schools are located in their villages), shortened after the completion of construction of R3A.

The means of transportation for schooling has also changed from traveling by foot to bicycle or motorbike. This indicates improvement in some of the villagers' economic status after the completion of R3A construction. The change in the means of transportation for schooling drastically shortened the time required for schooling. As a result of improvement in access to education facilities, the school attendance rate also improved in a certain degree.

3.2.5 Access to Health Institutions and Facilities and Personal Health Issues

The improved access to health facilities were observed in all of the target villages. Similar to the improved access to educational facilities, access to health facilities improved by better road conditions via R3A as well as affecting a change in transportation means.

The other obvious indicator to show the improvement of access to health facilities is the location of child delivery. In most of the target villages, most pregnant women deliver their babies at a health post or district/provincial hospital.

A poor household had borrowed rice from the village rice bank in Baan Prang. However, the household's upland rice productivity has drastically decreased since the loss of major workforce when the former household head (the husband of the current household head) passed away due to tuberculosis. At the time of household interview, the household head stated that she was not sure she would be able to repay the borrowed amount of rice from the next rice harvest. This case indicates that the rice bank established as a safety net mechanism is insufficient when it comes to helping such a poor household in which the household's human capital was significantly damaged due to a health problem.

In Baan Nam Ngao, a Chinese company that operates rubber and banana plantations in the area helped a health post upgrade their health center in Baan Pung in 2014, in accordance with a condition stipulated in its land concession with the Provincial Government of Bokeo. This is a positive aspect of Chinese rubber and banana plantation operator on the one hand, even though it is highly possibly that this company caused water contamination problem in the area on the other hand.

In Baan Bo Piet, a Chinese clinic was established near the village in 2005, just one to two years before the completion of R3A. It has helped the villagers of Baan Bo Piet as it is the nearest health facility that can conduct health checks throughout a woman's pregnancy.

3.2.6 Public Road Safety along R3A/NSEC

As per the discussions in target villages, with the improved road transport opening up greater access to local and cross-border markets located on R3A, there are concerns regarding the road safety of village people and livestock of located in close proximity of the road. Most interviewees in target villages expressed concerns about the increase in traffic and rise in the number of accidents and road trauma victims and survivors; according to interviewees, some cases include those who were under the age of 10. As per the villagers, vehicles drove fast, even if they were passing through the village areas. They felt most of the children and livestock were at risk where the road curves or bends with little or no visibility. During their travel, the research team observed that most of the villages along R3A did not have any speed limit indicators for reduced speed.

In regards to livestock lost, villagers stated that if the vehicle stopped, then they could make the driver pay for the price of the livestock as compensation. When it came to accidents involving people,

compensation was difficult to measure and most seemingly depended upon on the age group involved; the target villagers were not able to provide clear response when the team probed this a bit more.

3.2.7 Communicable and Preventable Diseases

During the visits to the target villages, most of the village leaders and community members, including some of the individual households interviewed, mentioned more about tuberculosis (TB), malaria, viral fever and diarrhea as the most common diseases which were affecting them.

As observed, most households were not aware about simple, preventable measures they could take in order to avoid spreading TB within the family if one member is affected. This also led to spread of the disease within the village as most of them were living in a close-knit community.

Interviewees mentioned that when a disease was not curable at the local health post or provincial hospitals, only then would the villagers consider going a Chiang Mai hospital in Thailand for further check-up and treatment. However, in some cases, it proved to be fatal.

The provincial tourism department officials shared that the department was working to create awareness about HIV/AIDS and other communicable diseases. However, in the absence of data, it is difficult for the team to say that measures taken to create awareness about communicable and preventable diseases were effective or not.

3.2.8 Entertainment, Gambling and Prostitution

During the discussions with provincial tourism department officials, it was further learnt that with the expansion of the transportation corridor and the opening of casinos at border areas, there were many entertainment centers opening up along R3A. To the understanding of the officials, most people seemed to have common knowledge that some establishments maintained a restaurant and/or karaoke bar facade, while also indulging in illegal activities like prostitution behind the scenes. The officials admitted that they did not have any hard evidence to show that such places had broken the law, even though prostitution is illegal in Lao PDR, most of the interactions took place and continue to take place between two consenting individuals; officials were, therefore, unable to intervene.

To the officials, their main worry were the individual women in households who were operating via mobile phones, as some of them were either voluntarily or involuntarily engaged in prostitution activities, oftentimes stemming from debts they or their husbands had to pay to creditors. The officials were also concerned that they had learnt of cases where men gambled and lost money at casinos or other illegal betting; in order to pay their debts, they would propose that their creditor(s) have sex with their wives instead as part of repayment. According to them, this was the category of individuals who were more at risk of communicable diseases, and since HIV/AIDS is considered to be a taboo subject in Lao PDR, there was no official data available on the exact number of people affected. The research team could not verify the exact socio-economic background of such individuals. It is difficult to say that they are from a rural background or lower middle-class background as the objective was also out of the team's TOR.

3.2.9 Stakeholder Analysis and Stakeholder Coordination

In this section, stakeholders refers to those in the public sector, private sector or individuals involved at the national and, primarily, provincial level working towards regional integration and cooperation in Lao PDR. During the literature review, there were interactions with the GIZ team in Laos

and meetings with various provincial department official representatives in Bokeo and Louang Namtha. The following tentative picture emerges upon connecting the various line ministries and their respective roles and interactions with other stakeholders as outlined below. The sections below have been written based on acquiring that knowledge and understanding during the field visit.

3.2.9.1 Roles, responsibilities and involvement of EC stakeholders in Lao PDR

Stakeholder	Role/Responsibility/Involvement
1.) Central / National Level Government Agencies	
a.) Office of Prime Minister (OPM)	a.) OPM plays an important role in engaging GMS countries and other key stakeholders internationally and supervises policy formulation and implementation.
b.) National Secretariat of GMS (NS-GMS)	b.) NS-GMS is part of and works closely with the OPM to ensure implementation of the Laos GMS Integration Strategy.
c.) Ministry of Planning and Investment (MPI)	c.) MPI identifies key areas of planning and investments and supervises the implementation. It plays a central role in coordination activities with all other relevant ministries. It outlines the various policies and guidelines for investors to understand and follow.
d.) Ministry of Industry and Commerce (MIC)	d.) MI, promotes the industrial and commercial activities by developing a Trade Facilitation Strategy by taking the lead in collaborating with concerned sectors to improve trade related legislation, increase transparency and streamline import/export procedures.
e.) Laos National Tourism Authority (LNTA)	e.) LNTA is a ministry-level agency and part of OPM; it is responsible for governing, promoting and developing the tourism industry of Laos.
f.) Ministry of Agriculture and Forestry (MAF)	f.) MAF assesses and analyzes the agricultural markets and implements the Laos Forestry Strategy to the Year 2020.
g.) Ministry of Public Works and Transport (MPWT)	g.) MPWT maintains, develops and raises innovative finance to meet the significant infrastructure needs for the country's transportation sector.
h.) Science Technology Environment Agency (STEA)	h.) STEA is a special agency and part of OPM; it focuses on the environmental norms to be implemented in Laos.
i.) Ministry of Energy and Mining (MoEM)	i.) MoEM focuses primarily on energy requirements of Laos; it looks after energy and mining growth, development and investments in Laos.
j.) Ministry of Health (MoH)	
k.) Ministry of Education (MoE)	
l.) Ministry of Labour and Social Welfare (MLSW)	
m.) Ministry of Natural Resources and Environment (MoNRE)	

- j.) MoH is the main health service provider and overall supervisor of health facilities in Laos and works towards health policy development and decentralization of health services to provincial, district and health care center levels.
- k.) MoE is the main implementing body of the decree on Compulsory Primary Education in Lao PDR; it ensures teaching/learning content complies with the national curriculum design by the MoE and that all educational institutions are registered under the Department of Private Education. It also supervises the overall Educational Strategy Planning by 2010 - 2020 and considers education as a core component in overall human resource development.
- l.) MLSW supervises labour's minimum wage implementation, improves working conditions for labourers, controls and protects labourers' rights and benefits, monitors and inspects labour forces in business units and other sectors and supervises provincial local authorities to check illegal labour activities.
- m.) MoNRE has a strategic role in land use and land management planning at the national, provincial, district and village level.

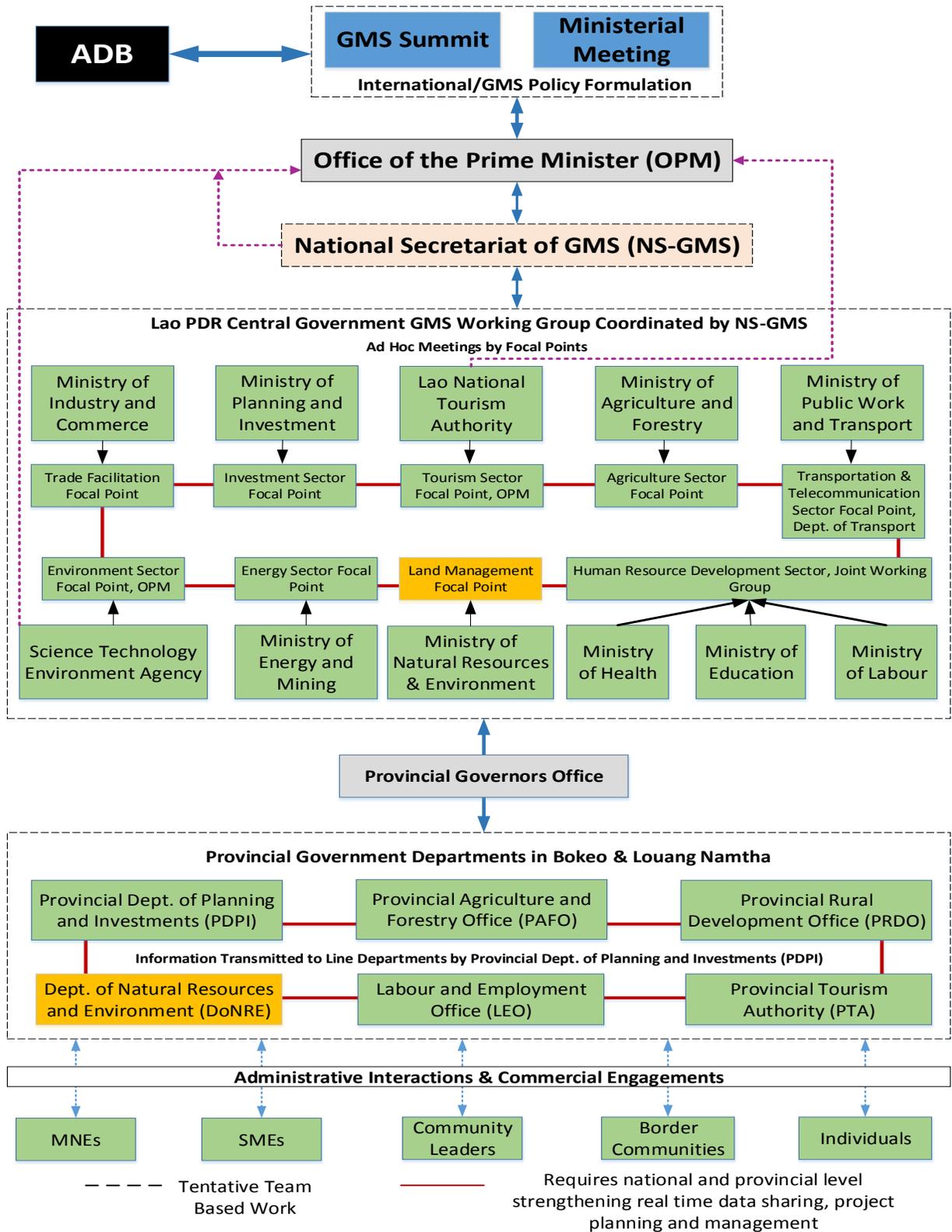
2.) Active Provincial Level Government Agencies in Bokeo and Louang Namtha

- | | |
|--|---|
| <ul style="list-style-type: none"> a.) Governor's Office (GO) b.) Provincial Dept. of Planning and Investment (DPI) c.) Provincial Agriculture & Forestry Office (PAFO) d.) Provincial Rural Development Office (PRDO) e.) Provincial Office of Natural Resources and Environment (PONRE) f.) Labour and Employment Office (LEO) g.) Provincial Tourism Authority (PTA) | <ul style="list-style-type: none"> a.) GO supervises all the provincial level government agencies and also the implementation of the GMS related policies and its development as per the Central Government's strategy and policy. b.) PDPI works under the GO and coordinates all the related provincial agencies to implement the Provincial GMS Strategy Implementation. c.) PAFO supervises the implementation of the agricultural and commercial contract farming policies to ensure that investors are following proper guidelines. d.) PRDO focuses on the village development aspects at the sub-provincial, district and village level. e.) PONRE works at the local level on land management issues and supervises the conducting of Environmental Impact Assessments (EIA) before project implementation at the provincial level. |
|--|---|

	<p>f.) LEO ensures that labour policies are followed as per its line ministries policies and practices.</p> <p>g.) PTA works with their line ministry they are focused on implementing the provincial tourism promotion strategy in tandem with the national strategy. They focus more on promoting eco-tourism.</p>
<p>3.) Private Sector / Investors (MNEs and SMEs)</p>	
<p>a.) Chinese Investors and Traders</p> <p>b.) Thai Investors</p> <p>c.) Vietnamese Traders</p> <p>d.) Korean Investors</p>	<p>a.) Most of the Chinese investors focus on commercial agricultural farming (i.e. banana, watermelon, rubber and bio-oil plantations), while the small traders are engaged in selling daily household items and food products to the rural communities living along R3A. They also place large investments in the casino and entertainment sector.</p> <p>b.) Most of the Thai investors present in Bokeo Province and its border areas with Thailand engage in hotel, food and entertainment business.</p> <p>c.) Small Vietnamese traders are, similarly, engaged in selling daily household items and food products to rural communities living on the feeder roads along R3A.</p> <p>d.) Presence of Korean investors was mentioned by some communities however, during the field-work, there was no active Korean investor found to have any commercial or non-commercial investments in the targeted villages visited.</p>
<p>4.) Community Leader / Border Communities / Rural Communities</p>	
<p>a.) Village/Community Leaders</p> <p>b.) Border Communities</p> <p>c.) Rural Communities</p>	<p>a.) The village/community leaders are the ones who are mostly in touch with the local authorities, keep information regarding the various activities going on in the village, send requests for various development activities to the provincial departments after consultations with the villagers and maintain a variety of village records.</p> <p>b.) The border communities/people in the provinces are the ones who are local communities and individuals living in and around those areas, engaging in small business or logistical activities and, whereby, earn an income from such activities inside Laos or cross-border. They have good connections with their local partners who either are on the same side or cross-border and supply necessary goods and services.</p>

	<p>c.) Rural communities are mainly composed of various ethnic groups living in the rural areas of Bokeo and Louang Namtha Province. While some communities are fortunate to have the R3A pass very close to their village, some rural communities live approximately 10-20 kilometres away from R3A; most of their feeder roads are non-permanent mud or gravel, making their villages difficult to access during monsoon season.</p>
<p>5.) Donors and Development Partners</p>	
<p>a.) ADB b.) Development Partners (e.g. GIZ, SDC, JICA, TICA, EU, etc.)</p>	<p>a.) The ADB plays a crucial and critical role in the formation of GMS as one of the neutral players. It has been giving support to GMS through providing loans and technical assistance including loan disbursement to Lao PDR. b.) Among the development partners, GIZ seems to be most active with a continued presence in Bokeo and Louang Namtha Province. It was noted that most of other development partners including ADB had little or no active presence after the initial stages of the development of R3A. Most had previously focused on tourism, health and hygiene as well as primary education.</p>
<p>6.) Civil Society, Non-Governmental Organizations and INGOs (CSOs, NGOs and INGOs)</p>	
<p>a.) CSOs, NGOs and INGOs</p>	<p>a.) While they do contribute to the ongoing development process and play an important role to ensure various checks and balances are followed, their active presence was not found in the target villages. However, in some of the target villages, it was found that some organizations had previously implemented projects related to health, sanitation, education, etc.</p>

Figure 5: Tentative Stakeholders Connection in Lao PDR



Source: Sanjay Gathia, Mekong Institute (2014). Tentative framework based on literature review, interactions and observations during field visits on R3A in Bokeo and Louang Namtha Province, Lao PDR.

3.2.9.2 Coordination and Coordination Problems among Related Stakeholders to Formulate and Implement EC Initiatives

Based on the literature review, information given on GMS related activities implemented in Laos, interactions and observations from the field, it was felt that while most of the departments did their best to work mutually with each other, real-time information sharing, theme-based project planning, working group interaction and cooperation based on the respective thematic areas was not a strong factor. In each case, the departments would mention that they would complete their jobs and wait for the other departments to carry out theirs.

While requesting various information or cross-departmental data, most mentioned that they would send most of the information to the Provincial Department of Planning and Investments (DPI) but had willingly shared the available data with the research team after seeking clearance from the respective supervisors. The lack of facility to link up cross-sectoral data seems to be a major impediment at the provincial level for coordinated planning, project management, implementation and monitoring.

The strongest factor post-field visit that emerged was the lack of funding to strengthen the various provincial departments' ongoing work and the lack manpower who are properly educated in the latest technology and equipment to deal with the ongoing agro-commercial farming and bio-natural changes taking place. Most of the laboratory testing was sent to the Central Agency in Vientiane which increased response time at the provincial level. For example, the Provincial Labour Department was unable to exactly pinpoint the number of internal migrant workers (Lao people from other provinces) that were employed by different commercial farming activities or those who worked in some of the bigger industrial units set up there.

Another example is how the agricultural department did not possess the latest number of large and small livestock in the various villages and if their number had increased or decreased with the expansion of agro-commercial farming in the provinces. They were also unable to carry out sophisticated laboratory testing at the provincial level on the use of various chemicals and pesticides for a wide range of commercial contract farming.

3.3 Chapter Conclusions

The chapter concludes that the impact of the EC on rural development, poverty reduction and rural livelihood is as follows:

A. Economic and Income Growth of Rural Population

- viii. *Increased Road Connectivity, Transportation and Mobility:* Most villagers and stakeholders, whom MI research team met with during research, agreed that there was an increased connection of their village and local area with other neighboring areas as well as provincial capitals and other markets. Such a kinship tie has helped them in technology transfer of rubber cultivation as well as cross-border trading. Due to the increased commercial activity, most of the villagers admitted that it had increased their monthly income and now most of them owned hand-tractors, pick-up trucks, motorcycles and bicycles for their farming and non-farming activities, including attending family

functions, trips to the hospital and for children to attend schools in locations that may be far from their home village.

- ix. *Increased Investments and Use of Telecommunications:* According to the interviews, along with the increased road connectivity of the various villages to the economic corridor road, there was arrival of small and medium traders, intermediaries (middlemen) and investors interested in various cash crops that could be grown or collected by the villagers for sale to other local markets or barter for other products they were selling. Some of the ethnic groups were also in touch with their kith and kin across border and would use mobile phones for communication for any business opportunities that were regular or on and as-needed basis that could be explored.
- x. *Contract Farming and Inter-community Job Creation:* As per the interviews, with the increase in the number of investors coming with offers for various commercial crop plantations and cultivation, the local farmers shared that they were able to earn income from the contract farming by renting out their land or agreeing to grow specific crops for a certain number of years. Due to lack of extra farm hands or available labour force, they would negotiate with other villagers in their community or surrounding villages who were looking for extra work. Most of them seem to agree upon a mutual barter system that helps each other with farm work as and when required.
- xi. *Access to Local and Cross-Border Markets:* The improvement in the road condition of Route No.3 and the change in available transportation means widened the villagers' access to market. In some villages, villagers organised groups by themselves and started such business as village intermediaries, traders and transportation service.
- xii. *Service and Tourism Sector Development:* Some of the villages seen by the research team along the R3A were marked as Cultural Villages, supported by ADB and other international agencies in the past. However, most of the interviewees mentioned that initially they were able to attract tourists, however, now the numbers have dwindled, and most of the tourist busses would just pass their villages on R3A without a stop. Most of the tourist flow was seasonal and consisted of backpackers who were interested in visiting remote areas as opposed to high-end tourists who were interested in cities and other touristic pleasures it offered. According to the villagers, villages who have tied up with tourism agencies have somewhat benefited local villagers who would provide transportation and other services if hired.
- xiii. *Land Management and Real Estate Prices:* Most of the communities who were relocated from interior locations or areas along the R3A/NSEC to areas closer or adjacent to R3A/NSEC complained about the location which impacted their current land holdings versus their original land holdings, subsistence farming practices and ability to keep big cattle and small domestic animals. According to the interviewees, the community expected better land management and market-based resettlement compensation from the government as part of the ongoing development process along the economic corridor. The loss of real estate prices for the community and other individuals only made them feel under-valued as they were small villagers in rural communities or border areas but also made them feel as second class citizens in their own country compared to the preferential treatment given to corporate sector.
- xiv. *Increase in Personal Household Income and Assets:* Some interviewees mentioned that a portion of the villagers felt an immediate benefit from the advance down payment for their leased land to carry out contract farming. Some of the interviewees mentioned that with the new disposable household income, they were able to buy new mini-trucks, pick-up trucks, motorcycles, bicycles

and hand tractors; additionally, they were able repair their wooden houses or build new, modern brick ones. Others used their new disposable income to buy more large and small livestock to add to their households' assets.

B. Impact on Agriculture and Natural Resources along NSEC

- vi. *Expansions in Contract Farming Practices along NSEC:* During discussions with various stakeholders, it was known that most investors preferred long-term leases to the various contract farming concessions that are awarded while negotiating with government institutions. Contract farming is observed in almost all the research target villages (except Baan Bo Piet). These commercial crops cultivated under contract farming constitute a certain large share of household income (though the research team could not identify its share, because it was out of the scope of this research) in the research's target villages. In general, contract farming has widened income generation opportunities for villagers. However, rubber and banana cultivation contract farming seem to have a negative impact on rural livelihood in the area.
- vii. *Local Forest Area and Food Security Situation:* According to the interviews, while there has been an increase in commercial crop plantations, the land area remains the same for the village to carry out more and more commercial plantations as investors demand. This has resulted in competition for space; therefore, communities are expanding the plantation areas into more and more lowland and upland areas, going beyond the community areas and into the common forest areas. Interviews revealed that the growing demand for commercial land indirectly affects NTFPs and other forest produce which are collected by the villagers on an almost daily basis for household consumption, bartering for other necessary produce and/or selling at the local market for extra income in order to buy basic household items. Most of the ethnic communities are facing more and more challenges in gathering NTFPs and other forest produce for food and household consumption. Some of them travel by foot while others by motorcycle and/or pick-up truck to cover the increasing distance of the common forest from the community area. The reduced NTFP gathering and increased time taken is impacting the village food security situation and might further escalate challenges to food security if not adequately addressed along with the impacted communities.
- viii. *Decline in Raising Large Livestock:* In some research target villages (Baan Phu Van Tai, Baan Donchai, Baan Pang Phou Leub, and Baan Nam Ngeun), a decline in the number of beef cattle and/or water buffalo was observed. According to the villagers, it was because of the shrink in grazing area as a result of the expansion of rubber cultivation. Livestock, especially large livestock such as beef cattle and water buffalo, plays an important role in rural households as a valuable asset convertible to cash, as well as an organic fertilizer provider for crop cultivation. Difficulty in livestock raising due to the expansion of rubber, banana and watermelon cultivation must have significant impact on the rural livelihood in the region.
- ix. *Difficulty in Wild Animal Hunting, NTFPs and Fuel-wood Collection:* As the rubber cultivation occupied upland area near the villages, most of the research's target villagers currently have to go deeper into the forest area than before in order to hunt wild animals as well as to collect NTFPs and fuel-wood. It means that they have to spend longer time to obtain natural food materials and fuel-wood for cooking. Such a situation resulted in hardships among the villagers,

especially for poor households members who rely heavily on natural food sources for their daily food cooking and consumption.

- x. *Contamination of Drinking Water Sources:* As mentioned before, four out of nine research target villages (Baan Phu Van Tai, Baan Nam Ngao, Baan Pang Phou Leub and Baan Nam Ngeun) experienced water contamination problems. According to the villagers, the cause of water contamination is either upland rubber cultivation or banana cultivation (or both in case of Baan Phu Van Tai). In Baan Phu Van Tai, all the village households currently purchase bottled drinking water delivered by a local drinking water company. According to the villagers, chemicals have contaminated the stream, their drinking water source, since 2008-2009 when the operation of rubber/banana plantations started in the area. They experienced fatigue, headache, stomach ache, diarrhea and nervous abnormalities after drinking untreated water. Needless to say, everybody needs drinking water always, regardless of him/her being healthy or sick. Indeed a unit cost of bottled drinking water seems insignificant (a 20 liter bottled drinking water at 3,000-4,000 Kip). E.g. A rural Laos family of 5-6 could have on an average, five 20 liter bottles of drinking water, costing approximately 12 US\$/month on an average, while many of the rural villagers are only able to earn less than \$2 a day, just enough to have their day meal. Having such expenses is but a heavy burden for rural village households, especially for poor households, to buy bottled drinking water constantly when their natural water supply is supposedly contaminated. The most negatively affected are thus the poor household from the water contamination problem.

- I. *Internal and Cross-Border Migration:* During the interviews, it was observed that, in most of the targeted villages, the community did not migrate often. Most of them were working on their own farmland, which was on contract work or rented out to companies. Only the poor households among the targeted villages were the ones who would migrate locally or to other provincial capitals for vocational jobs, i.e. construction, carpentry, electrical etc., upon failure to find any work in and around their villages. As per the Provincial Labour Departments, necessary work documents and regular checks are conducted periodically on migrant workers residing in the provinces.

- J. *Access to Educational Institutions and Facilities:* The improved access to education facilities was observed in all the research target villages. It was derived from two factors: village children use the paved R3A to either walk to their school or use bicycles or motorbikes to reach their schools. Needless to say, schooling for village children by means of a paved road is much easier than that of an unpaved road. This is especially obvious during rainy season. The villagers unanimously said that the time required for their children's schooling, especially going to secondary school (because most primary schools are located in their villages), shortened after the completion of construction of R3A.

- K. *Access to Health Institutions and Facilities and Personal Health Issues:* The improved access to health facilities were observed in all of the target villages. Similar to the improved access to educational facilities, access to health facilities improved by better road conditions via R3A as well as affecting a change in transportation means. The other obvious indicator to show the improvement of access to health facilities is the location of child delivery. In most of the target villages, most pregnant women deliver their babies at a health post or district/provincial hospital.

- L. Public Road Safety along R3A/NSEC: As per the discussions in target villages, with the improved road transport opening up greater access to local and cross-border markets located on R3A, there are concerns regarding the road safety of village people and livestock of located in close proximity of the road. Most interviewees in target villages expressed concerns about the increase in traffic and rise in the number of accidents and road trauma victims and survivors; according to interviewees, some cases include those who were under the age of 10. In regards to livestock lost, villagers stated that if the vehicle stopped, then they could make the driver pay for the price of the livestock as compensation. When it came to accidents involving people, compensation was difficult to measure and most seemingly depended upon on the age group involved; the target villagers were not able to provide clear response when the team probed this a bit more.

- M. Communicable and Preventable Diseases: During the visits to the target villages, most of the village leaders and community members, including some of the individual households interviewed, mentioned more about tuberculosis (TB), malaria, viral fever and diarrhea as the most common diseases which were affecting them. As observed, most households were not aware about simple, preventable measures they could take in order to avoid spreading TB within the family if one member is affected. This also led to spread of the disease within the village as most of them were living in a close-knit community. The provincial tourism department officials shared that the department was working to create awareness about HIV/AIDS and other communicable diseases. However, in the absence of data, it is difficult for the team to say that measures taken to create awareness about communicable and preventable diseases were effective or not.

- N. Entertainment, Gambling and Prostitution: During the discussions with provincial tourism department officials, it was further learnt that with the expansion of the transportation corridor and the opening of casinos at border areas, there were many entertainment centers opening up along R3A. To the understanding of the officials, most people seemed to have common knowledge that some establishments maintained a restaurant and/or karaoke bar facade, while also indulging in illegal activities like prostitution behind the scenes.

CHAPTER 4: CONCLUSIONS, RECOMMENDATIONS AND STEPS FORWARD

In this chapter, we will conclude our study to see how economic corridors contribute to economic growth, rural development and poverty in Lao PDR. Also, we will offer policy recommendations on how to implement economic corridor initiatives to have positive impacts on rural development and rural livelihood. Lastly, we will recommend the possible roles of GIZ to promote economic corridors for such purposes.

4.1 Conclusions

The research team considered the following hypothesis (refer to Appendix 2: Research Hypothesis and Methodology) during the research's inception:

The poor, rural populations are impacted by emerging growth centers or nodal points along the North-South Economic Corridor in Bokeo and Louang Namtha Province in Lao PDR. They seek tangible benefits to improve their socio-economic situation, hopefully, leading them out of poverty into economic empowerment.

Yet, there is little evidence available on the impact, positive or negative, of the corridors on the lives of poor, rural populations and their ongoing rural economic development and livelihoods; this includes the coping mechanisms of the local populations and the government's response mechanisms.

This study takes into consideration the development of economic corridor projects, especially the NSEC in GMS countries. From the literature review and documents, the research team finds tremendous progress in a hardware aspect of the economic corridor initiatives. However, some obstacles to the other initiative implementation comes from lack of the progress from a software standpoint such as CBTA, coordination failure among relevant stakeholders and lack of proper involvement and engagement of all relevant stakeholders in policy formulation and its implementation. As a result, economic corridors still have limited impact on rural development.

Using secondary data and statistics of Lao PDR, the research team can identify the contribution of economic corridors on economic growth. After implementation of economic corridor initiatives, there are tremendous improvements in economic growth especially in the manufacturing sector, mainly garments and textiles, compared to the last decade. In the case of NSEC's impact on Bokeo and Louang Namtha, there is an increase in contract farming that was physically witnessed during field visit and data collection travel.

The major explanation why economic growth improves is due to the expansion of international trade and foreign direct investment in Lao PDR, and, in the case of Bokeo and Louang Namtha, the expansion of agro-production based investment from the PRC.

Considering the role of economic corridors on poverty reduction, we see a reduction in the poverty rate of GMS countries, including Lao PDR, during the last decade. However, it is unclear whether poverty reduction is a result of economic corridor initiatives or economic reform of these countries. Nevertheless, income disparity amongst GMS countries has deteriorated. As a result, even though

economic corridors may bring about higher growth and poverty reduction, the distribution of economic benefits is not equitable.

Using some of the provincial statistics that were available, we can see that the provinces along economic corridors have much better road and electricity access. However, we cannot see much difference between the overall improvement in human development, health status and school attendance of the people in the provinces along the corridors and those of the people in other provinces.

Similar to previous studies, we cannot see strong evidence to support that economic corridors promote rural development and livelihood. The only clear evidence is the better access via some of the feeder roads for the communities along the corridors to the main corridor road for personal and commercial purposes.

With the changes in disposable income taking place, they are spending more of their income towards buying commercial household assets, including motorcycles, pick-up trucks and/or other forms of transportation in order to travel to nearby commercial places. With the increased amount of disposable assets bought and used, there is also a larger portion of income spent towards the running costs of such assets.

For most ethnic, rural communities, the change is occurring in a visible shift from subsistence agricultural farming and community barter-based system to a more agro-commercial and monetary-based system affecting their self-sufficiency and self-sustainability. The higher dependency on commercial cropping for increased income makes them more and more dependent on the market demand of the product in addition to bearing the losses along with the drop in demand.

The various ethnic groups and rural communities can physically feel the impact of the loss of biodiversity and wild animals in and around their local villages compared to 5-10 years ago. They are spending more time for their traditional NTFP gathering and hunting of wild animals that they were accustomed to eating on a regular basis.

The impact is also visible on the various sources of fresh water supply in and around the local village areas due to the increased commercial cropping and heavy use of pesticides and herbicides. An in-depth scientific analysis and a coordinated response is required to address the water pollution, as this affects health and hygiene of the local communities.

The increase in local population around growing commercial nodes along the economic corridor is also putting pressure on the local aqua-biodiversity and ecology of small streams, rivers, ponds and where the quality and quantity of fish stock is affected and competition for the limited resources is growing.

Access to education has improved due to the development of feeder roads and the main road, which children are presently using to commute to the schools located nearby our outside the village area. There was a visible lack of proper government supported, developed and maintained schools with adequate infrastructure and good quality basic, intermediary and higher education available in the village areas. The option available for most of the youth, seemingly, is to seek good intermediary and higher education in the nearby, large cities. This increases expenditures towards education, transportation and associated logistics for the parents. Parents who are able to afford these extra costs due to their

adequate financial income and stability send their children for such options. The poor and low-income parents in rural areas are unable to provide or afford access to higher education for their children. Therefore, they have their children work with them on farms or in other vocational jobs to earn a living.

The children and youth of poor families and young adults without parents (one case) interested in vocational jobs are unable to develop their vocational skills and find better employment in which breaks the cycle of poverty. For such cases, most of the vocational schools are in locations which are far from their village, requires money for the course and for sustaining their living while they are upgrading their skills.

Most of the people who were compensated adequately and had kith and kin across the borders seem to have benefited from the development of the economic corridor, as they ventured into small business and were approached by other investors to be part of their supply chain.

The villagers classified as poor by the village/community leaders are the ones impacted most due to the increased investments and expansion of agro-commercial crops either in the Specific Economic Zone, border areas or interior areas along R3A. This is resulting in the gradual loss of local forest cover, availability of land for traditional kitchen gardens and NTFPs, wild produce and animals, which form their source of food security. There is high possibility for these poor people or families to fall into the category of “below poverty line” and, thereby, completely miss out on the economic benefits from the corridor development.

There is also a strong chance that most of benefits and progress presently made will gradually wither away in the near future; due to the fast and increasing shift from agro-based local economy to cash-based commercial economic setup, rural communities living along economic corridor could lapse into poverty due to lack of proper land management and local economic development setup that is sustainable and ensures that all families (irrespective of economic status) can continue to live in self-sufficiency.

Proper land use and management policies and their implementation is crucial; retaining biodiversity and sustainable agricultural practices is also necessary to ensure that local communities continue to be sufficient and self-reliant while, simultaneously, being included as part of the global economy and value chain development via the economic corridor.

There is a strong need for sustainable agricultural and development policy that will be engaged and practiced by rural communities, along with local, district and provincial officials so that there is a common understanding of the development agenda as envisioned by Lao PDR government; their aim is to move out of the Least Developed Countries (LDC) bracket by 2020 and implement it in a participatory manner.

Targets and major directions espoused by Lao PDR in its 7th Five-Year National Socio-Economic Development Plan (NSED 2011–2015), needs careful reassessment with the ongoing GMS economic corridor development framework throughout the formulation of the 8th Five-Year National Socio-Economic Development Plan (NSED 2016–2020). This would ensure that Laos has effectively established a strong link to road infrastructure improvement and rural development, along with sustainable development and environmental protection.

There is no doubt that change has occurred. However, our findings confirm that, without proper feeder roads, interior rural communities are unable to gain proper benefits of the R3A or economic corridor.

There is a strong need to strengthen and integrate the elements of land management into the Provincial Socio-Economic Development Plan (PSEDP); it is also crucial link and incorporate these concepts into the comprehensive agenda for sustainable development in the GMS through the Core Environment Program and Biodiversity Corridors Initiatives (CEP-BCI), with the vision of “a poverty free and ecologically rich GMS” (ADB GMS Strategic Framework 2012–2022).

This indeed calls for strong project planning with a focus on integrated land management strategy, implementation, management and a results-based monitoring and evaluation system that is built within Lao PDR’s central, provincial, district and village governance structure. This requires strengthening cross-sectoral and inter-provincial coordination across each ministry, top-down and bottom-up.

The research concludes that the above mentioned working hypothesis is highly substantiated and reflected to be true. The poor, rural populations living near the corridor are impacted by the emerging growth centers or nodal points along NSEC or R3A in Lao PDR’s Bokeo and Louang Namtha Provinces.

Feedback and engagements with the various stakeholders, including the rural, poor population has left little doubt in the research that the poor are seeking tangible benefits that improve their socio-economic situation and will continue to do so.

The various community leaders and officials in Bokeo and Louang Namtha working at the provincial, district and village level ministries, agencies and communities are unable to cope with the growing investments and development. There is a need for a coordinated coping and response mechanism for the local population and government which can facilitate their collaboration; this coordinated effort should be conducted in a phased manner, rather than an ad-hoc approach if the development agenda, as envisioned by Lao PDR’s government, brings about tangible changes that move Laos out of the Least Development Country bracket by 2020.

4.2 Policy Recommendations on Development of Economic Corridors for Positive Impact on Rural Development, Poverty Reduction and Rural Livelihoods

In this section, we outline what policy recommendations could be considered for economic corridor development in order to have a positive impact on rural development, poverty reduction and rural livelihood. Based on our primary survey and secondary data, we propose eleven crucial points to make economic corridor initiatives successful.

The eleven points include recommendations to initiate inter-provincial and inter-departmental dialogue and cooperation, improve feeder road connectivity, using agro-ecosystem analytical framework for economic corridor development, capacity building for LED, PSR and project management, development of SEZs, microfinance system development, mapping labour market and TVET requirements, CBTA implementation, Laos National GMS Project Monitoring System, strengthening GACP, PH and CO processes.

4.2.1 Initiating Inter-Provincial and Inter-Departmental Dialogue and Cooperation Mechanism

The establishment of an inter-provincial dialogue mechanism between Bokeo, Louang Namtha and Yunnan Province will be necessary. It could assist in solving cross-border issues including the control of chemical use on banana plantations operated by Chinese companies in Bokeo and Louang Namtha Province; additionally, border control of smuggled insecticide and herbicide which are designated by WHO as harmful, but are still produced in China and used in Bokeo and Louang Namtha Province is crucial.⁵¹ This small mechanism could help trouble-shoot local level policy matters and expedite the implementation of measures for regional integration and other necessary CBTA measures to be adopted or expedited towards AEC 2015 regional integration.

4.2.2 Improvement or Establishment of Feeder Roads Connecting NSEC to Interior Rural Communities

Feeder roads to most of the interior rural communities needs to be improved or established as permanent and properly maintained roads, rather than mud-based or gravel-based, non-permanent roads. Most of these roads are either un-useable by medium-heavy vehicles or small trucks or are difficult to use during the rainy season as they become slippery. Their improvement and connection to the main R3A/NSEC will support communities immensely in their daily lives, their further integration into the growing commercial agri-business, food production base and value chain management for fresh food delivery and in transportation of commercial and other non-commercial products within Laos or cross-border within the GMS.

Previous literature, such as Menon and Warr (2006), suggested that the establishment of feeder roads could improve rural development in regard to better access to health care services and schools.

Feeder roads development in the various interior locations of Laos could also promote a judicious use of the economic corridors for various commercial and non-commercial purposes within Laos and by Laos with other countries in GMS/ASEAN while facilitating the Laos government in achieving their overall goal to be a land-linked country in the region.

4.2.3 Using Agro-Ecosystem Analytical Framework for Economic Corridor Development

In order to consider long-term strategy for economic corridor development and its inter-linkages with the rural communities that live around it, it is recommended to adopt an analytical framework of agro-ecosystems derived from the human ecology concept.⁵²

It will be useful to understand complex rural livelihoods as systems in which rural livelihood components correlates to each other. The research team strongly recommends its application to regional rural development programs, especially regarding rural livelihood improvement, implemented by the government, international development agencies and NGOs. As indicated in this research, the analytical framework of agro-ecosystems will provide these concerned development practitioners with a holistic view

⁵¹ This issue was raised by both officials of Provincial Department of Planning and Investment of Bokeo and an official of Provincial Department of Public Health of Louang Namtha at the time of our interviews.

⁵² UN Convention on Biological Diversity (CBD) defines an ecosystem as “a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit”.

in planning, implementation and evaluation of regional rural development programs⁵³ (please refer to the Annex's Village Livelihood Figures).

The analytical framework would provide useful input for capacity building on local economic development (LED) and integrate it within the larger context of economic corridor development. It would also facilitate in mapping and assessing its impact on the natural habitat and bio-diversity in the area as well as its overall impact on the local community and where and how the interventions could be developed and implemented in a sustainable manner.

4.2.4 Capacity Building for Local Economic Development (LED), Public Sector Reform (PSR) and Project Management

Local economic development (LED) is one of the key success factors to help the poor in attaining economic benefits from the emerging economic corridor development initiatives. Without sufficient capacity building initiatives and facilitating the local stakeholders and communities, any designated zone for development would not gain benefits from increased business opportunities or job opportunities.

GIZ could take the lead and engage ADB, SDC, DFAT, SIDA, JICA, USAID, other development partners and the Lao government in identifying such business and job opportunities for local communities along ECs in Lao PDR using LED methodology. A common action plan for capacity building in a structured and phased manner for consistent growth and development of local communities could be developed and adopted in order to avoid overlap and contribute effectively and efficiently.

GIZ could further support these activities with the necessary PSR capacity building activities at the provincial and national level with an inclusive approach that engages key, local stakeholders including the provincial and national chambers of commerce in Laos. It is also recommended, that it would be critical to address necessary changes in laws that require revision or be changed according to the present and future development needs that cut across different ministries. This will require both capacity building, sharing of best practices in the region and exposure to undertake public sector reform measures and implementation for results with a time-frame approach.

It is recommended that GIZ provide technical development support for project management to the provincial and national officials, allowing them to strengthen and improve their intersecting responsibilities and ability to link across different sectors, both vertically and horizontally, to expand development outputs, while linking it with results-based project management principles for various sectors.

4.2.5 Development of Special Economic Zones (SEZ) along Economic Corridors

Development of special economic zones is one of the initiatives from the ADB to modify transport corridors into real economic corridors, according to ADB's strategic framework in Chapter 1. As mentioned by Bin (2007) and Cheewatrakoolpong (2014), successful establishment of special economic zones will bring about job creation, higher wages, better infrastructure, increased community development and diversification from a resource-oriented economy to manufacturing sectors. Also,

⁵³ For instance, if the concerned DAFO staffs in a bio-gas system promotion program in Baan Nam Ngeun had an agro-ecosystems-based holistic view, they would not make such an easy mistake to promote the bio-gas promotion program by utilizing cow dung as a gas production material in the village where the number of beef cattle had drastically declined past few years due to the expansion of rubber cultivation area.

special economic zones can attract foreign direct investment, together with technology transfer, technical skills development and technology and knowledge spillovers to the country and communities.

4.2.6 Micro-finance System Development

According to Cheewatrakoolpong et.al. (2014), financial access is one of the main obstacles prohibiting local communities in benefitting from trade facilitation and economic corridors. Without a proper microfinance system, the poor cannot attain enough start-up capital to establish new businesses that have more opportunities from economic corridors.

Micro-financing was initiated in Lao PDR since the late 1980s, ranging from rice and livestock banks to village self-help groups. However, the formal micro-finance regulations were issued by the Bank of Lao PDR in 2008. According to GIZ (2009), there are a total of 26 regulated microfinance institutions, including five deposit taking MFIs, eight non-deposit taking MFIs, and 13 savings and credit unions (SCU). According to Coleman and Wynne-Williams (2006), the demand of micro-finance services met by formal and semi-formal credit providers was as low as 7% in 2003. National Economic Research Institute (2006) provides figures that micro-finance services from both groups can reach only 6.5% of Lao PDR's population between 15 and 64 years old and only 46% of all villages. Those figures illustrate a poor formal micro-finance system in Lao PDR.

There are also other informal micro-finance options, which some villagers use in Laos, ranging from piecing together small-medium amount of money from multiple relatives to start a small-business and pay off gradually, to also proposing business plans to wealthier villagers in hopes of attaining small to large size loan. The range of informal micro-financing options could vary extensively.

As a result, better development of micro-finance system in Lao PDR, including higher coverage of micro-finance services in all areas, creative approaches and better financial service access by the poor, will help local communities to attain sufficient funding to start up new businesses in order to catch up with increased SME business opportunities via economic corridors development. The microfinance system policy should be inclusive of the various ethnic groups that are living near the border areas as they can play an important role in cross-border trade development, especially those who have kith and kin across the border. This could be a complementary policy action by the Lao government's post-LED assessment along NSEC.

4.2.7 Comprehensive and Integrated Land Management Policy and Initiatives for Sustainable Development

As per the Lao government's national agenda for inclusive growth and development for poverty reduction, aligning GMS Economic Cooperation Program Strategic Framework 2012-2022 with the Laos National Socio Economic Development Plan 2011-2015 and 2016-2020, will require a comprehensive Land Management Policy and Initiatives to be developed, implemented and followed assiduously. This will facilitate the Lao government in taking a critical and comprehensive look at land development to correspond with the economic corridor development actions and link it up with their overall goal of being a land-linked country out of poverty for 2020.

Such a national land management policy should include land holding rights, land acquisition, individual and community land compensation management, loss of land productivity, community rehabilitation, post-rehabilitation local economic development, bio-diversity maintenance and

sustainability, urban planning and planning control, land policies, land information and use management and sustainable development, just to name a few issues of concern.

A comprehensive land management policy initiative undertaken by the Lao government, supported by GIZ, would facilitate Laos in integrating various land associated policies and actions under single management; it will also help in effectively utilizing national natural resources in a sustainable manner while ensuring good governance principles are not only upheld but implemented for long-term results.

4.2.8 Mapping Lao PDR Labour Market Requirements and Technical and Vocational Education and Training (TVET) Skills Development

Considering the tentative initiatives that might be considered towards development of Special Economic Zones and local economic development along the economic corridor in Laos, there is no doubt that Laos would require a highly-skilled, semi-skilled and low-skilled labour force in order to meet the demands of industrial and agricultural investments and economic growth. This is a recognised fact in the country's National Socio Economic Development Plan 2011–2015, as it would be falling short of labour supply to match the growing labour needs.

It is proposed that GIZ, along with the relevant ministries (refer to figure: Tentative Stakeholders' Connection in Lao PDR) and with other key donor agencies present in Laos, engages in a comprehensive mapping and understanding of Lao PDR's industrial and agricultural growth, associated labour market requirement and the necessary skills development of the current labour force along the existing ECs. It could include youth and graduates who could avail from complementary technical and vocational education and training as part of existing school curricula.

The TVET skills development could focus on growing trends of increased industrial and agro-commercial investments and new skills development in the service sector required for the economic corridor development; examples include hotels, retail, banks, education, health, computer services, media, communications and/or recreations in the various economic and commercial activities along the economic corridors in Laos.

4.2.9 Cross-Border Trade Agreements (CBTAs) Implementation

From our study and previous literature mentioned in Chapter 1, lack of CBTA implementation in GMS obstructs the usage of the existing economic corridors. In order to fully utilize economic corridors for trade and transport purposes, it is crucial to have CBTAs to complement all infrastructure projects. However, as mentioned in Chapter 1, Cambodia, China and the Lao PDR have currently fully ratified all the annexes and protocols, but have yet to translate them into operational and implementable rules and orders. Myanmar, Thailand and Vietnam have yet to ratify a number of these annexes and protocols. Due to these problems, the CBTAs cannot be implemented; even the CBTA pilot project along EWEC has not been successful.) In order to acquire CBTA rights, operators need to install high deposits with the designated representatives. In addition, the demand to operate along EWEC is quite low and CBTA rights are permitted only within EWEC, not its spider road linkages.

To fully utilize GMS economic corridors, the countries have to fasten the ratification and implementation of all remaining annexes and protocols. Implementation of CBTA needs more revision to make it practical. The exchange of traffic rights and route coverage are required to expand in order to cover all key GMS border crossing points and road linkages.

The implementation of CBTA needs to resolve operational issues and constraints such as guarantee system, automation of systems and forms and vehicle insurance. Establishment of the GMS Freight Transport Association (FRETA) may provide an important foundational step towards success of CBTA implementation.

4.2.10 Developing and Sustaining Laos National GMS Project Monitoring System

According to ADB's strategic framework for GMS, successful implementation of economic corridors needs a better monitoring system. ADB, together with all related governments, have to set up an efficient monitoring system to capture problems or obstacles during the economic corridor development and implementation. GIZ could facilitate the Lao government in initial set-up of a National Project Monitoring Body on ECs, drawing from key ministerial offices. GIZ could assist the Office of the Prime Minister that will engage the GMS governing body in trouble-shooting existing and emerging bottlenecks in and related to Laos GMS Regional Integration Action Plan. It would also serve as a check and balance body, facilitating Lao government in assessing the level of development and aid effectiveness and its benefits to the Lao people.

4.2.11 Strengthening Good Agricultural and Collection Practices (GACP) and Post-Harvest (PH) for Improving Value Chain Management and Implementation of the Practice of Certificate of Origin (CO/COO)

It is recommended that GIZ consider capacity building activities for communities along ECs, local agricultural officials and provincial agricultural department officials on GAP and PH practices to further improve their skills and ability to engage in quality assurance, safety and efficacy of agricultural products and practices inclusive of sustainable agricultural practices and protect and maintain natural resources. Such activities would facilitate rural livelihood improvement and add to the skills-development of the agricultural labor workforce which is mostly based in rural areas.

It is also recommended that, with the increased agricultural farming and cross-border trade in commercial and non-commercial agricultural products, the practice of issuing the Certificate of Origin for goods (non-preferential or preferential) should be implemented or followed rigorously if already implemented. The system could move towards an electronic, CO-based system, which could enable GMS countries in accessing information on a real-time basis.

GIZ could facilitate the development of appropriate technical skills and provide infrastructural development to ensure that GACP, PH and CO practices are adhered to and maintained towards goods originating in Laos. Goods could also be appropriately recognised in the GMS/ASEAN region while being part of the small, medium or large enterprise supply and value chain along the ECs. This would enable Laos in gaining recognition as a country ensuring the quality of goods produced within its land, exported to various markets in the region and ensuring globally sustainable production management.

4.2.12 Tapping Solar Power for Clean Energy and Household Income Saving Alternative

GIZ could consider technical development in rural communities to tap solar energy especially in remote areas where it is too expensive to extend electricity power grid or put the power lines. It could facilitate the communities both as a form of clean energy providing electricity to various interior rural

communities and house-holds, and also as a form of cutting costs towards electricity and fuel-wood and increasing household income saving in the long run.

4.3 Policy Recommendations on Development of Economic Corridors that Have Negative Impact on Rural Development, Poverty Reduction and Rural Livelihoods

In this section, we will discuss the two primary negative impacts of the economic corridor and what could be considered in order to make them positive in the long run.

The two points include sustainable preservation of the water sources, bodies of water and biodiversity conservation to secure multiple sources of food security at a household and community level.

4.3.1 Sustainable Preservation of the Sources of Water and Water Bodies

The most urgent issue raised from this research is the water contamination problem. Water contamination affects the agri-business and production of foods for local and commercial consumption in the rural areas. Unless immediately addressed, it will affect the fertility of the area and make it difficult for the rural population to continue earning income via commercial cropping or land leasing, as investors would consider moving to other areas if land becomes fallow and untenable. Also, much of the villager's income may go to meet the health care expenses due to consuming and or using contaminated water.

GIZ could provide technical support to the concerned government officials (provincial public health department, provincial agriculture and forestry department), who should take action immediately to investigate the quality of drinking water sources (river, stream, well and tap water) to verify water contamination. The fieldwork of this research indicates a high likelihood that banana cultivation promoted by Chinese companies is the cause of water contamination in the research target villages (Baan Phu Van Tai and Baan Nam Ngao) in Bokeo Province.

Similar water contamination problems might have occurred in some of the research target villages (Baan Pang Phou Leub in Bokeo Province and Baan Nam Ngeun in Luang Namtha Province). The villagers indicated the upland chemical use as a cause of water contamination. Though its cause was unclear from the interviews, the research team suspected rubber cultivation as a major cause of water contamination in these villages. The information on rubber cultivation practice obtained in Baan Bo Piet, for example, indicated the intensive use of herbicide during the immature stage of rubber tree growth, usually the first three years after the seedling was planted.⁵⁴ A recent study (Vázquez 2013) indicates some herbicide in 30 liter plastic containers has been commonly used among rubber farmers in Louang Namtha Province.⁵⁵ Taking into account the total area of rubber cultivation (33,642 ha) in Louang Namtha Province,⁵⁶ as well as the farmers' preference of herbicide use to manual weeding in terms of cost, the

⁵⁴ As mentioned before, the rubber cultivators use a total of 60 liters of herbicide for 600 rubber trees during the first three years of rubber growth stage.

⁵⁵ Vázquez C. (2013) *Illegal Pesticide Trade in the Mekong Countries: Case of Lao PDR - Vientiane Capital and provinces of Louang Namtha and Xiengkhouang*, available from <http://www.panap.net/sites/default/files/Illegal-pesticide-trade-in-Lao.pdf>

⁵⁶ The latest rubber cultivation area map as of 2011 was in the process to be compiled by PAFO with a technical support of GIZ Laos, at the time of the research team visit to PAFO of Luang Namtha. It will be also useful to use Google Map to understand how large area has been occupied by rubber cultivation. You will be able to easily identify rubber trees on the map because rubber trees planted along the contour lines with constant spaces.

research team estimates that a significant amount of herbicide has been used in rubber cultivation. It necessary to identify (a) how many the rubber cultivators actually used herbicide in their rubber cultivation, (b) what kind of herbicide they had used and (c) to figure out the quantity of herbicide used in both Louang Namtha and Bokeo Provinces.

One of the successful factors of this research was the multi-sectoral approach to rural livelihoods. More specifically, this research's scope included drinking water sources as an indispensable livelihood component to maintain rural livelihoods. If it were excluded, from this study's scope, the research team would not be able to identify the water contamination problem derived from rubber/banana plantations as a major socio-economic impact of NSEC.

4.3.2 Biodiversity Conservation to Secure Multiple Sources of Food Security at Community and Household Level

As mentioned before, the most negatively affected by the current rural livelihood situation in the region were poor households. They largely rely on natural food materials for their food security, but it has become more and more difficult to catch natural fish, hunt wild animals and collect wild vegetables and other NTFPs. It will be necessary to understand their time allocation for daily livelihood activities to identify feasible measures to secure their food sources.⁵⁷ Lack of which would impact the rural poor who may be severely affected due to the shrinking natural forest area and the lack of natural food sources being available in the case that economic activity expansion becomes devoid of securing natural food sources in the long run.

Some village leaders already established conservation measures to sustain the available natural food sources; they created a conservation area or period for fish in the river and stream near their villages, in addition to setting up a conservation area in the forest to manage natural resources by themselves. A detailed study on such community-based initiatives to establish sustainable natural resource use will be useful to promote such initiatives in other villages.

Biodiversity conservation and ensuring water sources are preserved as part of the natural habitat for long-term, sustainable community and economic growth is an important factor that should be integrated into Lao PDR's overall land management.

GIZ could consider integrating these factors into the technical support that they might provide to Lao government on land management issues.

4.4 GIZ During & Post AEC 2015: Policy Recommendations and Steps Forward – Possible roles facilitating economic corridor development aimed to serve land management, rural development, poverty reduction and rural livelihood

Finally, we point out the possible roles of GIZ to promote rural development and rural livelihood and associate them with economic corridor development activities:

⁵⁷ *One of the feasible measures to secure their daily food sources will be home garden promotion (not necessarily "home garden" but including crop cultivation by using a simple "planter").*

A.) Engaging Key Stakeholders and Partners in GMS on Economic Corridor Development

1. *GIZ country offices could map and identify key stakeholders and partners who are presently working on EC development and engage them at country and GMS level discussions to identify common and crosscutting thematic areas.*
2. *GIZ could take lead in facilitating developing, “2015 – 2020 Partners Common Action Plan on GMS-EC Development” and synchronising and aligning it with key thematic areas in ADB-GMS – The Greater Mekong Subregion Economic Cooperation Program Strategic Framework 2012 – 2022.*
3. *The 2015 – 2020 Partners Common Action Plan could also facilitate in assessing the roles and responsibilities donors and partners could be potentially involved either as focal point or as lead partners.*
4. *The donors and partners could also identify local/community, country, and regional stakeholders who potentially would be engaged in the implementation of the 2015 – 2020 Partners Common Action Plan.*

B.) Conduct extensive investigations on the contaminated water in the region

1. *In cooperation with the Provincial Department of Public Health (PDPH) and Provincial Agriculture and Forestry Office (PAFO), GIZ could conduct an extensive investigation on contaminated water in the region in order to identify the villages and effects associated with water contamination.*
2. *Identify the cause(s) of the water contamination in the identified villages with responsible counterparts of PDPH and PAFO.*
3. *GIZ could provide technical support and facilitate establishing and maintaining a regular drinking water quality monitoring system at the provincial and the district levels with key ministries based on the analysis of the cause(s).*
4. *GIZ could provide concerned departments with equipment and skill improvement trainings for the above mentioned drinking water quality monitoring system if necessary. These measures should be supplemented by incorporating similar activities within TVET skills development on water quality control imbedded into the vocational schools curricula for long-term action plan and results.*

C.) Conduct research/surveys on rubber and banana cultivation practices in the region

1. *In cooperation with PAFO, GIZ could conduct research/surveys on rubber and banana cultivation practices (especially focus on chemical use) in order to identify the impact of chemical use in the region.*
2. *GIZ could provide technical support and facilitate in developing sustainably effective measures that*

reduce the amount of chemical inputs in rubber and banana cultivation to legally permissible levels for human consumption.

- 3. GIZ could facilitate promoting effective measures among rubber and banana cultivators on organically sustainable best practice of rubber and banana cultivation.*
- 4. GIZ could link these best practices with capacity building activities on GACP and COO for all relevant stakeholders, which Laos could adopt on agricultural produces for export and in value chain supply management.*

D.) Establish a cross-sectoral, inter-provincial policy dialogue mechanism between Bokeo and Louang Namtha Province of Laos and Yunnan Province of China in order to facilitate the quick solution of cross-border issues

- 1. In coordination with the central government of Laos and the provincial governors of Bokeo and Louang Namtha, GIZ could support the establishment of an inter-provincial policy dialogue mechanism between Bokeo and Louang Namtha Province and Yunnan Province of China in order to facilitate quick trouble-shooting and implementing solutions related to cross-border issues.*
- 2. Additionally, GIZ could utilize existing GMS inter-governmental institutions and mechanisms to promote an inter-provincial policy dialogue between Bokeo and Louang Namtha Province of Laos and Yunnan Province of China.*
- 3. If successful, GIZ could adopt similar mechanism in other cross-border provinces along the present economic corridors to trouble-shoot cross-border issues during and post AEC 2015 integration.*

E.) Support to enhance food security for poor households in the region as a major component of livelihood improvement program

- 1. Identify the major factors that obstruct the access of rural poor households to natural resources, focusing on natural food sources.*
- 2. Promote effective natural resources and bio-diversity conservation measures based on identified obstruction factors and the analyses.*
- 3. Promote food self-sufficiency measures such as the practice of home garden cultivation and small livestock raising (pig, chicken, etc.) to enhance the food security of rural poor households.*
- 4. Consider introducing bio-gas fuel for rural household use after proper feasibility study on its effectiveness and efficiency for long term use, thereby reducing dependency on fuel wood and/or spending house-hold income for its purchase.*

F.) Develop new components of community-based tourism that enhance natural resource conservation in the region

1. Conduct research/surveys with provincial tourism departments and local agents to identify the potentials of community-based tourism that enhance natural resource conservation in the region.
2. GIZ could facilitate promoting bio-diversity conservation along with community-based tourism in cooperation with local tourism stakeholders, by supporting “tourist participatory programs” or “community living experiences” to enhance natural resource and bio-diversity conservation practices.
3. Facilitate sharing and learning of best practices in sustainable tourism models in GMS/ASEAN region and associated vocational skills development of the local community for creative development and enhancing local income generating measures for the intended community.
4. Public-Private Partnership (PPP) could be enhanced engaging corporate sector to promote and sustain community-based tourism, natural resources, and bio-diversity conservation via their corporate-social responsibility mandate thus contributing to the overall community well-being.

G.) Promote the agro-ecosystems concept to effectively understand rural livelihood situations

1. GIZ should consider further research/surveys along the economic corridors applying the agro-ecosystems concept to facilitate gaining a wider and in-depth understanding of the rural livelihood situation at the village level and holistically along the corridors.
2. GIZ can facilitate developing the technical skills of key provincial departments using the agro-ecosystem concept to enhance their technical skills and capabilities to gain an in-depth knowledge and holistic understanding of the present rural livelihood situations along the corridors in Laos.
3. GIZ could facilitate learning the outcomes at provincial and national level by widely disseminating the results with key stakeholders within Laos government and donor community working on rural development and rural livelihood issues in the country.

H.) Consider intensive base-line survey for post-AEC 2015 evaluation

1. GIZ could conduct an intensive base-line survey in the same nine villages (as this research) especially mapping out the key ethnic communities, their exact composition, detailed economic activity, income levels, etc., to establish a comprehensive 2015 baseline. This will facilitate GIZ Laos team having a good comparative baseline information for future comparisons on poverty reduction and rural development results monitoring and evaluation in a post AEC 2015 scenario.
2. GIZ could facilitate learning the outcomes at provincial and national level by widely disseminating the results with key stakeholders within Laos government and donor community for developing a common understanding on the social and economic profile of ethnic rural population along the

corridors. It would facilitate development partners to avoid duplicating activities while developing post AEC 2015 action plan while identifying common areas for regional activities based on multi-lateral cooperation in GMS Economic Corridor development.

I.) Pilot project on introducing and using IT to strengthen interaction between village leaders and provincial officials

1. GIZ could consider developing a pilot project along with provincial government stakeholders that introduces the use of IT tools and measures to have a comprehensive village database assimilating parameters required by majority of provincial offices and agencies to become a single source of information collection and data interpretation for inputs from village level.
2. The pilot project could facilitate development of single database output relevant for provincial offices and agencies and be potential base for inputs in National Development Plan, GMS & ASEAN Regional Integration Development Plan respectively.
3. If successful, GIZ could consider the lessons learnt to facilitate the development of a national program to systematize and modernize Lao PDR's National Integrated Database System linked with NS-GMS and all other relevant line ministries at the central and provincial level for real-time data access and planning. It could facilitate in effective and efficient project management for result-based outputs for various line ministries with intersecting roles and responsibilities.

J.) Comprehensive and Integrated Land Management Policy

1. GIZ could facilitate a public debate on the various aspects of land management by engaging various stakeholders drawn from Laos government, donor community, and key international and national civil society organizations sharing inputs on existing best practices or emerging best practices.
2. GIZ could facilitate the technical inputs in policy development and its implementation, ranging from land acquisition, compensation, sustainable development and land use.
3. The policy could include incorporating the nuances of economic corridor development and special economic zones into an evolving land management policy for Laos and the various roles different ministries and communities could play as stakeholders for land management and development.

K.) Comprehensive Capacity Building Program

2. *GIZ could facilitate and implement technical skills development and capacity building programs over the next 3 to 6 years for key officials and rural community members with the objective of linking these activities within their overall economic corridor development program from 2015 - 2020. GIZ could focus on the following areas for all concerned stakeholders:*
 - a. *Public Sector Reform (PSR): GIZ could consider a comprehensive PSR technical skills development program on key thematic areas for government officials at various levels along with key community leaders and civil society representatives in Laos to facilitate the possible policy level reform and associated reform activities implementation. Prior to engaging key government stakeholders and partners on comprehensive and integrated land-management policy reform and development, it is suggested to focus on improving the technical skills and capacity building of stakeholders on undertaking public sector reform activities. This could facilitate PSR on land management and land policy both within GMS and outside GMS to develop one suitable for the local context.*
 - b. *Local Economic Development (LED) with Inclusive Growth and Gender Integration: EC development will require focused LED to also include ethnic groups and those living “below poverty line” and “on-poverty line” either according to Laos governments standards or as per international standards on poverty. UNDPs conceptual framework on inclusive growth and gender integration could be assimilated into the LED activities. The program could be developed in various phases with results-based M&E system being applied for impact assessment.*
 - c. *Micro-finance System Development: GIZ could engage INGOs and other key stakeholders who specialize in traditional and non-traditional micro-financing activities to facilitate Laos government in assessing the present system and its lacunas. GIZ could facilitate creating thinking and doing, via exposure to good practices in the Asian region, on micro-finance system and developing a comprehensive policy encompassing traditional and non-traditional micro-financing activities linked with SME activities at village level integrated into economic corridor development activities promoting LED.*
 - d. *Labour Market Requirements and Technical and Vocational Education and Training (TVET) Skills Development: GIZ could facilitate an in-depth assessment of labour demand along ECs among various agricultural and non-agricultural activities including in new investment sectors promoted by Laos government in Special/Specific Economic Zones. Labour Market assessment could consider the current technical skills available, skills required to meet the new industrial growth until 2020 and gaps in the existing skills development among the youths and existing labour force and setting up new vocational training centers and/or upgrading of existing ones. Labour assessment requires understanding Laos religio-socio-cultural cycle, the present and projected population growth rate, and the annual migration patterns of young workers to neighboring countries. Outcome of these could be effectively used to engage with National and Provincial Chambers of Commerce and Industry, GMS Business Forum and donor groups like GIZ, JICA, SDC, etc towards an integrated and comprehensive TVET skills development approach to bridge the labour market requirement in GMS countries in a post-AEC2015 integrated labour market.*

GIZ would also have to consider an intensive national and regional PSR in GMS labour management to ensure policy frameworks a consistent and cohesive to the growing labour demand.

- e. *Project Management with Results-Based Monitoring and Evaluation: with the aim of setting up a National Project Monitoring Body comprised of key ministries with intersecting roles and responsibilities serving as check and balance body. GIZ could consider a comprehensive program inclusive of line ministries and inter-sectoral ministries for project management at various levels ranging from senior policy decision makers to the implementing officials. As a long-term outcome, it can facilitate the Laos government and donor community to assess aid effectiveness and development impact.*

4.5 Policy Recommendations & Intersecting GIZ Key Areas

Policy Recommendations	GIZ's Key Areas
Sustainable land management, rural development and sustainable infrastructure	Land Management
GACP	Rural development
Local Economic Development	Local Economic Development
Establishment of feeder roads to connect ECs with local communities/areas	Sustainable Infrastructure and Rural Development
Better coordination among stakeholders	Good governance
CBTA implementation	Sustainable infrastructure
Development of special economic zones along economic corridors	Economic development and sustainable infrastructure
Microfinance system development	Economic development
Capacity building	Economic development and social development
Labour skills development	Labour market oriented technical and vocational education and training systems
Monitoring system	Sustainable infrastructure

*** END OF RESEARCH PAPER ***

ANNEXES

ANNEX 1: RESEARCH APPROACH

1.1 Background of the Study

The Greater Mekong Subregion (GMS) comprises six countries – Cambodia, Provinces of Yunnan and Guangxi Zhuang of the People's Republic of China (PRC), Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand and Vietnam.

In 1992, with the assistance from the Asian Development Bank (ADB) the six countries entered into a program of economic cooperation, designed to enhance economic relations among them. The economic corridor approach to subregional development was adopted by GMS countries during the Eighth GMS Ministerial Meeting, held in Manila in 1998, to help accelerate the pace of subregional economic cooperation. The three priority GMS economic corridors were identified during that meeting: the East-West Economic Corridor (EWEC), the North-South Economic Corridor (NSEC) and the Southern Economic Corridor (SEC). The development of these corridors was subsequently designated as a flagship initiative under the Ten-Year GMS Strategic Framework endorsed by the leaders of GMS countries during the First GMS Summit, held in Phnom Penh, Cambodia in 2002.

At the Third GMS Summit, held in Vientiane, Lao PDR, in March 2008, GMS leaders stressed the need to intensify efforts to transform transport corridors into economic corridors and maximise benefits from improved physical connectivity in the subregion.

The role of economic corridors in GMS development is reflected in the joint statement of the Eighth GMS Ministerial Meeting, which declared that, "GMS member countries will create economic corridors linking the subregion to major markets; nodal points within these economic corridors will serve as centres for enterprise development; economic corridors will be an expansion of key transport corridors so as to enhance economic activities and benefits, and, over the longer term, to build on the potential of the subregion as a land bridge serving the People's Republic of China [PRC], South-East Asia, South Asia and East Asia."

The development of economic corridors is expected to help achieve the vision of GMS as a prosperous, harmonious and integrated subregion by providing increased connectivity, enhanced competitiveness and a greater sense of community. It supports the strategic thrusts of the Ten-Year GMS Strategic Framework, namely: (i) strengthening infrastructure links; (ii) facilitating cross-border trade, investment, and tourism; (iii) enhancing private sector participation and competitiveness; (iv) protecting the environment and promoting the sustainable use of shared natural resources and (v) developing human resources and skills competencies.

Economic corridor development will bring business opportunities, investors, transportation networks and better trade facilitation to the people living in those areas. They can also be increased access to education, health services, public services and markets, which lead to poverty alleviation and an increased level of well-being.⁵⁸

⁵⁸ ADB GMS Development MapTool (interactive) allows the viewer to see the various projects going on in the region along with the details of the project holder and implementation time. For details please visit <http://www.gms-eoc.org/interactive-maps> accessed 6-March-2014.

1.2 Purpose of the Analytical Report

The purpose of this report's inception is for MI to provide GIZ with a working hypothesis post-initial empirical literature review and share its understanding of a research framework concept and approach to GMS Economic Corridors, in addition to ECs' impact on regional rural development and rural livelihood.

1.3 Problem Statement

While the development of GMS economic corridors offers a chance for less-developed areas to link with more economically advanced members of ASEAN, there are inverse impacts on the rural population located where the corridors pass through that connect the local rural population to the economic centers developing around the corridors.

What is the impact of GMS economic corridor development on the remote populations of rural landlocked locations? Does it help these disadvantaged groups connect with emerging growth centers or nodal points and facilitate them in acquiring any tangible benefits, or does it further push them into poverty as their own local resources are impacted due to the drive for development?

1.4 Objectives of the Study

There are two main objectives of the study:

- To assess in an exemplary, though systematic, way the impact of one of the GMS corridors with regard to regional rural economic development and, in particular, assess the resulting life changes of the poor, rural population
- To identify possible adverse effects, conclude on existing challenges, give recommendations on how to counter deficits in approaches that have been implemented so far and on how to make use of existing potential for interventions of the German Technical Development Cooperation (GIZ).

1.5 Research Questions

Some of the leading questions for this research study are as follows:

- How do the remote rural populations living along GMS corridor view the existing transport corridor?
- What changes (positive or negative) has the corridor made in the lives of the rural populations?
- What suggestions are shared by the local population towards any adverse effects they perceive on the existing challenges?
- What do the local rural populations see as possible future interventions that could assist them more effectively in overcoming adverse challenges?
- What are the views of other stakeholders on economic corridor development? What are their concerns while undertaking impact assessments of the corridor on rural populations?

- How do the stakeholders view the participation of the rural population within overall rural economic development and rural livelihood? How are they linking some of their ongoing projects in the area with the economic corridor?

1.6 Study Rationale

The development of GMS economic corridors offers a means for less-developed member countries of the Association of South-East Asian Nations (ASEAN) to catch up with the more economically advanced member countries and to reinforce the market integration process that is increasing in GMS, ASEAN and East Asia region. Yet there is minimal knowledge about the economic, social and ecological impacts of such economic corridors on the rural economic development and livelihood.

The German Technical Development Cooperation (GIZ), with its ongoing work in the GMS region that focuses on rural development and livelihood, would like to further develop its intervention framework within the GMS/ASEAN region as it heads towards 2015 ASEAN Integration.

The rationale of the study is to present a forward looking analysis of the upcoming ASEAN Regional Integration via economic corridor development and to provide GIZ with input regarding the future development of possible bilateral, trilateral or regional framework interventions with regard to economic development corridor approaches impacting rural development and livelihood.

1.7 Study Significance

The study will be able to identify how the economic corridor development approach contributes or negatively impacts regional and rural economic development and rural livelihood:

- i) extending the benefits of improved transport links to remote rural and landlocked locations in GMS, which have been disadvantaged by their lack of integration compared to neighboring areas that have more advantageous locations and prosperity,
- ii) providing a spatial focus for GMS activities with the backbone, growth centers, and nodal points serving as catalysts for the development of surrounding areas,
- iii) opening up multiple opportunities for various types of internal and external GMS investment,
- iv) enhancing the effect of subregional activities through the clustering of projects,
- v) serving as a mechanism for prioritizing and coordinating investment among neighboring countries,
- vi) generating tangible effects.

1.8 Study Scope

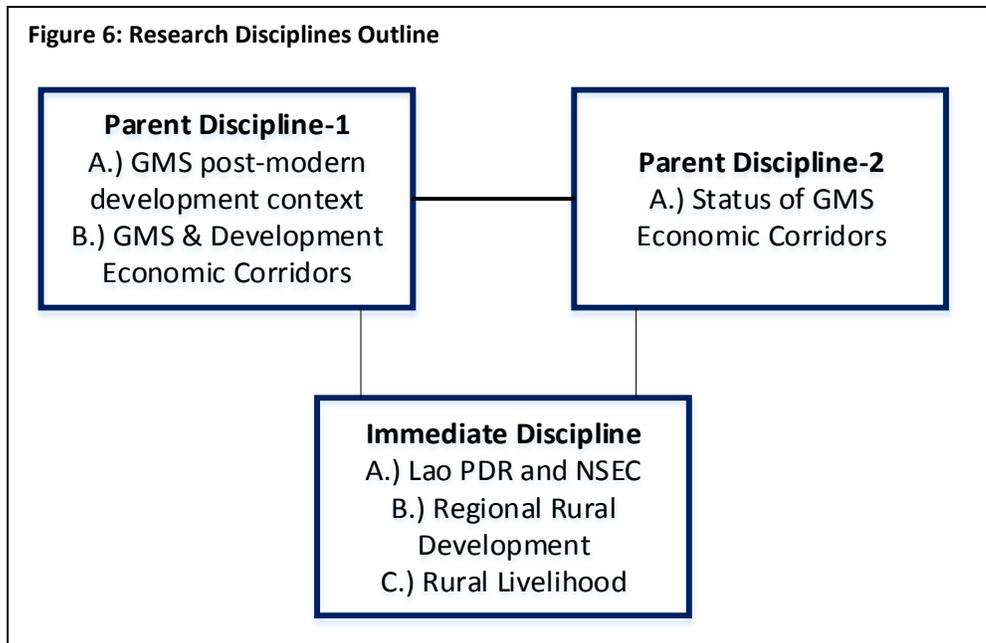
The scope of this study, while considers the broad focus on GMS economic corridor development, is focused on the North-South Economic Corridor (NSEC), especially the segment that passes through Bokeo and Louang Namtha Province, Lao PDR.

Economic Corridorss, as per existing literature, are thought to be a catalyst that pose development potential for surrounding areas, yet the options available to remote and poor populations are seemingly under-assessed when considering economic corridors' impact on rural economic development and livelihood.

The scope, therefore, considers both regional impacts and its associated local impacts from economic corridor development via the study of the NSEC development impact in the two provinces of Bokeo and Louang Namtha of Lao PDR.

1.9 Research Disciplines Identified

Given the scope of the study, the following figure identifies how MIs research team considers the three broad disciplines on which the team will focus its preliminary literature review.



ANNEX 2: RESEARCH HYPOTHESIS AND METHODOLOGY

2.1 Working Hypothesis

Poor, rural populations are impacted by the emerging growth centers or nodal points along the North-South Economic Corridor development in Bokeo and Louang Namtha provinces of Laos PDR. They seek tangible benefits to improve their socio-economic situation hopefully leading them out of poverty while moving towards economic empowerment.

Yet, there is little evidence available about the corridor's impact, positive or negative, on the lives of poor, rural populations and their ongoing rural economic development and livelihood; this includes the coping mechanisms of the local populations and the government's response mechanisms.

2.2 Research Methodology

Considering the empirical literature review and also the proposed working hypothesis, the following section outlines MI's proposed research methodology towards the topic.

2.2.1 Method Topology

According to the objectives of this study, the emerging research questions and subsequent research hypothesis use both qualitative and quantitative methodologies. Additionally, in-depth and key informant interviews and direct observation are considered as data collection techniques. It requires intensive communication, interpretation and observation.

Rural livelihoods in Lao PDR vary from one place to another. Even within the same village, household livelihood structures are often quite heterogeneous. The major challenges for this research are how we can understand and approach the rural livelihood of target villages as a system, and how we can identify and measure the positive/negative impacts of NSEC on their livelihood, given such a limited timeframe.

The research team adopts a two-step approach to maximize the outcomes of fieldwork.

The data collection procedure in the fieldwork include the following two steps:

- i) key informant interviews of provincial officials at various levels and village heads in target villages
- ii) individual informant interview for villagers in each target village

Here, key informant refers to people who have knowledge and information beyond the extent of his/her individual activities, including provincial/district officers, village heads, women's group leader, etc. Individual informant represents people who have knowledge and information about his/her individual situation, experience and activities.

2.2.1.1 Key Informant Interviews - Provincial Department Offices and Officers

The semi-structured interview for provincial department officers aims to collect basic data and understand the general situation on socio-economic impacts of NSEC on people's livelihood. Statistical data the research team obtained from these provincial departments include agricultural production, cultivated area, land use pattern, investment (domestic and foreign) and land concessions and poverty reduction fund projects, Data also includes plantation and land use patterns, natural resource development projects, employment situations, migration patterns, human trafficking, and number of tourists and hotels/guesthouses. The data collected spanned the last decade up until now.

In order to obtain above mentioned data and information, the research team conducted interviews with the following provincial departments in each target province.

- Department of Agriculture and Forestry
- Department of Planning and Investment
- Rural Development Office
- Department of Natural Resources and Environment
- Labor and Employment Office
- Department of Tourism

Each interview session estimated for 1.5 to 2 hours. This data and information is used to identify major trends in relation to NSEC at the provincial and district level.

2.2.1.2 Key Informant Interviews - Target Village Heads

The research team conducted key informant interviews with the use of questionnaires and semi-structured interview techniques in target villages as the first step. The research team focused on the general situation of five livelihood assets, namely, human capital, natural capital, financial capital, physical capital and social capital (DFID 2001)⁵⁹. The broad effects of rural development policies and development activities on villagers' rural livelihoods, including socio-economic and ecological systems (positive and negative), were also taken into consideration. Special attention was paid to gender, women, children and elderly people during key informant interviews in order to offset interviewees' bias. During the questionnaire's use, the research team did not necessarily ask all the questions listed if some of the questions were considered unnecessary for irrelevant to the research target village based on the prompt assessment during the ongoing interview.

Based on the quick review of outcomes of key informant interviews at the sites, the research team prioritized (i.) three to five main topics such as food security and natural resource, market and social service accessibility (depending on the situation of each village) from the prepared questionnaire items and (ii.) two to three different groups (ethnic groups, economic status, etc.) that were assumed to have experienced varying degrees of impact from NSEC.

⁵⁹ DFID (1999) *Sustainable Livelihoods Guidance Sheets*

2.2.1.3 Key Informant Interviews - Village Individuals

Following the identification of main topics and groups, the research team interviewed individual informants in their home villages if necessary. Individual informant interviews targeted the villagers in identifying specific impacts of NSEC, and measure its impacts of certain key indicators related to their livelihoods in the context of rural development. These individual informant interviews were conducted in two stages: (i) group interviews composed of different types of groups (six to nine persons) and (ii) household interviews as a case study on the selected issue.

2.2.1.3.1 Group Interview

After completion of key informant interviews with village leaders at the village site, the research team immediately discussed the prioritization of three to five major topics that pose relevance to socio-economic impacts of NSEC on the villagers' livelihood situation.

The research team conducted a group interview with reference to the questionnaire's prioritized topics. During group interview, the research team focused on the following aspects of prioritized topics:

- differences between/among the selected group categories
- differences between the past 5-10 years ago, the current situation and expected future trend if necessary
- positive and negative situations

Group interviews were conducted in each target village and were expected to last 1.5 to 2 hours, depending on the situation of each village. Based on the information and observations obtained during the group discussion; following consultation with the village leader, the research team identified a household that served as a case study showing the positive (or negative) impact of NSEC on the household livelihood, if necessary.

2.2.1.3.2 Household Interview

The research team often conducted an individual informant interview for a selected household as a case study when necessary. The focus for the research team, at this stage, was to identify the factors that caused a positive and/or negative impact from NSEC on the target households' livelihood. Furthermore, the research team focused on more prioritized topics and issues relevant to each target villages' particular livelihood situation by selective use of question items listed in the questionnaire.

2.3 Research Site Selection

The study focused on the North-South Economic Corridor (NSEC) in the GMS region, especially the segment that passes through Lao PDR's provinces of Bokeo and Louang Namtha, as they have potential as emerging growth centre's and nodal points that serve as a catalyst to the development of surrounding areas. The NSEC segment is a natural confluence of four countries including PRC, Lao PDR, Thailand and Myanmar.

Therefore, the research team assessed local impact in Bokeo and Louang Namtha Provinces of the Lao PDR in regard to economic, social and ecological effects of the NSEC segment development on the area's population. It analysed and compiled NSEC's regional and local economic, social and ecological effects and impacts in the Lao PDR based on the response by the local communities engaged during data collection.

2.4 Target Groups

The study considered two districts (Namtha District and Vieng Phoukha District) in Louang Namtha Province and one district (Houayxai District) in Bokeo Province, as they have considerable rural populations living nearby (along the main road) and considered as remote rural populations (5-10 km extending off the main road).

In a combination with certain criteria, the team identified locations/villages which were in the location prior to the initial development of transport and economic corridors. They were engaged in dialogue for data collection and also observation of the development's impact both in and around their village(s).

The team also observed villages which were in the same location but have varying degrees of access to NSEC. The section below identifies some of the criteria and details for work reference.

2.4.1 Primary Targets

The rural population was considered as primary targets for the purpose of this research. Given the fact that target provinces' rural population is mainly composed of various ethnic groups, the research team needed an interpreter (local ethnic languages and Laotian-English)

2.4.2 Secondary Targets

Government officials, NGOs and other stakeholders were considered as secondary targets for the purpose of this research. It was expected that the GIZ Laos office would help the research team get in touch with the local offices of the Department of Planning and Investment (International Division), Department of Industry and Commerce, Department of Agriculture and Forestry, Department of Natural Resource & Environment, and Department of Transportation, Department of Information Culture and Tourism and Rural Development Office.

2.5 Sampling of Respondents

The research team adopted purposive sampling for this research in accordance with different variables that related to the socio-economic and ecological impact of NSEC in the target provinces. The distance from the main road – the villages located along the main road and the villages 5-10 km far away from the main road – was the main criteria when selecting the sampling of villages (see "Criteria on the Selection of the Research Villages").

During group interviews, the research team defined major topics to be focused on and criteria for group selection based on the quick assessment of key informant interviews at the site. The group size was six to nine persons. The composition of the group varied from one village to another in accordance with the identified priority topics.

The focus throughout household interviews was on the specific factors that affect household livelihood, both positively and/or negatively. The household was purposively selected based on the quick review and assessment of obtained data and information through the key informant interview with the village leader and individual informant interview for the selected group.

2.6 Data Collection Techniques

2.6.1 Secondary Data Collection

Secondary data was collected from various sources such as public information, project reports, international agencies policies, research papers, journals, etc.

2.6.2 Primary Data Collection

Primary data was collected by using direct observation, in-depth structured and semi-structured interviews with key informants as well as combination interview guidelines with individual informants.

2.7 Data Collection Questionnaire Outline

2.7.1 Semi-Structured Interview Guideline for Key Informant (Provincial Department Officials) Interview

Objective of Key Informant Interview:

Key informant interview (Provincial Department Officials) at the provincial level was conducted in order to understand the policies, policy implementation and its achievements of each provincial department in the aspects of regional development and rural development, as well as in the context of NSEC development. The target data and information include both quantitative and qualitative data.

1. Policies

1.1. Major Policies at Provincial Level

What are the major policies currently implemented by your department/office in the province?

- Objectives
- Targets
- Strategy
- Legal Framework
- Inputs

1.2. Policies in the Context of NSEC Development

How do the national NSEC Development Strategies incorporate provincial level policies?

- NSEC Development Strategies in major policies

1.3. Human Resources

How many staff currently work in your department/office?

- Number of staff
- Skill development
- Constraints

2. Policy Implementation

2.1. Major Activities

What are the major activities that implement the policies?

- Provincial level
- District level
- Cluster level (cluster/ kum baan, is an administrative unit between district and village, composed of several villages)
- Village Level

2.2. Cooperation with Other Departments

What is the provincial level mechanism that facilitates cooperation among departments?

2.3. Cooperation with International Organizations

What are the projects/programs currently being implemented by other organizations such as UN Agencies?

- UN Agencies
- Development Agencies
- NGOs
- Others

2.4. Cooperation with Neighbor Countries (Governmental and Private)

What are the activities that cooperate with neighboring countries?

- China
- Thailand
- Myanmar

2.5. Problems and/or Constraints

What are the major problems/constraints in the implementation of the policies?

- Provincial level
- District level
- Cluster level
- Village level

3. Achievements

3.1. Statistics (at least past 10 Years, if possible, past 15-20 years)

How the previous statistical data (past 10-20 years) indicate the achievements of the policies?

3.2. Effects/Impacts on Policy Targets

What are the major effects/impacts of the policies on the target population?

3.3. Effects/Impacts of NSEC Development on the Livelihood of Rural Populations

What are the major effects/impacts of NSEC development on the livelihood of rural populations?

4. Challenges

4.1. Future Plan

What are the future development plans of your department?

4.2. Current Problems/Constraints

What are the major problems/constraints that undermine the future development plans?

List of Data to Obtain from Each Provincial Department

Each kind of statistical data should cover the past 15-20 years (or at least past 10 years) to assess the changed or unchanged trends within the context of NSEC development in each target province.

A. Department of Agriculture and Forestry

1.) Major Crop Statistics (at least past 10 years, if possible past 15-20 years)

- Production
- Cultivated/Harvested Land
- Import/Export (if available)
- Contract farming (crop-specific, production, cultivated/harvested area)

2.) Agricultural Processed Products Statistics (if available)

- Production (i.e. furniture, animal feed, sugar, starch, etc.)

- 3.) Concession Data
 - List of companies
 - Concession fee
 - Location
 - Size of area, etc.
- 4.) Land Use Map (if available)

B. Department of Planning and Investment

- 1.) Investment Statistics (at least past 10 years, if possible past 15-20 years)
- 2.) Domestic Investment (sector-specific)
- 3.) Foreign Investment (sector-specific)
- 4.) Household Statistics
- 5.) Income
- 6.) Poverty
- 7.) Ethnic Groups Distribution
- 8.) Concession Data
 - List of companies,
 - Concession fee
 - Location
 - Size of area
 - Type of cultivated crops

C. Rural Development Office

- 1.) Poverty Related Statistics (at least past 10 years, if possible past 15-20 years)
 - population
 - villages
 - districts
- 2.) Statistics of Poverty Reduction Fund Implementation (at least past 10 years, if possible past 15-20 years)
 - infrastructure construction (i.e. school, health post, market facility, hand-pump, etc.)
 - other (if any)

D. Department of Natural Resources and Environment

- 1.) Natural Resource Sector Investment Statistics (at least past 10 years, if possible past 15-20 years)
- 2.) Domestic Investment (sector-specific)
 - Hydroelectricity
 - Mining, etc.
- 3.) Foreign Investment (sector-specific)
 - Hydroelectricity
 - Mining, etc.
- 4.) Concession Data
 - List of companies
 - Concession fee
 - Location
 - Size of area
 - Types of cultivated crops
- 5.) Land Use Map (forest coverage)

E. Labor and Employment Office

- 1.) Labor Statistics (Sector-specific; at least past 10 years, if possible past 15-20 years)
- 2.) Migration Data (if available)
 - Domestic
 - International
- 3.) Migrant Worker Statistics (if available)
 - Sector-specific

- Nationalities, etc.

F. Department of Tourism and Transportation

- 1.) Tourist Statistics (at least past 10 years, if possible past 15-20 years)
 - Domestic tourists
 - International tourists,
- 2.) Tourism Facilities Statistics (at least past 10 years, if possible past 15-20 years)
 - Number of hotels,
 - Number of guesthouses, etc.
- 3.) Tourism Statistics (sector-specific)
- 4.) Eco-tourism Statistics or Data (if available)
- 5.) Road Accessibility Data (if available)

2.7.2 Questionnaire/Semi-Structured Interview Guideline for Key Informant (Village Head) Interview

Objective of Key Informant Interview:

Key informant interview (Village Head) at the village level was conducted in order to understand the general situation of villagers' livelihoods in the target village, including both quantitative and qualitative data.

1. Human Capital

Population and Household

1.1. Village Population

	Registered	Reside in the Village	Temporary Migrated	
Male				
Female				
Total				

1.1.2. Village Households

Number of village households	Rich	Middle	Poor	Total

1.1.3. Distribution of Ethnic Groups in the Village

Ethnic Groups	Total Population	Male	Female	Children	Total Number of Households	Year Settled in the Village	Migrated from	Main Reason of Settled in the Village
1								
2								
3								
4								

1.2. Education

1.2.1. School

Location	Established in (year)	Distance from the village (km)	Means of Transportation	Time required to reach (hour)	
				Currently	10 Years Ago

Nearest elementary school					
Nearest high school					

1.2.2. Educational Situation of the Village Children and Villagers

		Male	Female	Total	Past 10 Year Trend (increased or decreased)
Number of the village children who regularly go to school					
Number of the village children who are out of school or dropped out					
Number of the villagers who can communicate in Laotian	Speaking				
	Reading				
	Writing				

1.3. Health

1.3.1. Health Infrastructure

Location	Established (year)	Distance from the Village (km)	Means of Transportation	Time Required to Arrive (hours)	
				Currently	10 Years Ago
Nearest health post					
Nearest hospital					
Nearest pharmacy					

1.3.2. Health Situation of Villagers

Common health problems and diseases in the village			
Number of malnourished children (or estimate of percentage)			
Location of child delivery (%)	Home	Health Post	Hospital
Number of midwives and/or midwifery volunteers in the village	Midwives	Midwifery Volunteers	Total

1.4. Labor

- What are the major labor activities in the village (hunting, gathering, agriculture, fishery, livestock raising, handicraft, wage laborer, etc.)? (Use "Labor Calendar" for recording the information)
 - Location
 - Seasonality
 - Activity-specific gender distribution of workload

1.4.1. Labor Calendar

Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rice Cropping (Lowland)																								
(Upland)																								

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Development in GMS**

Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vegetable Cropping																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Fruit Cropping																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Cassava																								
Rubber																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Livestock																								
Beef Cattle																								
Water Buffalo																								
Pig																								
Goat																								
Chicken																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Fishery																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Handicraft																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Wage Labor																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Hunting																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Gathering/Collecting																								
Activities Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Others																								

1.4.2. Training and/or Skill Development Opportunities (Government's Poverty Reduction Fund, Rural Development Office, Lao Women's Union, District Agricultural Extension Office, International Agencies, NGOs, private companies, etc.)

Organiser	Training and/or Skill Development Opportunities Provided

1.4.3. Migration, Migration Work

Destination	Number of Migrated Villagers		Major Reasons/Purposes of Migration
	Currently	10 Years Ago	
Vientiane			
Provincial Capital			
District Town			
Thailand			
China			

2. Natural Capital

2.1. Land

2.1.1. Land Use in the Village

	Total Size of Land	Residential Area	Cultivation Area	Forest Area	Plantation Area
Size (ha)					
Soil Type/Fertility					
Topography (flatland, lowland/upland, slope, etc.)					

2.1.2. Purpose-specific Land Use in the Village

Uses	Size of Area (ha)	Major Crops/Livestock	Opportunities/Constraints
Agriculture			
Pasture			
Home Garden			
Others			

2.1.3. Landholding Distribution in the Village

Number of Landholder Households	Number of Landless Households	Contract Farming			Village Common Area	
		Total Number		Total Size of Area (ha)	Size (ha)	Purpose/Usage
		Households	Farm Plots			

2.1.4. Type of Contract Farming

Crops	Contracted Company/Trader's Inputs and Responsibilities*	Contracted Farmer's Inputs and Responsibilities*

* Distribution of inputs and responsibilities, namely, (a) Land, (b) Labor, (c) Capital, (d) Technologies and (e) Marketing.

2.2. Forest

2.2.1. Forest and Accessibility

Location	Total Area Size		Distance from the Village Residential Area				Type of Forest (Natural Forest, Plantation, etc.)
	Currentl y	10 Years Ago	Distance (km)		Time (hour)		
			Currentl y	10 Years Ago	Currentl y	10 Years Ago	

2.2.2. Fuel-wood Collection

Major Location of Collecting Fuel-wood	Distance from the Village Residential Area				Amount of Fuel-wood at a Trip of Collecting (kg/day)		Frequency of Fuel-wood Collection (times/month)	
	Distance (km)		Time (hour)		Currentl y	10 Years Ago	Rainy Season	Dry Season
	Currentl y	10 Years Ago	Currentl y	10 Years Ago				

2.2.3. Charcoal Making

% of the households Making Charcoal in Total Households	Distribution between Domestic Use and Sales		Sales Price (Kip/kg)
	Household Consumption (%)	Sales (%)	

2.2.4. Non-Timber Forest Products (NTFPs)

NTFPs	Distribution between Domestic Use/Consumption and Sales		Sales Price (Kip/kg)	Last 10 Years Trend (Increased or Decreased)
	Domestic Use/Consumption (%)	Sales (%)		
NTFPs	Distribution between Domestic Use/Consumption and Sales		Sales Price (Kip/kg)	Last 10 Years Trend (Increased or Decreased)
	Domestic Use/Consumption (%)	Sales (%)		

	Consumption (%)			Decreased)

2.2.5. Gold Dust

Location	Number of Villagers Collect Gold Dust	Frequency of Panning Gold (times/month)		Market Price (Kip/g)	Buyers
		Rainy Season	Dry Season		

2.2.6. Water Resources

Type of Water Resource and Location	Quality of Water	Major Usage of Water	Availability (Seasonal, Whole Year)

3. Financial Capital

3.1. Income Sources

3.1.1. Major Income Sources for the Villagers

Major Income Sources	Village Households Engaging in		Major Buyers, Customers, or Contractors	Past 10 years trend (increased or decreased? How much?)
	Number	%		

3.1.2. Income Distribution in the Village

Economic Status	Criteria of Category	% in the Village	Major Income Sources	Past 10 Years Trend
Rich				
Middle				
Poor				

3.2. Household Stock

3.2.1. Livestock and Livestock Farmers

Livestock	Total Number of Livestock (head)	Vaccinated (%)	Estimated Market Value of an Adult Animal (Kip)	Livestock Farmers in the Village	
				Number (households)	(%)
Beef Cattle					
Water Buffalo					
Pig					
Goat					
Chicken					
Duck					

3.2.2. Stocked Agricultural Produces (rice, corn, dry beans, etc.)

Cereals	Household with Stocked Cereals		Estimated Amount of Stocked Cereals in each Household (kg/hh)	Estimated Market Value (Kip/kg)
	Number	%		
Rice				
Corn				
Dry Beans				

3.3. Financial Institutions

3.3.1. Financial Accessibility

Financial Sources	Location	Availability for the Villagers (Estimated % of Users)	Major Purposes of Use
Governmental Banks			
Private Banks			
Microfinance Organizations			
Credit Unions			
Loan Sharks			
Others			

4. Physical Capital

4.1. Roads

4.1.1. Roads and Conditions

Name of the Roads Available from the Village	Type of Road (Paved/Unpaved)	Constructed (Year)	Renovated (Year)	Road Condition	
				Rainy Season	Dry Season

4.1.2. Transportation

Means of Transportation	Destination				Frequency of Operation (times/day)
	Destination from the Village	Distance (km)	Time (hour)	Fare (Kip)	
Public/Private Bus					

4.2. Schools

(See 1.2.1. Schools)

4.3. Health Post and/or Hospital

(See 1.3.1. Health Infrastructure)

4.4. Market

4.4.1. Major Markets Accessible for the Villagers

Market	Location (in the village or other location)	Distance from the Village		Established (Year)	Renovated (Year)	Means of Transportation	Major Purposes
		(km)	(hour)				

4.5. Electricity

Type of Electricity	Installed (Year)	Major Usage of Electricity in the Village		% of Household with Electricity in the Village
		Household Use	Production	
Public Electricity				
Private Generator				

4.6. Telecommunication (including mobile phone network)

	Possession (%)	Users (%)	Using with internet (%)
Mobile Phone			
Smart Phone			
Tablets			
Notebook			
Desktop PC			

4.7. Drinking Water

Type of Drinking Water Sources	Year Installed	Households Using		Quality of Water	Availability (Seasonal, Year-round)
		Number	%		
Tap Water					
Well Water					
Hand-pump					
Others					

4.8. Irrigation Canal

Name and Location of Irrigation Canal	Constructed (Year)	Duration Available Water	Major Purposes of Using Water

5. Social Capital

5.1. Mutual Help

- What kinds of activities do the villagers cooperate each other without paying money?

Activities	Extent of Cooperating Members (Ethnic Group,	Activeness	
		Currently	10 Years

	Kin, etc.)		Ago

5.2. Networks with Outsiders

- Who are the visitors from other places to the village? How many are they? Where do they come from?
- What are the major purposes of their visit?
- How frequently in a year do they come to the village? Does it increase or decrease compared with 10 years ago?

Visitor	Total Number (person/year)	Coming from	Purposes	Frequency of the Visit (times/year)	
				Currently	10 Years Ago

5.3. Trade with Outsiders

- What products/produce do the villagers trade with outsiders?
- Who are the buyers (middlemen/traders) of these products/produce?
- How many do the buyers (middlemen/traders) come to the village? How about 10 years ago?
- How often do the buyers (middlemen/traders) come to the village? How about 10 years ago?

Traded Items	Sell to Whom (middleman, trader, etc.)	Come from	Number of the middlemen/traders trading with the villagers (persons/month)		Frequency of the middlemen/traders trading with the villagers (times/month)	
			Currently	10 Years Ago	Currently	10 Years Ago

5.4. Contract Farming

- What kind of support do the farmers get from the contracted company (see also 2.1.4. Type of Contract Farming)?

- What kind of support do the farmers get from the government?

- Which organization is responsible when some conflict (or problems) occurs between the farmer and the company in the contract farming? Or, if no clear measures are set at this moment, which organization do the farmers expect to take responsibility to solve it?

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6. Other

6.1. Opportunities

What are the major opportunities for rich/middle-class villagers to improve their livelihood situation?
What are the major opportunities for poor villagers to improve their livelihood situation?

6.2. Constraints

What are the major constraints for rich/middle-class villagers to improve their livelihood situation?
What are the major constraints for poor villagers to improve their livelihood situation?

	Rich/Middle Classes Villagers	Poor Villagers
Major Opportunities		
Major Constraints		

2.7.3 Questionnaire/Semi-Structured Interview Guideline for Individual Informant (Group Interview)

Objective of Individual Informant Interview (Group Interview):

Individual informant interview (group interview) at the village level was conducted in order to understand the livelihood situation of the target groups of villagers. This group interview paid attention to identifying the differences among the groups, in possession of and/or access to livelihood capital. The criteria when selecting the target groups was ethnicity and economic status (rich, middle and poor). Other categories depended on the outcomes of the key informant interview. The target groups, two to three persons from each group category totaling six to nine people, were selected immediately after the key informant interview with the village head.

Flexible Use of Optional Topics:

In these individual informant interviews, the research team selected between two and four prepared optional topics based on the outcomes of key informant interview with the village head. Time constraints were also a factor. These optional topics were:

- 1.) Food security
- 2.) Natural resources accessibility
- 3.) Market accessibility
- 4.) Public service accessibility

The research team members organised a meeting immediately after the key informant interview with the village head at the village site, selected between two and four optional topics for individual informant interviews (for a group interview) and prioritized the order of selected topics in accordance with the importance identified as a result of the key informant interview.

Optional Topic 1: Food Security

Rice

Do you cultivate rice in your farmland?

What is the size of your rice field?

How much do you produce rice from your rice field?

	Number of	Size of Rice	Amount of Rice	Remarks

Group Category	Households		Field for Rice Farm Households (ha)	Produced by Rice Farm Households (kg)	
	Rice Farm	Non-rice			

Do your household members eat rice regularly?

Where do you get it from? How?

How much does your household consume rice annually?

Group Category	Number of Households to Eat Rice Regularly	The Major Sources of Rice	Amount of Rice Consumption (kg/month)		Remarks
			Rainy Season	Dry Season	

When is the easiest period in a year to secure rice for home consumption? How long?

Why is it the easiest period to secure rice for home consumption?

Does such an easy situation change from 10 years ago? If so, how did it change? Why?

The Easiest Period to Secure Rice for Home Consumption	Group Category	1	2	3	4	5	6	7	8	9	10	11	12	
Reasons Why the Identified Period is the Easiest to Secure Rice for Home Consumption														
Compared with 10 Years Ago														

When is the most difficult period in a year to secure rice for home consumption? How long?

Why is it the most difficult period to secure rice for home consumption?

Does such a difficult situation change from 10 years ago? If so, how did it change? Why?

The Most Difficult Period to Secure Rice for Home Consumption	Group Category	1	2	3	4	5	6	7	8	9	10	11	12	
Reasons Why														

the Identified Period is the Most Difficult to Secure Rice for Home Consumption	
Compared with 10 Years Ago	

Other Cereals

Do your household members eat other cereals (such as corn) regularly?

Where do you get it from? How?

Group Category	Cereals	Sources to get from	How to get it

When is the easiest period in a year to secure (a cereal) for home consumption? How long?

Why is it the easiest period to secure (a cereal) for home consumption?

Does such an easy situation change from 10 years ago? If so how did it change? Why?

Name of Cereal													
	Group Category	1	2	3	4	5	6	7	8	9	10	11	12
The Easiest Period to Secure Cereal for Home Consumption													
Reasons Why the Identified Period is the Easiest to Secure Cereal for Home Consumption													
Compared with 10 Years Ago													

Name of Cereal													
	Group Category	1	2	3	4	5	6	7	8	9	10	11	12
The Easiest Period to Secure Cereal for Home Consumption													
Reasons Why the Identified Period is the Easiest to Secure Cereal for Home Consumption													
Compared with 10 Years Ago													

Name of Cereal	
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The Easiest Period to Secure Cereal for Home Consumption	Group Category	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Easiest to Secure Cereal for Home Consumption													
Compared with 10 Years Ago													

When is the most difficult period in a year to secure (a cereal) for home consumption? How long?

Why is it the most difficult period to secure (a cereal) for home consumption?

Does such a difficult situation change from 10 years ago? If so, how did it change? Why?

Name of Cereal													
The Most Difficult Period to Secure Cereal for Home Consumption	Group Category	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Most Difficult to Secure Cereal for Home Consumption													
Compared with 10 Years Ago													

Name of Cereal													
The Most Difficult Period to Secure Cereal for Home Consumption	Group Category	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Most Difficult to Secure Cereal for Home Consumption													
Compared with 10 Years Ago													

Name of Cereal													

The Most Difficult Period to Secure Cereal for Home Consumption	Group Category	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Most Difficult to Secure Cereal for Home Consumption													
Compared with 10 Years Ago													

Agriculture for Home Consumption

What kind of vegetables do you cultivate in the farmland?

How much do you harvest (a vegetable)? How many times per year?

How much of the harvest does your household consume (a vegetable)?

Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Vegetables	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation (times/season)		Amount of Home Consumption (kg/year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		

What kind of fruits do you cultivate in the farmland?

How much do you harvest (a fruit)? How many times per year?

How much of the harvest does your household consume (a fruit)?

Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Fruits	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation (times/season)		Amount of Home Consumption (kg/year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		

What kind of vegetables do you cultivate in the home garden?

How much do you harvest (a vegetable)? How many times a year?

How much does your household consume the harvested (a vegetable)?

Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Vegetables	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation in A Year (times/season)		Amount of Home Consumption (kg/year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		

What kind of fruits do you cultivate in the home garden?
 How much do you harvest (a fruit)? How many times a year?
 How much does your household consume the harvested (a fruit)?
 Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Fruits	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation (time/season)		Amount of Home Consumption (kg/Year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		

Ranking of the 5 Most Important Vegetables among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

Ranking of the 5 Most Important Fruits among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

What kind of fish do you raise in your fishpond?
 How much do you harvest (fish)? How many times a year (or a month)?
 How much of the fish caught does your household consume?
 Has the caught amount changed from 10 years ago? If so, how did it change? Why?

Fishes	Amount of Fish Caught in A Fishing (kg)		Frequency of Fishing (times/month)		Amount of Fish Consumed (kg/month)		Compared with 10 Years Ago
	Rainy Season	Dry Season	Rainy Season	Dry Season	Rainy Season	Dry Season	

What kind of livestock does your household raise?
 How many heads do you consume a year (or a month)?
 Has the consumed amount changed from 10 years ago? If so, how did it change? Why?

Livestock	Number of Livestock Raised (head/hh)	Number of Livestock Vaccinated (head/hh)	Number of Livestock Died	Number of Livestock Consumed (head/hh)	Number of Livestock Sold	Compared with 10 Years Ago

			(head/hh)		(head/hh)	
Beef Cattle						
Water buffalo						
Pig						
Goat						
Chicken						
Duck						

Ranking of the 5 Most Important Livestock among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

Collection, Gathering and Hunting for Home Consumption

What kind of wild vegetables do you collect/gather from the forest?

How much do you collect/gather (a wild vegetable) per trip?

How much does your household consume (a wild vegetable)?

Has the collected/gathered amount changed from 10 years ago? If so, how did it change? Why?

Wild Vegetables	Amount of Collected or Gathered in A Trip (kg/day)	Frequency of Collecting/Gathering Trips in A Month (times/month)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

Ranking of the 5 Most Important Wild Vegetable among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

What kind of wild fruits do you collect/gather from the forest?

How much do you collect/gather (a wild fruit) per trip?

How much does your household consume (a wild fruit)?

Has the collected/gathered amount changed from 10 years ago? If so, how did it change? Why?

Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Wild Fruits	Amount of Collected or Gathered in A Trip (kg/day)	Frequency of Collecting/Gathering Trips in A Month (times/month)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

Ranking of the 5 Most Important Wild Fruits among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

What kind of natural fish do you catch from the river/lake/pond?

How much do you catch (quantity) per fishing trip?

How much of the catch does your household consume (naturally caught fish)?

Has the caught amount changed from 10 years ago? If so, how did it change? Why?

Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Natural Fish	Amount of Caught per Fishing (kg/day)	Frequency of Fishing per Month (times/month)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

Ranking of the 5 Most Important Natural Fishes among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

What kind of wild animals do you hunt in the forest?
 How many heads do you hunt in a hunting trip?
 How much does your household consume (wild animal or animals)?
 Has the consumed amount changed from 10 years ago? If so, how did it change? Why?
 Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Wild Animals	Number of Wild Animal Hunted in A Trip (heads/day)	Frequency of Hunting Trips in A Month (times/month)		Amount of Home Consumption (heads/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

Ranking of the 5 Most Important Wild Animal among Different Groups

Group Category	The Most Important	The 2nd Most Important	The 3rd Most Important	The 4th Most Important	The 5th Most Important
Reason of Importance					

Other NTFPs (Honey, Resin, Gold Dust, etc.)

Other NTFPs	Amount of NTFP Collected in A Trip (kg/day)	Frequency of Collection (times/season)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

Optional Topic 2: Natural Resources Accessibility

Forest

Where do you usually collect wild vegetables?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance change from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
	1	2	3	4	5	6	7	8	9	10	11	12
Availability Pattern in Different Seasons												
Main Factors of Availability Change												

Compared with 10 Years Ago	
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Where do you usually collect wild fruits?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Where do you usually catch natural fish?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Has the type of fishes changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Where do you usually hunt wild animals in the forest?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Has the type of animals changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Where do you collect fuel-wood?

How far from your house?

Does its availability change in different seasons? If so how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Has the available tree species for fuel-wood changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Pasture

Where do you pasture livestock?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Has the available pasture species for livestock changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Where do you collect fodder for livestock?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Has the available fodder species for livestock change from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Water

Where do you get drinking water from?

How far from your house?

Does its availability change in different seasons? If so, how does it change? Why?

Has the distance change from 10 years ago? If so, how did it change? Why?

Has the quality of water change from 10 years ago? If so how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different	1	2	3	4	5	6	7	8	9	10	11	12

Seasons																			
Main Factors of Availability Change																			
Compared with 10 Years Ago																			

Where do you get water for washing tableware from?
 How far from your house?
 Does its availability change in different seasons? If so, how does it change? Why?
 Has the distance changed from 10 years ago? If so, how did it change? Why?
 Has the quality of water changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Optional Topic 3: Market Accessibility

Market

Where do you usually buy your food materials?
 How far from your house?
 How do you go there (What transportation means to you use when going to the market)?
 Is the road to the market paved? If so, when was it constructed and/or renovated?
 Does its accessibility change in different seasons? If so, how does it change? Why?
 Has the distance changed from 10 years ago? If so, how did it change? Why?

Location	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	Km	hour		Rainy Season	Dry Season	

Where do you usually buy your clothes?
 How far from your house?
 How do you go there (What transportation means to you use when going to the market)?
 Is the road to the market paved? If so, when was it constructed and/or renovate?
 Does its accessibility change in different seasons? If so, how does it change? Why?
 Has the distance changed from 10 years ago? If so, how did it change? Why?

Location	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	km	hour		Rainy Season	Dry Season	

Middlemen/Traders

Who do you usually sell your products/produce to?

Where do they come from?

How often do they come?

Does their frequency coming to the village change in different seasons? If so, how does it change? Why?

Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?

Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Trade Partners	Produce or Product Sold	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Compared with 10 Years Ago
			Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

Who do you usually buy some products/produce from?

Where do they come from?

How often do they come?

Does their frequency coming to the village change in different seasons? If so, how does it change? Why?

Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?

Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Trade Partners	Produce or Product Bought	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Compared with 10 Years Ago
			Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

Contract Farming

How many companies do the villagers contract with?

Where did the company come from?

What kind of crop do the villagers cultivate under the contract farming scheme?

What are the villager's input responsibilities for the contract farming?

What are the company's input responsibilities for the contract farming?

Has the number of contracted farmers changed from 10 years ago? If so, how did it change? Why?

Name of	Coming	Since	Crop	Number of the	Farmer's	Company's
---------	--------	-------	------	---------------	----------	-----------

Companies	from	(Year)	Cultivated	Villagers Contracted	Inputs	Inputs

Reason of Increase/Decrease of the Number of Contracted Farmers	
Advantages for the Villagers	
Disadvantages for the Villagers	

Optional Topic 4: Public Services Accessibility

Education

Where do your children go to study?

How far from your house?

How do your children go there (what transportation means do your children use when going to school)?

Is the road to the school paved? If so, when was it constructed and/or renovated?

Does its accessibility change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Location of Schools	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	km	hour		Rainy Season	Dry Season	
Reason of Seasonal Accessibility Change						
Change Compared with 10 Years Ago						

Health

Where do you usually go when you become sick or injured?

How far from your house?

How do you go there (what transportation means do you use when going to a health facility)?

Is the road to the health facility paved? If so, when was it constructed and/or renovated?

Does its accessibility change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Location of Health Facilities	Distance from the House	Means of Transportation	Road Condition	Compared with 10 Years Ago

	km	hour		Rainy Season	Dry Season	
Reason of Seasonal Accessibility Change						
Change Compared with 10 Years Ago						

Administration

Where do you usually go for birth registration and/or marriage registration?

Where is the district office located?

How far from your house?

How do you go there (what transportation means do you use when going to the health facility)?

Is the road to the health facility paved? If so, when was it constructed and/or renovated?

Does its accessibility change in different seasons? If so, how does it change? Why?

Has the distance changed from 10 years ago? If so, how did it change? Why?

Location of Office	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	km	hour		Rainy Season	Dry Season	
Reason of Seasonal Accessibility Change						
Change Compared with 10 Years Ago						

Agricultural Extension

Who do you get agricultural technical support from?

Where do they come from?

How often do they come?

Does their frequency coming to the village change in different seasons? If so, how does it change? Why?

Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?

Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Agricultural Extension Services	Come from	Frequency of Coming (times/month)	Means of Transportation	Mobile Phone Accessibility to the Trade Partner	Compared with 10 Years Ago

		Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

Who do your livestock get vaccinations from?
 Where do they come from?
 How often do they come?
 Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
 Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
 Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Livestock Vaccination	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Compared with 10 Years Ago
		Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

Microfinance/Credit Union
 Who do you borrow cash from?
 Where do they come from?
 How often do they come?
 Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
 Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
 Can you contact them by mobile phone call? If so how many times do you call them per month (or per week)?
 Has the distance changed from 10 years ago? If so, how did it change? Why?

Microfinance/Credit Union	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	km	hour		Rainy Season	Dry Season	

2.7.4 Questionnaire/Semi-Structured Interview Guideline for Individual Informant (Household Interview)

Objective of Individual Informant Interview (Household Interview):

Individual informant interview (household interview) at the village level was conducted in order to understand the livelihood situation of the target household. As a case study, the research team focused on some specific factors that affected the target household, either positively or negatively. The criteria of selecting the target household will be ethnicity, economic status (rich, middle and poor) or other categories depended on the key informant interview outcomes (with the village head) and the individual informant interview (group interview). The target household was selected immediately after the individual informant interview (group interview) with the group of villagers, in conjunction with consulting the village head.

Compulsory Topic:

This individual informant interview is composed of two parts, a compulsory topic and two to four prepared optional topics. A compulsory topic is human capital of the household as a basis of the rural livelihood system. It includes family history, family structure, educational level of each household member, health status of each household member, occupation of each household member and labor allocation of household members. Additionally, it includes financial capital (income and household assets).

Flexible Use of Optional Topics:

In this individual informant interview for a selected household, the research team selected two to four prepared optional topics based on the outcomes of key informant interview with the village head as well as depending on the remaining time at the village site. These optional topics were:

1. Food security
2. Natural resources accessibility
3. Market accessibility
4. Public service accessibility

The research team members immediately discussed after the individual informant interview (group interview) at the village site, selected two to four optional topics for the individual informant interview (household interview) and prioritized the order of selected topics in accordance with the level of importance identified as a result of both the key informant interview with the village head and the individual informant interview with the groups of villagers. These selected topics were followed after a compulsory topic of household human capital was finished.

Compulsory Topic: Human Capital

C1. Household Structure (Use "Family Tree Diagram")

- Total number of household members
- Occupation of each household member
- Educational status of each household member
- Health status of each household member
- History of the household
 - When did they come to the village?
 - Where did they come from?
 - Why did they come to the village?
- Social, economic and political status of the household in the village

Family Tree Diagram

C2. Labor Activities

- What are the major labor activities in the household (hunting, gathering, agriculture, fishery, livestock raising, wage labor, etc.)?

Activities	Person	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Rice																									
Vegetables																									
Fruit Cropping																									
Cassava																									
Rubber																									
Activities	Person	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Livestock																									
Beef Cattle																									
Water Buffalo																									
Pig																									
Goat																									
Chicken																									
Activities	Person	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Fishery																									
Activities	Person	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Handicraft																									
Activities	Person	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Wage																									

- Handicrafts
- NTFPs
- Wage Labor
- Remittance
- Saving
- Debt

Source of Income	Person	Annual Amount (Kip)	Compared with 10 Years Ago
Source of Income	Person	Annual Amount (Kip)	Compared with 10 Years Ago

C4. Household Assets

- Major Household Assets

Household Assets	Owner	Held Since (Year)	Estimated Value (Kip)	Remark

Optional Topic 1: Food Security

1.1. Rice

1.1.1. Do you cultivate rice in your farmland?

- What is the size of your rice field?
- How much rice do you produce from your rice field?

Size of Rice Field (ha)	Rice Production (kg)

1.1.2. Do your household members eat rice regularly?

- Where do you get it from? How?
- How much does your household consume rice annually?

The Major Sources of Rice	Amount of Rice Consumption (kg/month)		Amount of Rice Consumption (kg/year)
	Rainy Season	Dry Season	

1.1.3. When is the easiest period in a year to secure rice for home consumption? How long?

- Why is it the easiest period to secure rice for home consumption?
- Has such an easy situation changed from 10 years ago? If so, how did it change? Why?

The Easiest Period to Secure Rice for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Easiest to Secure Rice for Home Consumption												
Compared with 10 Years Ago												

1.1.4. When is the most difficult period in a year to secure rice for home consumption? How long?

- Why is it the most difficult period to secure rice for home consumption?
- Has such a difficult situation changed from 10 years ago? If so, how did it change? Why?

The Most Difficult Period to Secure Rice for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Most Difficult to Secure Rice for Home Consumption												
Compared with 10 Years Ago												

1.2. Other Cereals

1.2.1. Do your household members eat other cereals (such as corn) regularly?

- Where do you get it from? How?

Cereals	Sources to get from	How to get (a cereal)

1.2.2. When is the easiest period in a year to secure (a cereal) for home consumption? How long?

- Why is it the easiest period to secure (a cereal) for home consumption?
- Has such an easy situation changed from 10 years ago? If so, how did it change? Why?

Name of Cereal												
The Easiest Period to Secure the Cereal for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Easiest to Secure the Cereal for Home Consumption												
Compared with 10 Years Ago												

Name of Cereal												
The Easiest Period to Secure the Cereal for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Easiest to Secure the Cereal for Home Consumption												
Compared with 10 Years Ago												

Name of Cereal												
The Easiest Period to Secure the Cereal for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12
Reasons Why the Identified Period is the Easiest to Secure the Cereal for Home Consumption												
Compared with 10 Years Ago												

1.2.3. When is the most difficult period in a year to secure (a cereal) for home consumption? How long?

- Why is it the most difficult period to secure (a cereal) for home consumption?
- Has such a difficult situation changed from 10 years ago? If so, how did it change? Why?

Name of Cereal												
The Most Difficult Period to	1	2	3	4	5	6	7	8	9	10	11	12

Secure the Cereal for Home Consumption													
Reasons Why the Identified Period is the Most Difficult to Secure the Cereal for Home Consumption													
Compared with 10 Years Ago													

Name of Cereal													
The Most Difficult Period to Secure the Cereal for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12	
Reasons Why the Identified Period is the Most Difficult to Secure the Cereal for Home Consumption													
Compared with 10 Years Ago													

Name of Cereal													
The Most Difficult Period to Secure the Cereal for Home Consumption	1	2	3	4	5	6	7	8	9	10	11	12	
Reasons Why the Identified Period is the Most Difficult to Secure the Cereal for Home Consumption													
Compared with 10 Years Ago													

1.3. Agriculture for Home Consumption

1.3.1. What kind of vegetables do you cultivate in the farmland?

- How much do you harvest (vegetable)? How many times per year?
- How much of the harvest does your household consume (a vegetable)?
- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Vegetables	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation in A Year (times/season)		Amount of Home Consumption (kg/year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		

1.3.2. What kind of fruit do you cultivate in the farmland?

- How much do you harvest (a fruit)? How many times per year?
- How much of the harvest does your household consume (a fruit)?
- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Fruit	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation in A Year (times/season)		Amount of Home Consumption (kg/year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		
Fruit	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation in A Year (times/season)		Amount of Home Consumption (kg/year)	Compared with 10 Years Ago
		Rainy Season	Dry Season		

1.3.3. What kind of vegetables do you cultivate in the home garden?

- How much do you harvest (a vegetable)? How many times a year?
- How much of the harvest does your household consume (a vegetable)?
- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Vegetables	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation in A Year (times/year)		Amount of Home Consumption (kg/year)	Change Compared with 10 Years Ago
		Rainy Season	Dry Season		

1.3.4. What kind of fruit do you cultivate in the home garden?

- How much do you harvest (fruit)? How many times a year?
- How much of the harvest does your household consume (a fruit)?
- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Fruit	Amount of Harvest in A Cycle of Cultivation (kg)	Frequency of Cultivation in A Year (time/season)		Amount of Home Consumption (kg/Year)	Change Compared with 10 Years Ago
		Rainy Season	Dry Season		

1.3.5. What kind of fish do you raise in your fishpond?

- How much do you harvest (a fish)? How many times per year (or per month)?
- How much of the caught fish does your household consume?

- Has the caught amount changed from 10 years ago? If so, how did it change? Why?

Fish	Amount of Fish Caught in A Fishing (kg)		Amount of Fish Consumed (kg/month)		Compared with 10 Years Ago
	Rainy Season	Dry Season	Rainy Season	Dry Season	

1.3.6. What kind of livestock do you raise?

- How many heads of cattle does your household consume per year (or per month)?

- Has the consumed amount changed from 10 years ago? If so, how did it change? Why?

Livestock		Number of Livestock Raised (head)	Number of Livestock Vaccinated (head)	Number of Livestock Died (head)	Number of Livestock Consumed (head)	Number of Livestock Sold (head)	Market Price (Kip/head)	Compared with 10 Years Ago
Beef Cattle								
Water buffalo								
Pig								
Goat								
Chicken								
Duck								

1.4. Collection, Gathering and Hunting for Home Consumption

1.4.1. What kind of wild vegetables do you collect/gather from the forest?

- How much do you collect/gather (a wild vegetable) in per trip?

- How much does your household consume (a wild vegetable)?

- Has the collected/gathered amount changed from 10 years ago? If so, how did it change? Why?

- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Wild Vegetables	Amount of Collected or Gathered in A Trip (kg/day)	Frequency of Collecting/Gathering Trips in A Month (times/month)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

1.4.2. What kind of wild fruit do you collect/gather from the forest?

- How much do you collect/gather (a wild fruit) per trip?

- How much does your household consume (a wild fruit)?

- Has the collected/gathered amount changed from 10 years ago? If so, how did it change? Why?

- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Wild Fruits	Amount of Collected or Gathered in A Trip (kg/day)	Frequency of Collecting/Gathering Trips in A Month (times/month)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

1.4.3. What kind of natural fish do you catch from the river/lake/pond?

- How much do you catch (a natural fish) per fishing trip?
- How much of the fish caught does your household consume (a natural fish)?
- Has the caught amount changed from 10 years ago? If so, how did it change? Why?
- Has the harvested amount changed from 10 years ago? If so, how did it change? Why?

Natural Fish	Amount of Fish Caught in A Fishing (kg/day)	Frequency of Fishing in A Month (times/month)		Amount of Home Consumption (kg/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

1.4.4. What kind of wild animals do you hunt in the forest?

- How many animal heads do you hunt in a hunting trip?
- How much does your household consume (a wild animal)?
- Has the consumed amount changed from 10 years ago? If so, how did it change? Why?
- Has the harvested amount change from 10 years ago? If so, how did it change? Why?

Wild Animals	Number of Wild Animal Hunted in A Hunting Trip (heads/day)	Frequency of Hunting Trips in A Month (times/month)		Amount of Home Consumption (heads/month)		Compared with 10 Years Ago
		Rainy Season	Dry Season	Rainy Season	Dry Season	

Optional Topic 2: Natural Resources Accessibility

2.1. Forest

2.1.1. Where do you usually collect wild vegetables?

- How far from your house?

- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.1.2. Where do you usually collect wild fruit?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.1.3. Where do you usually catch natural fish?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the type of fish changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.1.4. Where do you usually hunt wild animals in the forest?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the type of animals changed from 10 years ago? If so, how did it change? Why?

Location/Distance from	Location						Km			Hour		
------------------------	----------	--	--	--	--	--	----	--	--	------	--	--

the House (km and hour)												
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.1.5. Where do you collect fuel-wood from?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the available tree species for fuel-wood changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.2. Pasture

2.2.1. Where do you pasture livestock?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the available pasture species for livestock changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.2.2. Where do you collect fodder for livestock?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the available fodder species for livestock changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.3. Water

2.3.1. Where do you get drinking water from?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the quality of water changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

2.3.2. Where do you get water for washing tableware from?

- How far from your house?
- Does its availability change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?
- Has the quality of water changed from 10 years ago? If so, how did it change? Why?

Location/Distance from the House (km and hour)	Location						Km			Hour		
Availability Pattern in Different Seasons	1	2	3	4	5	6	7	8	9	10	11	12
Main Factors of Availability Change												
Compared with 10 Years Ago												

Optional Topic 3: Market Accessibility

3.1. Market

3.1.1. Where do you usually buy your food materials?

- How far from your house?
- How do you go there? (What is your means of transportation to the market?)
- Is the road to the market paved? If so, when was it constructed and/or renovated?
- Does its accessibility change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?

Location	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	km	hour		Rainy Season	Dry Season	

3.1.2. Where do you usually buy your clothes?

- How far from your house?
- How do you go there? (What is your means of transportation to the market?)
- Is the road to the market paved? If so when was it constructed and/or renovated?
- Does its accessibility change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?

Location	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	km	hour		Rainy Season	Dry Season	

3.2. Middlemen/Traders

3.2.1. Who do you usually sell your products/produce to?

- Where do they come from?
- How often do they come?
- Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
- Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
- Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Trade Partners	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Compared with 10 Years Ago
		Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

3.2.2. Who do you usually buy some products/produce from?

- Where do they come from?
- How often do they come?
- Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
- Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
- Can you contact with them by mobile phone call? If so, how many times do you call them per month (or per week)?

Trade Partners	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Compared with 10 Years Ago
		Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

3.3. Contract Farming

3.3.1. What company do you contract with?

- Where does the company come from?
- What kind of crop(s) do you cultivate under the contract farming scheme?
- What are your responsible inputs for the contract farming?
- What are the company's input responsibilities for the contract farming?
- What are the advantages of the contract farming for you?
- What are the disadvantages of the contract farming for you?

3.3.2. What company do the villagers contract with?

- Where does the company come from?
- What kind of crops do the villagers cultivate under the contract farming scheme?
- What are the villager's input responsibilities for the contract farming?
- What are the company's input responsibilities for the contract farming?
- Has the number of contracted farmers changed from 10 years ago? If so, how did it change? Why?

Name of Company	Coming from	Since (Year)	Crop Cultivated	Number of Villagers Contracted	Farmer's Inputs	Company's Inputs

Advantages for the Villagers	
Disadvantages for the Villagers	

Optional Topic 4: Public Services Accessibility

4.1. Education

4.1.1. Where do your children go to study?

- How far from your house?
- How do your children go there? (What is your children's means of transportation to school?)
- Is the road to the school paved? If so, when was it constructed and/or renovated?
- Does its accessibility change in different seasons? If so, how does it change? Why?
- Has the distance change from 10 years ago? If so, how did it change? Why?

Location of School	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	Km	Hour		Rainy Season	Dry Season	

4.2. Health

4.2.1. Where do you usually go when you become sick or injured?

- How far from your house?
- How do you go there? (What is your means of transportation to the health facility?)
- Is the road to the health facility paved? If so, when was it constructed and/or renovated?
- Does its accessibility change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?

Location of Health Facility	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	Km	Hour		Rainy Season	Dry Season	

4.3. Administration

4.3.1. Where do you usually go for birth registration and/or marriage registration?

- Where is the district office located?
- How far from your house?
- How do you go there? (What is your means of transportation to the office?)
- Is the road to the health facility paved? If so, when was it constructed and/or renovated?
- Does its accessibility change in different seasons? If so, how does it change? Why?
- Has the distance changed from 10 years ago? If so, how did it change? Why?

Location	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	Km	Hour		Rainy Season	Dry Season	

4.4. Agricultural Extension

4.4.1. Who do you get agricultural technical support from?

- Where do they come from?
- How often do they come?
- Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
- Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
- Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Agricultural Extension Services	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Compared with 10 Years Ago
		Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

4.4.2. Who do your livestock get vaccination from?

- Where do they come from?
- How often do they come?
- Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
- Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
- Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?

Livestock Vaccination	Come from	Frequency of Coming (times/month)		Means of Transportation	Mobile Phone Accessibility to the Trade Partner		Change Compared with 10 Years Ago
		Rainy Season	Dry Season		Accessibility (Yes or No)	Frequency (times/month)	

4.5. Microfinance/Credit Union

4.5.1. Who do you borrow cash from?

- Where do they come from?
- How often do they come?

- Does their frequency coming to the village change in different seasons? If so, how does it change? Why?
- Has their frequency coming to the village changed from 10 years ago? If so, how did it change? Why?
- Can you contact them by mobile phone call? If so, how many times do you call them per month (or per week)?
- Has the distance changed from 10 years ago? If so how did it change? Why?

Microfinance/ Credit Union	Distance from the House		Means of Transportation	Road Condition		Compared with 10 Years Ago
	Km	Hour		Rainy Season	Dry Season	

2.8 Data Processing and Analysis Framework

Structured questionnaire (for village head, group and individual household) and semi-structured interview guideline (for provincial department officials) was developed for information collection that targeted key informants.

After each session of the key informant interview (with village head) at each village, the research team immediately reviewed the outcome of the interview on-site and identified priorities among the major topics on the questionnaire that was then used for group interview. The research team collected data via questionnaires for each individual informant on prioritized topics only (between three and five topics depending on the situation).

The research team adopted the agro-ecosystem analysis derived from the human ecology concept (Rambo 1985)⁶⁰ in order to understand interactions between human social systems and agro-ecosystems in the context of rural livelihoods. More specifically, the research team identified each village livelihood system (i.e., the complex relations among the village livelihood components in each research target village) and a general overview of agro-ecosystems (i.e. the complex relations between agriculture and ecology) of the target area that indicated the major impacts of NSEC on the rural livelihood system based on the village livelihood system analysis. Such a method of agro-ecosystem analysis helped the research team to understand the rural livelihoods of the research target villages in a holistic way.

Post-data collection information was analyzed using qualitative and quantitative analyses where applicable. Observations, site visits, key information provided and key informant interviews were used in qualitative and quantitative analyses in order to assess the research objectives.

⁶⁰ Rambo A.T. (1985), *Applied Human Ecology Research on Asian Agricultural Systems*, Paper presentation at EAPI/MURCEP Workshop on Human Ecology Research on Agroecosystems, Nanjing Institute of Environmental Science of MURCEP, Nanjing, China, 9-18 Sept. 1985.

2.9 Research Ethics Followed

MI research team followed the normal ethical research practices applied in seeking research input and feedback from the local community and also sought permission for recordings and photography while engaging the community.

2.10 Limitation of the Study

During the initial stages of the inception note and literature review, the following limitations were observed:

- a) Geographical research area coverage: the proposed area researched had no precedent on the impact assessment on rural development and livelihood for the poor population living near or along the economic corridor.
- b) Lack of proper poverty related base-line data: there were variations in the poverty base-line data that could be constituted as the authentic poverty base-line information for research work. The research team, therefore, relied upon the Lao PDR government's official poverty base-line data which was used for their own internal work reference and development planning.
- c) Research population coverage: given the geographical size of the research area, the target population for research feedback presented challenges to the research team in judiciously projecting their concerns and feedback as the overall general population of the two provinces of Bokeo and Louang Namtha.
- d) Field data collection and observation time constraints: for a proper assessment of the impact, ideally the team required more time for observations and interactions with the local communities along the economic corridor. This allowed the team to observe some of the daily activities and routines that were carried out including scheduling observations during a particularly significant agro-economic activity in which the economic corridor was being used. The team, however, made best use of the time and observed as much as possible considering time constraints.

2.2 Expected Outputs

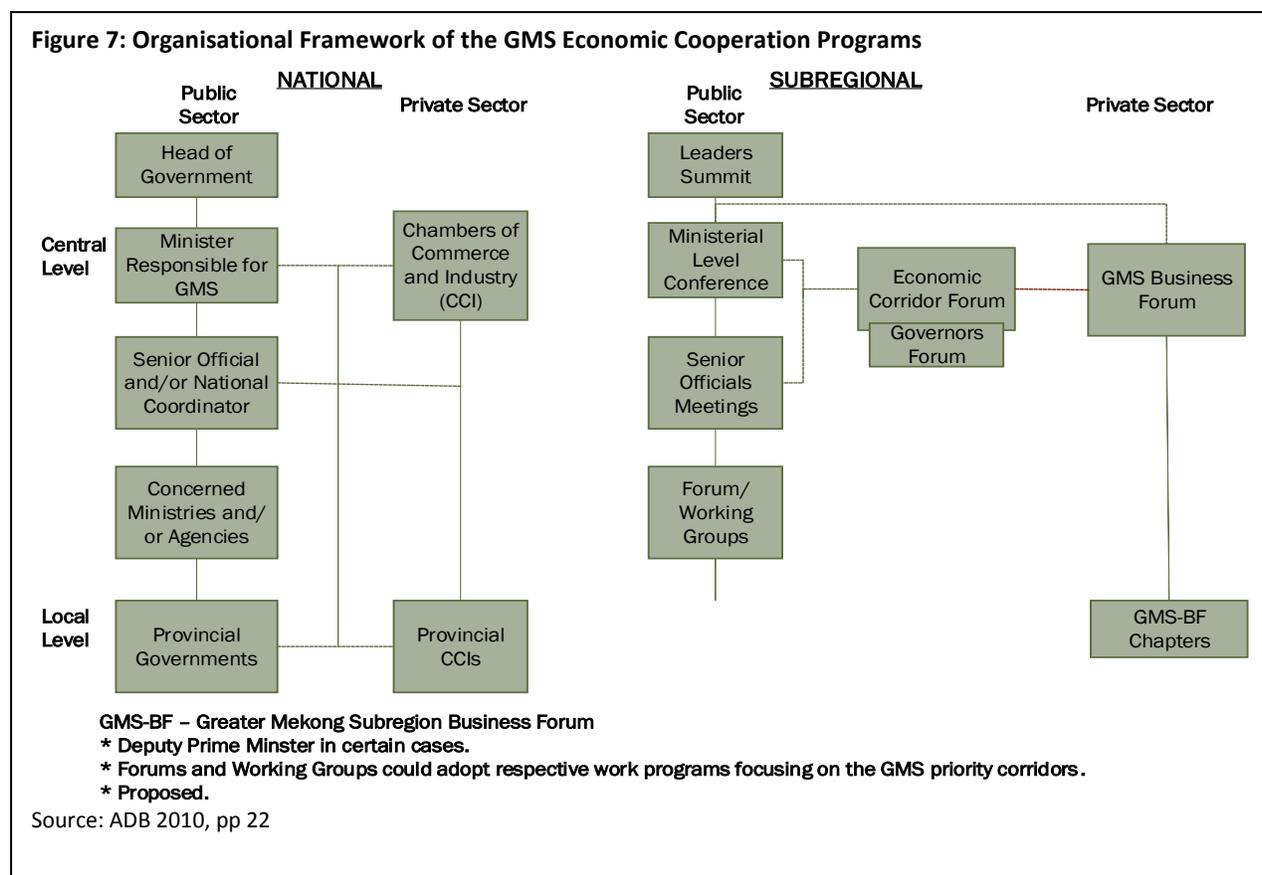
As per the GIZ TOR, it was identified that the outputs were expected as follows:

- a. An up-to-date analysis of the achievements, opportunities, risks and impacts of the GMS Economic Corridor Development approach with specific attention to the NSEC segment within the Lao PDR on rural economic development and rural livelihoods available to the contracting party.
- b. Recommendations on potential interventions of the German Technical Development Cooperation are provided.
- c. Recommendations to GIZ are given on possible next steps to be taken.

ANNEX 3: Related GMS Structures and Important Decisions

4.1 GMS Ministerial Conferences (GMS-MC): Beyond 2015

GMS-MCs are annual meetings of GMS ministers, providing policy direction for the program and oversight of progress in identifying and implementing “results-oriented” initiatives.⁶¹



4.1.1 17th GMS Ministerial Conference (GMS-MC 17)

The conference noted the substantial efforts made in accelerating the development of transport corridors into economic corridors, and that, in recognition of the importance to each of the three main corridors, specific symposiums were organised involving key stakeholders, particularly from the provinces and local authorities inclusive of the private sector. This was reflected in the Third Economic Corridor Forum (ECF-3) in 2011. The ministers acknowledged these ground-breaking events prompting them to further promote close inter-sectoral coordination including involvement of all key stakeholders.

⁶¹ For details on GMS-MCs please refer to <http://www.adb.org/countries/gms/greater-mekong-subregion-gms-conferences>

Emphasis was laid on transport and trade facilitation, promotion of cross-border economic linkages and logistics development, with investments in urban and area development taking place along the GMS corridors.

Acknowledging connectivity as a key area of focus for the program, the ministers focused their attention on linking feeder and rural road networks with foreseeable railway connectivity for energy efficiency and climate change mitigation, while reducing transport costs and deepening connectivity. The ministerial conference also acknowledged the fact that with completion of the primary road transport corridors, attention should be given to widen these roads via necessary linked feeder and rural road networks, including future railway connectivity. Need was also expressed to develop low carbon energy solutions, develop renewable resources, improve energy supply security and promote public-private partnership to enhance environmental sustainability. The ministers are linking these actions to realize the vision of a “poverty-free and ecologically rich GMS” by partially endorsing the Core Environment Program–Biodiversity Conservation Initiative (CEP-BCI 2012–2016) as it incorporates environmental issues into national planning through Strategic Environmental Assessment (SEA) and Environmental Performance Assessment (EPA).

New strategic directions were set for the Core Agriculture Support Program Phase II (2011–2015) to address the emerging challenges to agricultural development, expanding cross-border trade in agro-food products, climate change adaptation, ensuring sufficient and lasting resources for agricultural development as well as food and bio-energy security. Urgency was also given to scale up climate friendly and gender-responsive biomass technologies addressing inadequate access to modern energy methods and existing food insecurity among the poor. Continued efforts to enhance multi-sectoral collaboration and linkage development with the Working Group on Environment, the Joint Committee on the Cross-Border Transport Agreement on Eco-Trade and the Working Group on Tourism, Food Safety and Inclusive Supply Chain were also emphasized. The ministerial gathering reviewed the final draft of the proposed new GMS Ten-Year Strategic Framework (2012–2022) which has aims to provide the GMS region with pragmatic and innovative ways towards growth and development. The need was emphasized that the new framework must translate into comprehensive yet well-defined and time-bound actions and interventions to yield their intended results.⁶²

4.1.2 18th GMS Ministerial Conference (GMS-MC 18)

Noting the substantial progress made in the various sectors including the growing need of urbanization and ensuring inclusive urban development takes place among the GMS countries including the necessary labour migration and its sustainable and effective management, a joint statement recognised the need for ensuring consistency and multi-sectoral coordination and cross-sectoral links to be balanced concerns regarding development and environment. The GMS-MC also emphasized for action and results implementing GMS HRD Strategic Framework and the Action Plan for 2013–2017, which has set down the initiatives and actions focused on development of the economic corridors and a

⁶² Extracts from 17th GMS Ministerial Conference: Joint Ministerial Statement – Building on Success: Expanding GMS Cooperation for New Opportunities, Phnom Penh, Cambodia, 4 August 2011. For full details please visit: <http://www.adb.org/sites/default/files/17th-summit-joint-ministerial-conference-statement-greater-mekong-subregion-gms.pdf>

more competitive GMS population and workforce. Furthermore, concerns were expressed in regard to implementation of the MOU for Joint Action to Reduce HIV Vulnerability Related to Population Movement in the GMS.

Emphasis on “demand-driven development” which is aligned with existing and potential trade, tourism and other economic flows highlights the GMS’s need for urban development interventions which necessitate the linkage of remote areas to urban growth centers. This connectivity creation must support external, cross-border and domestic trade and tourism, complementing regional and national plans and priorities, thereby enhancing the linkages between interior areas and gateway ports. Putting further focus on well-managed, sound urban development, the joint statement recognised a need to properly identify primary towns and cities that have growth potential, including addressing growing development needs such as basic infrastructure, water and sanitation, transport and power and developing institutional and policy initiatives to improve business and promote environmental sustainability to target ongoing climate change. It also essential to investment in transport systems that provide efficient and uncongested transport within urban centers as well as effective connectivity through secondary roads to smaller urban, peri-urban and rural areas, including multi-modal and inter-modal transport linkages.

Along with the investments is the necessary capacity and human resource development, with focus on technical and vocational education and training, higher education and research, anti-human trafficking initiatives, addressing health issues, preventing and controlling cross-border transmission of communicable diseases (including HIV/AIDS) and trade in unsafe food and drugs, facilitating safe and competitive cross-border labour migration and strengthening subregional cooperation in HRD.

This conference was combined with the GMS Regional Investment Framework (RIF) Steering Committee, and reviewed the interim outputs on RIF formulation process. It also engaged development partners in seeking ways to better engage partners for the next generation of investments as per new GMS Strategic Framework. The need for well-coordinated multi-sectoral interventions, developing effective software, establishing and maintaining a strong knowledge platform and likewise institutional strengthening and capacity building were also emphasized.⁶³

4.1.3 19th GMS Ministerial Conference (GMS-MC 19)

The recently inaugurated Fourth International Mekong Bridge between Lao PDR and Thailand at Chiang Khong and Houayxai marked the GMS North-South Economic Corridor completion and connectivity and was recognised at the GMS-MC 19. Two additionally significant developments were also noted; first, the agreement to establish the Regional Power Coordination Center which was signed and second, GMS countries agreed to sign a MOU that established the Greater Mekong Railway Association to promote closer railway connectivity. Apart from strengthening the competitiveness of the GMS labour force and strengthening the response capacity to contain and address communicable diseases, the expanding tourism sector in GMS was also recognised in order to build upon the improved physical

⁶³ Extracts from 18th GMS Ministerial Conference: Joint Ministerial Statement - New Start, New Progress: Building on Two Decades of the GMS Program, Li Yuan Resort, Nanning, People’s Republic of China (PRC): 11 December 2012 – 12 December 2012. For full details please visit: <http://www.adb.org/sites/default/files/18th-summit-joint-ministerial-conference-statement-greater-mekong-subregion-gms.pdf>

connectivity and simplified visa requirements. Expansion of GMS cooperation to establish Cross-Border Economic Zones (CBEZs), including urban development, marks further development between the GMS countries towards strengthening their bi-lateral economic partnerships.

The conference reviewed the progress of cooperation and steps required to ensure continued success. The gathered ministers agreed and endorsed a pipeline of a new generation of cooperatives under a RIF⁶⁴ for the next decade of the GMS program, having clear institutional responsibilities, monitoring frameworks and incorporating intensive efforts in resources mobilization. RIF, while being treated as a living framework, is expected to identify new generation of GMS projects for the coming decade of cooperation and provide detailed and comprehensive planning framework to prioritize, implement and monitor such projects. Responding to concerns and challenges emerging in agriculture and environment sectors, prudent management of natural resources, environment, building climate change resilience, agricultural competitiveness, promoting food safety and security, skills development and software development and implementation to facilitate transport and trade were seen as needing urgent attention in the RIF in order to realize the benefits of the existing physical connectivity via GMS corridors.

There was a need recognised for a sound monitoring and evaluation program which also facilitates engagement of development partners and investors in related priority projects. Recognising RIF as a “Strategic Blue Print”, GMS ministers would like RIF to play a crucial role in ensuring the collective goal of sustainable, balanced and inclusive GMS development, while inviting the highly necessary, large private sector investments to upcoming development projects.⁶⁵

Considering the strategic output and development, the 19th GMS Ministerial Conference can be seen as the most crucial turning point for regional integration, especially with ASEAN Regional Integration coming up in 2015.

4.2 GMS Economic Corridor Forum (GMS-ECF/ECF): Beyond 2015

Established by the GMS Ministers on March 31, 2008 under Article 4 of the MoU “Towards Sustainable and Balanced Development of the Greater Mekong Subregion North-South Economic Corridor and Enhanced Organizational Effectiveness for Developing Economic Corridors”, this MoU covers NSEC, EWEC and SEC and is the main advocate and promoter of economic corridor development in the GMS. The ECF examined economic corridor development collaboration, needs and priorities, in addition to strengthening and promoting coordination, networking and facilitating of all initiatives. It is identified as the “standing body”, providing recommendations to the Ministerial Conference to promote economic corridor development, while the MC continues to be the highest decision-making, coordinating body under the GMS Economic Cooperation Program. This includes appropriate actions taken by

⁶⁴ ADB, 2013, *Greater Mekong Subregion Economic Cooperation Program – Overview of the GMS Regional Investment Framework (2013 – 2022)*, Vientiane, Lao People’s Democratic Republic 10-11 December 2013. Full document at: <http://www.adb.org/sites/default/files/overview-gms-regional-investment-framework.pdf>

⁶⁵ Extracts from 19th GMS Ministerial Conference: *Joint Ministerial Statement - A New Generation of GMS Initiatives for Accelerated Progress*, Don Chan Palace Hotel, Vientiane, Lao People’s Democratic Republic: 10 December 2013 - 11 December 2013. For full details please visit: <http://www.adb.org/sites/default/files/19th-summit-joint-ministerial-conference-statement-greater-mekong-subregion-gms.pdf>

relevant ministries and agencies at the GMS country level in accordance with the agreements. The ECF also, “...Approves and launches implementation of the Strategy and Action Plan (SAP) for NSEC development...Receives and deliberates on progress reports covering the implementation of the SAP for NSEC development...Considers and acts on SAP related policy and implementation issues requiring high-level resolution and other related matters brought up on their attention...”.⁶⁶

4.2.1 First Economic Corridor Forum (ECF-1)

A forum held in Kunming, PRC on June 6, 2008 led to the inauguration and establishment of the ECF-1 by adopting the Kunming Consensus as the main advocating forum and promoter of GMS corridor development, entailing infrastructure improvement integrated with other economic opportunities such as trade and investments. It also recognised that efforts are to be undertaken to “...address the social and other impacts arising from the increased connectivity...”. Within the First Forum, it was recognised that the ECF would act as a single body to promote development, enhance collaboration and emphasize improvements regarding interactions between public and private sectors and between central and local level of governments. The forum laid out the modalities to develop and implement a strategic action plan for the NSEC.⁶⁷

4.2.2 Second Economic Corridor Forum (ECF-2)

Held in Phnom Penh, Cambodia on September 17, 2009, the ECF-2 was based on the theme, “GMS Economic Corridors: Pathways to an Integrated, Harmonious and Prosperous Subregion”; it assisted in strengthening the groundwork to involve local and provincial authorities in corridor development and expansion, while addressing the cross-border issues. It also recognised, “... the importance of the institutional arrangements towards Cross-Border Transport Agreement (CBTA) and other transport and trade facilitations (TTF) measures...”.⁶⁸

4.2.3 Third Economic Corridor Forum (ECF-3)

Held in Vientiane, Lao PDR on June 30, 2011, based on the theme, “Strengthening Pathways for Sustained Progress in the GMS”, the ECF-3 recognised the need for corridor-specific symposia to not only bring together the stakeholders for the specific priority regional corridor, but also to consider both, “...widening and deepening GMS corridors to accelerate their development via the formulation of a regional master plan or a regional investment framework...”. Additionally, ECF-3 considered assessing

⁶⁶ For full details of the GMS Economic Corridor Forum (ECF), please read ADB, 2010. *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor*, pp 21 – 23 Also read Appendix 2.1 ECF TOR, pp 86-89.

⁶⁷ Excerpts from GMS ECF-1 Summary of Meeting Notes, for details please read <http://www.adb.org/sites/default/files/ECF-4-Synopses-Past-ECF-Meetings.pdf>

⁶⁸ Excerpts from GMS ECF-2 Summary of Meeting Notes, for details please read <http://www.adb.org/sites/default/files/ECF-4-Synopses-Past-ECF-Meetings.pdf>

the corridor(s) via a monitoring system by forming corridor taskforces, primarily inclusive of local or sub-national stakeholders along the specific GMS corridors.⁶⁹

4.2.4 Fourth Economic Corridor Forum (ECF-4)

Held in Mandalay, Myanmar on June 28, 2012, the ECF-4 was deemed as the first major GMS meeting after the adoption of the new GMS Strategic Framework 2012–2022 under the theme, “Towards Implementing the New GMS Strategic Framework (2012–2022): Expanding, Widening, and Deepening Economic Corridors in the GMS”. Widening and deepening of the corridors, “...through inclusive development of areas along and contiguous to the corridors...” supported with necessary policy and institutional reforms in order to promote international trade and investments and human migration was considered paramount. It was understood in the ECF that potential new alignments based on trade and investment flows, economic analysis, the increasing emergence of Myanmar and requests of other GMS countries in order to consider the hardware and software constraints towards development should be the driving force via the creation of new multi-sector projects, interventions and spatial planning under the GMS Regional Investment Framework.⁷⁰

4.2.5 Fifth Economic Corridor Forum (ECF-5)

Held in Bangkok, Thailand on August 7, 2013, the ECF aimed to review the RIF and seek a principle endorsement of the framework to facilitate the implementation of TTF in the corridors and also to discuss other related initiatives. The ECF-5 highlighted projects to be covered under the RIF, acknowledged its preparation by the various working groups or under the various bilateral or multilateral arrangements but, most of all, it significantly recognised the regional dimensions arising out of the RIF and the strong ownership projected which complemented and were in line with the national development plans. The RIF adopted was thus considered to be consistent in broadening and deepening the GMS and in addressing the issues including the offered opportunities, inviting more private investments and creating job opportunities to make them the “engines of sustained regional development”.⁷¹

4.3 GMS Governors’ Forum (GMS-GF): Beyond 2015

Designed as a platform for networking and coordination among the provincial governors (or their equivalent) of the provinces along the GMS economic corridors, the GMS-GF is a subset within the ECF to complement their work and meets in conjunction with the ECF. The GF assures increased participation of these governors, including securing their commitment, promoting economic corridor development and

⁶⁹ Excerpts from GMS ECF-3 Summary of Meeting Notes, for details please read <http://www.adb.org/sites/default/files/ECF-4-Synopses-Past-ECF-Meetings.pdf>

⁷⁰ Excerpts from GMS ECF-4 Concept Note, for details please read <http://www.adb.org/sites/default/files/ECF-4-Concept%20Note-19-Jun-2012.pdf>

⁷¹ Excerpts from GMS ECF-5 Concept Note, for details please read <http://www.adb.org/sites/default/files/ecf-5-concept-note.pdf> and Opening Statement by ADB Vice-President Stephen P. Groff on 7 August 2013 at the Fifth GMS Economic Corridors Forum (ECF-5) in Bangkok, Thailand, for details please read <http://www.adb.org/news/speeches/opening-statement-fifth-gms-economic-corridors-forum-ecf-5>

ensuring the facilitation of relevant provincial officials in pursuit of GMS economic development. The GMS-GF serves as a venue for exchange of information and experiences on strategies, approaches and measures for economic corridor development, including measures to be considered when troubleshooting concerns and identifying possible actions to resolve issues arising during the implementation of strategies and action plans for the economic corridor development. The forum is also responsible and/or can take the lead in bringing to the ECF's attention issues that require central resolution. Furthermore, the GMS_GF assists in improving cross-border initiatives, promoting private sector participation and discusses new opportunities to be considered.⁷²

⁷² For full details of the GMS Governors' Forum (GF), please read ADB, 2010. *Toward Sustainable and Balance Development: Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor*, pp 23 – 24. Also read Appendix 2.2 GF TOR, pp 89 - 91. While the Forum is recognised, but its proceedings were not available to assess the actions and programs it was considering towards the development of economic corridor.

ANNEX 4: DETAILED OUTCOMES OF FIELDWORK

4.1 Graphical Map Location of Target Villages on NSEC

Figure 8: Google Mapping of Village Locations (Set 1)

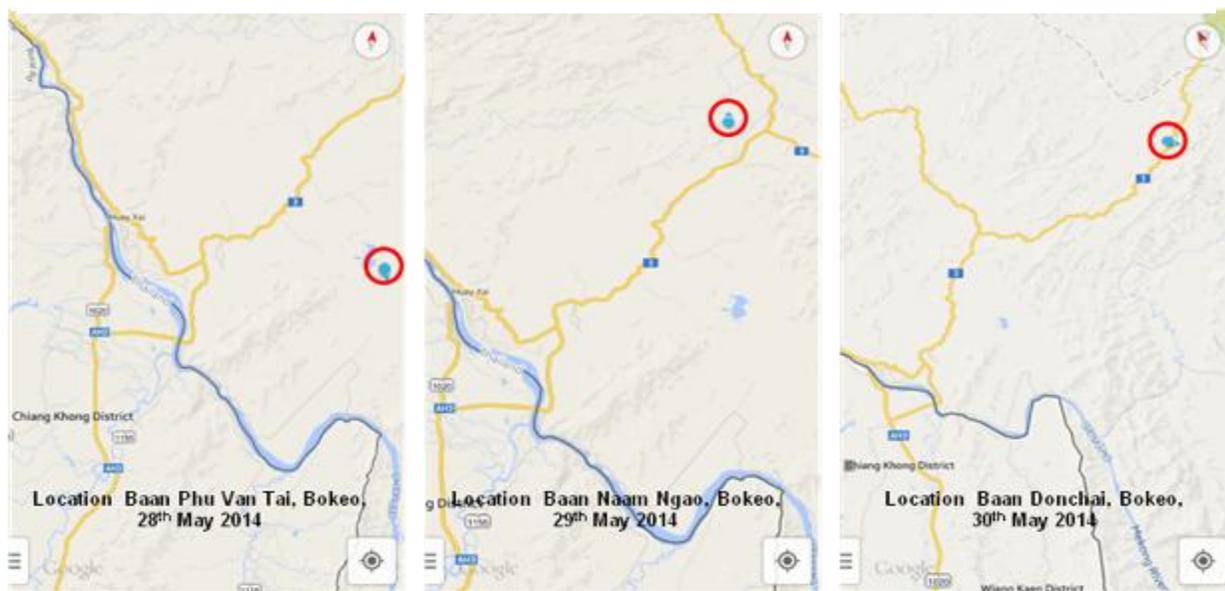


Figure 9: Google Mapping of Village Locations (Set 2)

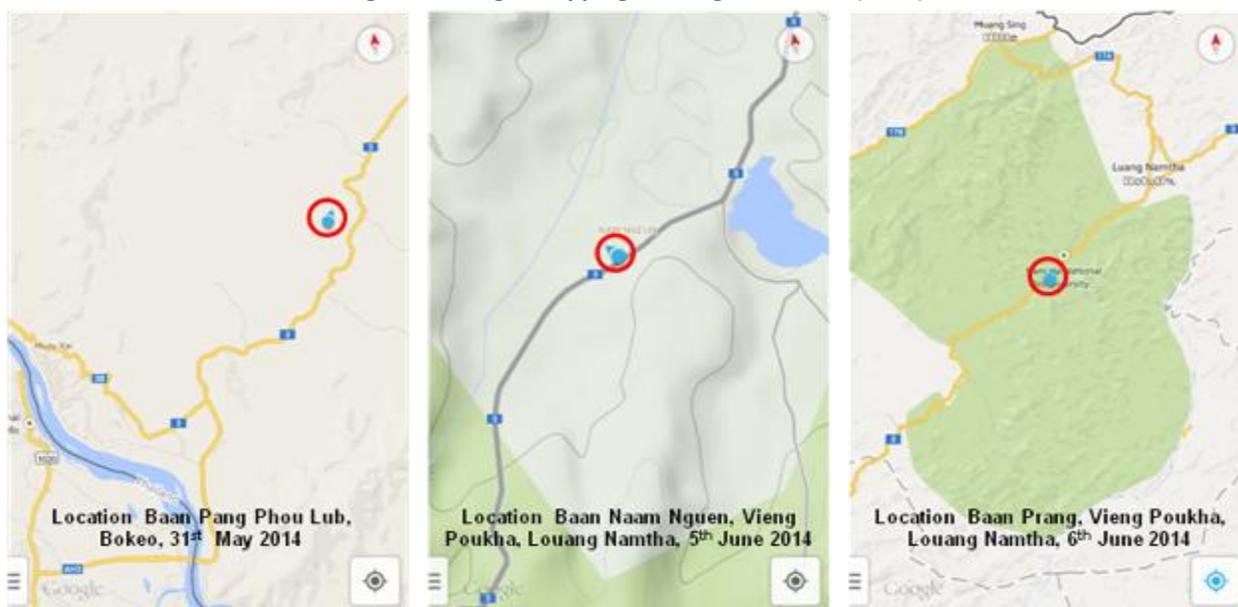


Figure 10: Google Mapping of Village Locations (Set 3)



4.2 Livelihood Situations of the Research Target Villages

The livelihood situations of the research target villages vary from one village to another, however, there are several common patterns observed among these villages. First, their livelihood system is mainly composed of rice cultivation, commercial crop cultivation and livestock raising. Additionally, home garden crops, NTFPs collected from forest areas and wage work play important roles in maintaining their livelihoods (see each diagram in the following description). The following are brief descriptions of livelihood situations in each of the research target villages.

4.2.1 Baan Phu Van Tai, Bokeo

Baan Phu Van Tai is a Khamu village located at kilometre 31; it is 19 km along Route 3 and another 12 km along an unpaved road from Houayxai. The village population is 831 (406 male and 425 female). There are a total of 147 households which are composed of 82 higher income and 65 middle class households. The village was established in 2001 when a reservoir was constructed in their former location, Baan Phu Van Neua. During the same time, a primary school (including a kindergarten) was established in the village.

The unpaved road, stretching from Route No.3, was constructed in 2014. It has helped the villagers access Houayxai. The nearest secondary school is a two-hour walk from the village. A total of 240 village children (male 100 and female 140) attend their home village's primary school. The other 63 children (male 25 and female 38) and 21 children (male 4 and female 17) go to the lower and upper secondary schools respectively. Approximately 95% of the villagers can speak Laotian but only 70-80% can read and write.

When the villagers become sick, they have to go to the nearest health post located at 8 kilometres from the village. It takes a one and a half trip by foot; they usually use a tractor or motorbike for transportation to the health post. Similarly, they use a tractor or motorbike for transporting patients to the district hospital located at 15 kilometres from the village. Besides these medical services, there are two village health volunteers equipped with medical kits in the village (since 1998). 90% of the pregnant village women deliver babies at the health post (or hospital in case of difficulty giving birth), while the other 10% do so in their own home. There are two village midwife volunteers in the village. Currently, the villagers plan to establish a health center with their own funds.

In 1997, an irrigation canal was constructed in the area (total irrigation coverage of 500 ha) and it covers 10 ha in the village. The villagers under the irrigation area can cultivate rice both in rainy and dry seasons. The village gained electricity access in 2009. Currently, all village households possess mobile phones.

Major livelihood activities in the village include lowland rice cultivation (rainy season 102 ha and dry season 10 ha) and 10 ha in upland areas, commercial crop cultivation (job's tear 18 ha, rubber 15 ha, banana 52 ha, passion fruit and raising livestock (582 beef cattle, 51 water buffalo, 502 pig and about 1,300 poultry).

The villagers cultivate lowland rice from June to November and at upland from March to October. The cultivated land is composed of sandy clay soil. The yield of rice in the village is relatively good at 4 t/ha. According to the village head, the villagers consume a total of 212 tons annually and sell the other 299 tons to the market.

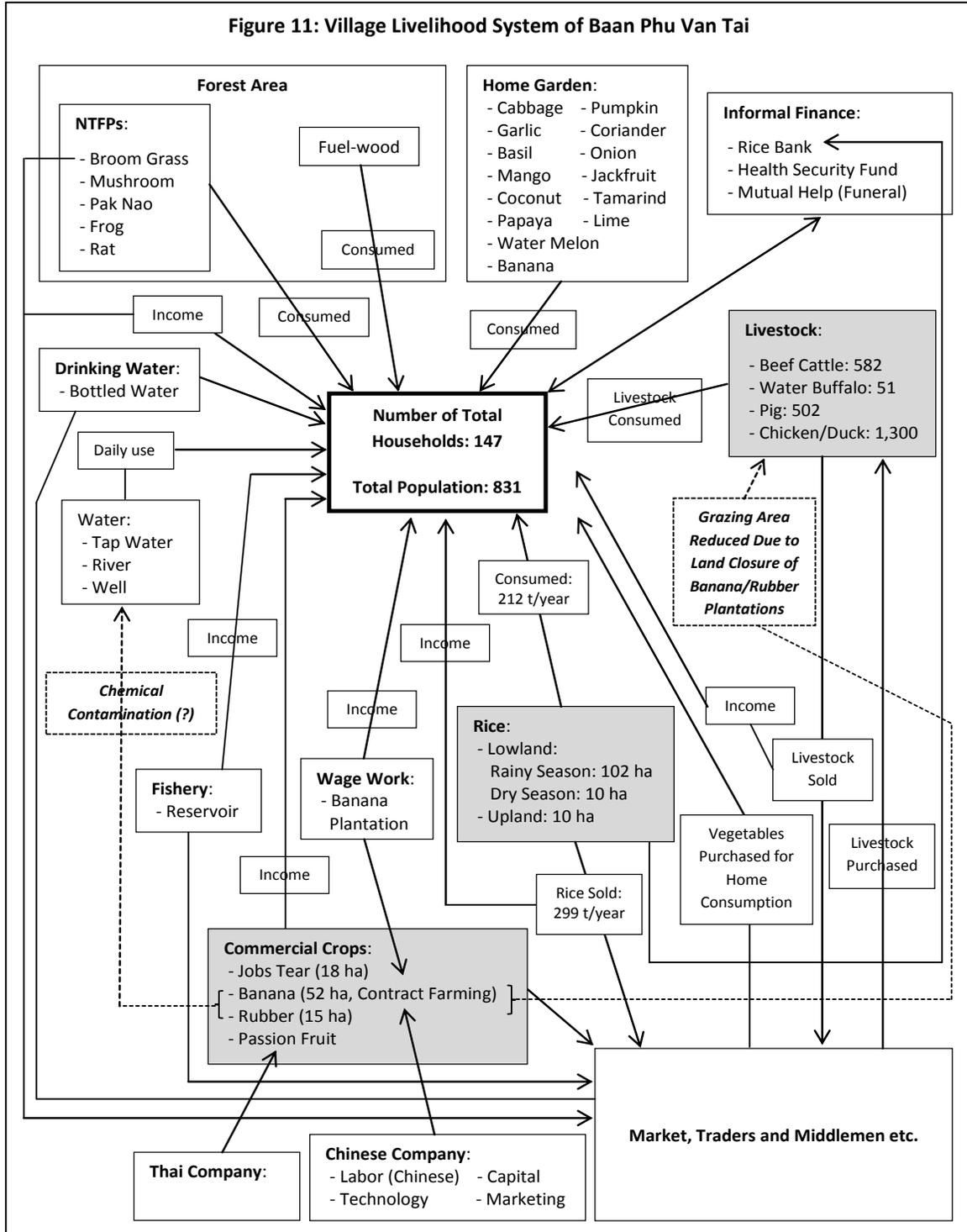
The villagers cultivate 18 ha of Job's Tears from June to October in the village. Harvested Job's Tears can be sold at 10 Baht/kg to a private company. Banana cultivation is under contract farming with a Chinese company by which (Chinese) labor, capital, technology and marketing are provided. The contracted farmers lease their land annually at 5,000-2,500 Baht/rai (depending on the land quality). Usually, the contract term lasts 10 years and the leased land fee is paid by the company every year. Another Thai company also promotes passion fruit cultivation in the village.

Every village household raises one to two heads of beef cattle or water buffalo. These large livestock have a market value of 20,000 Baht/head. Pig is also a commonly raised livestock in the village at an average of five heads per pig raising household. According to the villagers, approximately 20-30 village households' livestock grazing has been negatively affected due to the land closure of banana/rubber plantations in the area.

Besides rice, villagers in Baan Phu Van Tai consume home garden crops (cabbage, pumpkin, onion, coriander, basil, garlic, banana, mango, jackfruit, lime, tamarind, water melon, coconut and papaya) and NTFPs such as mushrooms, pak nao, dok khem (broom grass), frog and rat. Additionally, villagers collect fuel-wood for cooking from local forest areas. The natural forest area is located at kilometre 4, a one hour walk from the village.

Some village households have backyard gardens with fruit trees such as banana, papaya, coconut and jackfruit. Some of them are protected with bamboo-made fences in order to keep livestock out. Other villagers purchase such vegetables as Chinese cabbage and chili from the market in case they do not have any home gardens.

Regarding NTFPs, villagers collect mushrooms and pak nao, in addition to hunting wild animals such as rat and frog. These natural food sources are consumed by households. A total of 15 tons of dok khem (broom grass) is collected and sold to the market at 5,500 Kip/kg (or 23 Baht/kg).



Every two to three weeks, villagers collect fuel-wood in the forest area that is four kilometres from the village. They use a tractor to bring a bundle of 300–400 kg of the collected fuel-wood from the forest to the village.

Currently four households engage in commercial fishery at the reservoir. They can catch fish year-round, with the high season being April through June. They can earn 200,000-500,000 Kip/day.

According to the village head, none of the villagers migrate to work outside the village. About four to five pairs of villagers are hired at 4,000 Baht/month to work in the banana plantation.

Three middlemen come to the village every two to three days by small track to sell daily goods. The other two to three traders come to the village and purchase beef cattle. The villagers can easily contact these middlemen/traders by mobile phone.

The villagers use tap and well water for daily use except drinking. According to the villagers the water source (stream) has been contaminated by chemicals since 2008/2009 when the operation of rubber/banana plantations started. Untreated water makes them easily tired, but it is drinkable if boiled for 20-30 minutes. The other symptoms believed to be caused from the contaminated water include headache, stomach ache, diarrhea and nerve abnormalities. Currently, all village households purchase bottled water (3,000 Kip for a 2 -litre bottle) delivered by a local drinking water company (Nam Doum Houayxai Noi Company) via small truck.

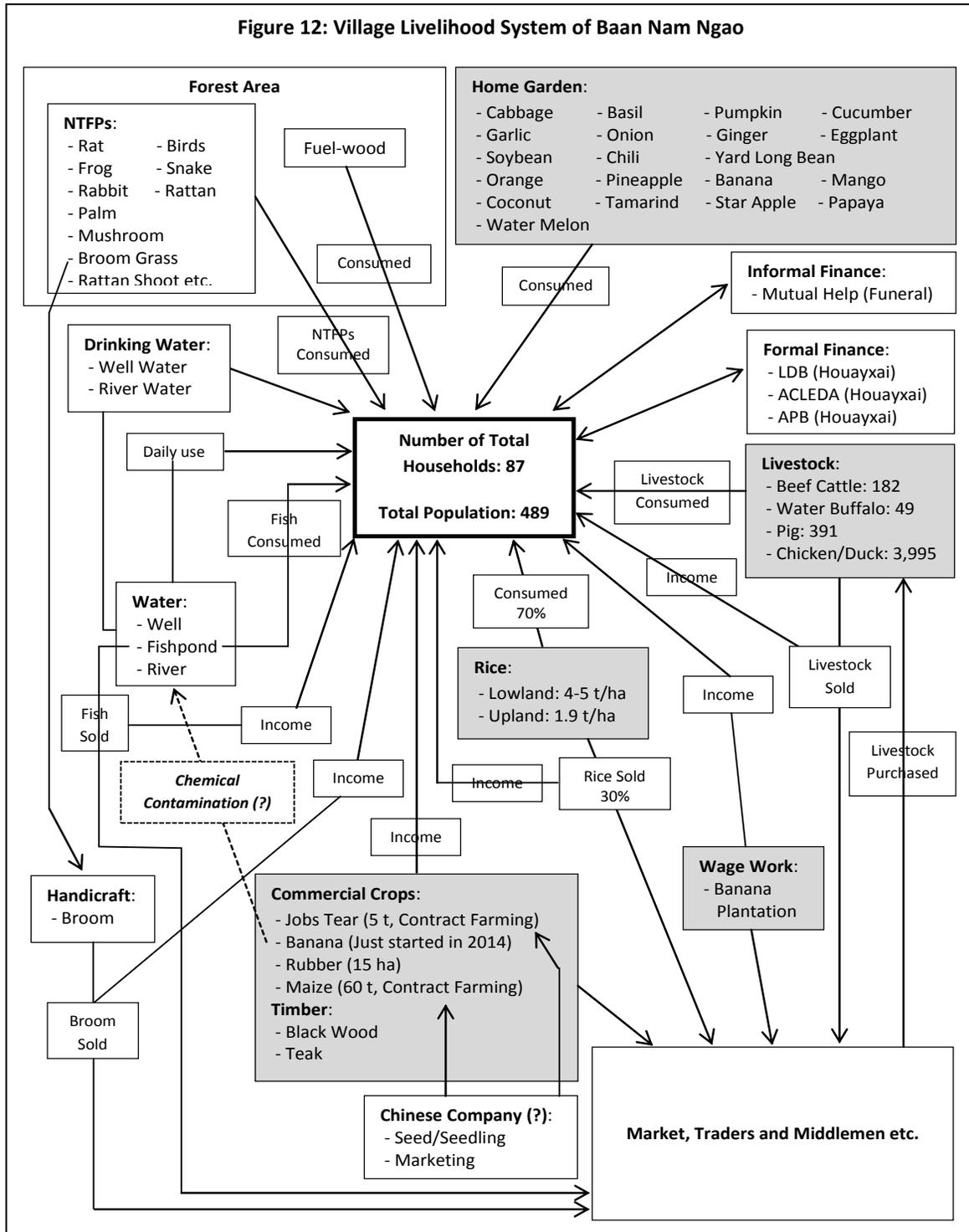
Some villagers have bank accounts at district branch's Agricultural Promotion Bank (APB). Villagers currently manage three informal financial organizations, including the village fund, rice bank and health security fund. The village fund and rice bank were established with support from GIZ. The village fund currently has 50 million Kip of capital and sets interest rates for deposit at 7% and loans at 12% annually. The rice bank has 30 tons of stock. Half of total village households use it (100-500 kg available) at a 20% annual interest rate. Each borrower receives an average of 200-300 kg at the time of rice shortage.

Some village households have rejected resettlement compensation payment, because its amount to be paid by the government is only 56,000 Kip/rai, an amount too small for them. Generally speaking, villagers, before resettlement, had larger land plots, hence, a larger amount of production.

4.2.2 Baan Nam Ngao, Bokeo

Baan Nam Ngao is located 3.5 kilometres from Route No.3. The village is composed of two ethnic groups, Khamu and Santao. The Santao tribal group migrated to the village in 1974, then Khamu tribal group moved from Nalae District of Louang Namtha Province in 1981 due to tribal conflict at that time. Total population of the village is 489 (247 male and 242 female). The 87 total households (Khamu 34 and Santao 53 households) are composed of 29 better off, 50 middle class and 8 poor households.

The village primary school (grades 1-5 with kindergarten) was established in 1976. Currently, 105 village children (male 40 and female 65) go to the village primary school. The quality of education at the village primary school has improved, since the villagers established the village dormitory for the teachers (male 1 and female 3). The nearest secondary school is located in Baan Pung, 5 kms away from the village. A total of 80 village children (male 50 and female 30) travel to the secondary school by bicycle (20



minute bike ride) or motorbike (10 minute drive). 15 village children dropped out from school and are being provided with non-formal education which started in June 2014. All villagers can speak Laotian, but 90% can read and write.

The nearest community health center located near Baan Pung is 5 kms away from the village. It was upgraded from a health post to a centre in 2014 by a Chinese company (rubber and banana

plantation operator) based on the agreement stipulated in the concession. There are neither midwives nor midwife volunteers in the village. However, almost all (99%) of the pregnant village women deliver babies at home while only 1% (recently only three cases) of them did so at the health post/hospital. There is a case of one and a half year-old female baby who was born prematurely and suffered from severe malnourishment.

Recently, many villagers began to suspect the negative effects of chemicals used on banana plantations since symptoms such as eye problems, headaches and rashes/itching became a common occurrence after villagers planted banana under this year's contract farming.

The village gained access to electricity in 2006. They had used a generator for electricity before electricity was available. There is a small rice mill beside a grocery shop in the village. Currently, all village households possess mobile phones. Some villagers even own notebooks and a desktop computers.

Major livelihood activities in the village are rice cultivation (79 households), raising livestock (79 households) and commercial crop cultivation including Job's Tears (50 households) and maize (32 households). All village households engage in wage work on banana plantations during off-season farming.

The villagers cultivate lowland and upland rice. The rice yield is relatively good at 4-5 t/ha due to the lowland's fertile sandy loam soil. Upland rice yield is also relatively good at 1.9 t/ha (300 kg/rai). Almost all village households (84-85 households) own a rice barn to stock the harvest. They consume about 70% of produced rice and sell 30%. According to the village head, every household sells roughly 500-1,000 kg (maximum 4,000 kg) of stocked rice annually to four to five middlemen.

There are 182 heads of beef cattle, 49 heads of water buffalo, 391 heads of pig and 3,995 heads of poultry. A total of 67-68 village households raise beef cattle (3-12- heads/household), while 15-16 village households own water buffalo (2-5 heads/household). Only four to five households have neither beef cattle nor water buffalo. These beef cattle and water buffalo graze in and around the village residential area. All village households raise pig and poultry. Beef cattle, water buffalo and pig are all vaccinated. DAFO staff comes to the village every six months and gives three types of vaccinations for beef cattle and water buffalo. According to the villagers, each estimated market value of beef cattle, water buffalo and pig is 30,000, 50,000 and 8,000 Baht respectively.

In Baan Nam Ngao, a total of 15 tons of maize was harvested under contract farming last year (2013). Under this contract farming, the company is responsible for seed only while the farmers have to provide land, labor and technology. The company set an annual land lease fee at 3,200 Baht/rai for maize. Currently, all village households cultivate maize and a total of 60 tons of produce is expected. According, to the villagers maize can be sold at 4 Baht/kg in the market, though it is not guaranteed by the company. Similarly, the villagers contracted with a company to cultivate Job's Tears. In the case of Job's Tears contract farming, the company guarantees the purchase price of the harvested produce in addition to providing seed. A total of five tons is expected to be harvested this year. The company purchased the harvested Job's Tears at 8-7 Baht/kg last year and guarantees its purchase price at 10 Baht/kg in the 2014 cropping year. Banana cultivation contract farming just started in 2014. Besides these commercial crops, the villagers plant 15 ha of lower-upland rubber and manage it privately.

All village households work on banana plantations during off-season farming. The wage of banana plantation work is set at 50,000 Kip/day. However some of them who use a tractor for the transportation of harvested banana can earn 200,000 Kip/day. According to the village head, none of the villagers migrate to work outside the village.

Villagers consume rice, home garden crops, poultry, fish and NTFPs as their daily food. Fuel-wood for cooking is collected from the top of upland areas.

As mentioned before, almost all village households own rice barns to stock their harvest and consume about 70% of produced rice.

Many village households cultivate several kinds of vegetables (cabbage, basil, pumpkin, cucumber, garlic, onion, ginger, eggplant, soybean, chili and long bean) and fruits (orange, pineapple, banana, mango, coconut, tamarind, star apple, papaya and water melon) in their home garden. These home gardens are well protected by bamboo fences in order to avoid livestock. Most produce from the home garden is consumed by villagers, except for oranges which are sold at 10 Baht/kg in the market.

It is noteworthy that the number of poultry raised in the village is much higher than other research target villages. These chickens and ducks are both consumed by households and sold to the market. All village households raise chickens and/or ducks. It can be sold at 150 Baht/kg.

There are four to five fishponds in the village. The fish caught from the river (Ngao River) are famous in the area and called as “paa nam ngao” (Ngao River Fish). According to the villagers, fishing is mainly done by male villagers. They catch fish almost every day. They can sell paa nam ngao at 30,000 Kip/kg in the market. However, the number of available fish has been drastically reduced due to the increase of villages’ population along the Ngao River and the negative effects of Nam Saen Hydropower Station along the Ngao River, located 21 km away from the village. Currently, the villagers set a protection area for fish breeding in a part of the river in response to such a recent problem. They also collect edible river weed from November to December for sale.

The villagers hunt wild animals (rat, birds, frog, snake and rabbit), gather wild plants (palm, mushrooms, mak fai, som lom, pak haak, broom grass, bamboo shoot and rattan shoot) and snail in the forest area. They go to the forest area every two or three days to collect these NTFPs. However, according to the villagers, the number of available NTFPs has drastically reduced in the past 10 years mainly from the pressure of village population growth. They still can collect broom grass around the village. Collected broom grass is used for making brooms for sale (sold at 8,000-10,000 Kip). Broom making was originally introduced by an international NGO, Norwegian Church Aid, in another village where some Baan Nam Ngao villagers learnt its skill from.

The villagers collect fuel-wood from the top of upland areas. They used to collect fuel-wood from the forest area around the village, just a 10 minutes’ walk from the village; however, the amount of fuel-wood available from nearby the village has drastically reduced in the past decade. Now they mainly collect fuel-wood mainly from the top of upland areas. Interestingly, the location change regarding fuel-wood collection has also changed the gender role of collecting fuel-wood. It was mainly the women’s role to collect fuel-wood when fuel-wood could be collected nearby the village. However, now it has become the men’s role, because they have to use a tractor to carry collected fuel-wood from the top of upland area down to the village.

There is no public transportation between the village and Route No.3. The villagers use their own tractors and motorbikes when they need to travel. They usually do not necessarily transport their produce to the market because several middlemen and traders come to the village. According to the villagers, the numbers of such middlemen and traders as well as the frequency of their visit to the village have increased since the road between the village and Route No.3 was upgraded in 2003.

The villagers use wells and the river as their drinking water sources. However, as mentioned before, many villagers began to suffer from unusual symptoms such as eye problems, headaches and rashes/itching of the feet and arms after the villagers planted banana under this year's contract farming. A young villager claims that he noticed, about 2 months ago, he began to suffer from rashes/itching of his feet and arms after he took a bath in the river. It is highly likely that these unusual symptoms are caused from the chemicals used on banana plantations, because the first appearance of these unusual symptoms among the villagers coincided with the time of starting banana cultivation. The villagers believe these unusual symptoms are derived from the chemicals used on banana plantations.

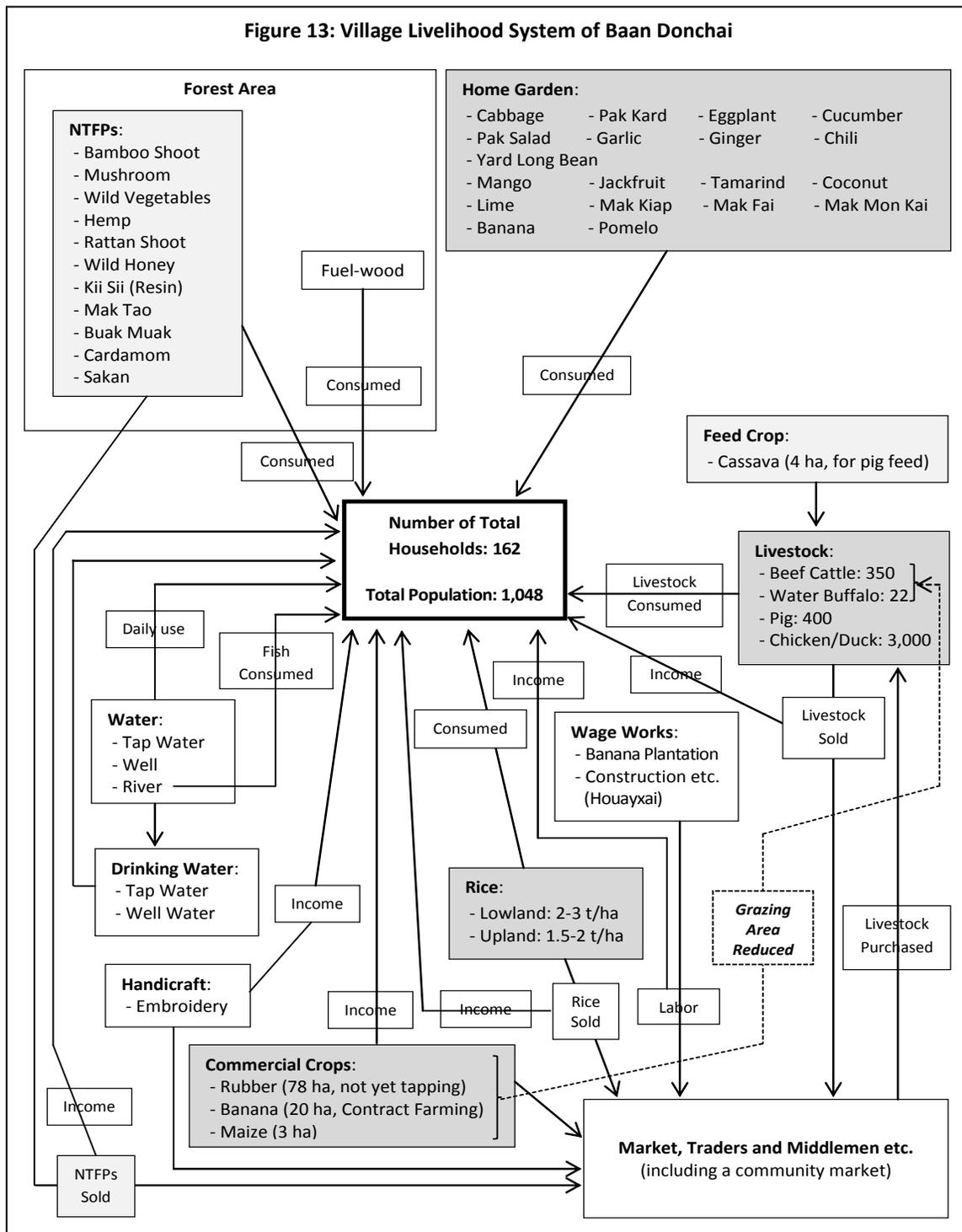
A village household with five other guarantees had borrowed a loan from the Lao Development Bank (LDB), Houayxai Branch in 2004. The other four households had used loan services from ACLEDA Bank-Houayxai branch last year. According to the villagers, ACLEDA Bank was more convenient than LDB because loans are available with only a land title certificate. The village's leader of the Lao Women's Union has borrowed 1,000 million Kip (at 14% annual interest) from Agriculture Promotion Bank (APB)-Houayxai branch for land clearance.

4.2.3 Baan Donchai, Bokeo

Baan Donchai is located along Route No.3. It was originally a Leu village established in 1964. Ethnic Lamed settled in the village from Baan Done Kham (14 kilometres away from Baan Donchai) in 2007; Hmong also established their homes there after living in Baan Houay Pha (40 kilometres away from Baan Conchai) in 2012 under the government's resettlement scheme. Currently, the village is composed of 57 households (365 people: male 194, female 171) of Leu, 47 households (279 people: male 130, female 149) of Lamed and 58 households of Hmong (404: male 198, female 206). Among a total of 162 village households, 15 households are considered better off, 127 households middle-class and 20 households (including 12 new settlers) are categorized as poor.

The village primary school was established in 1964 and renovated in 1997. The nearest lower secondary school was established in 1995 in Baan Tha Fa located at 4 kilometres away from Baan Donchai. Its access has improved since the construction of Route No.3; 10 years ago, arrival time took 30 minutes by foot but, now, only two to three minutes by motorbike. The village children go to upper secondary school in Houayxai. According to the village head, approximately 80% of 6-19 year-old children in the village go to school. The majority of villagers can speak Laotian except about 50 Hmong people, and 80% of total village population can read and write Laotian. Illiterate villagers are mostly women.

The nearest health post is located at Baan Salao, 2 km from Baan Donchai. The villagers had to walk to the health post; it took 30 minutes before Route No.3 was constructed (the construction of Route No.3 started in 2005–2006). Currently, the villagers can arrive at the health post in two to three minutes via motorbike. When the villagers need to go to hospital, they go to Houayxai by the villager's pick-up truck. It takes an hour and a half. All pregnant village women deliver their babies at the hospital in



Houayxai.

An international NGO, Concern, had supported toilet construction and tap water system installation in Baan Donchai from 1996–2008. The village gained access to electricity in July 2012. Two computers are possessed by the village teacher. All the village households own mobile phones.

Main livelihood activities in the village are (upland and lowland rice cultivation raising livestock, commercial crop cultivation (rubber, banana and maize), NTFPs, wage work and home garden crop cultivation.

The majority of the village households rely on upland resources. According to the village head, 60% of the village households own only upland soil, while the other 40% have lowland soil (single cropping during the rainy season). The yield of lowland rice is 2-3 t/ha; upland rice is 1.5-2 t/ha. According to the village head, all the village households have a rice barn and stock an average of 3 tons of rice (2-5 tons).

The villagers raise 350 heads of beef cattle, 22 heads of water buffalo, 400 heads of pig and about 3,000 heads of poultry. According to the villagers the number of large livestock, (beef cattle and water buffalo) has reduced as the rubber cultivation area expanded. Cassava is cultivated in the village at a total of 4 ha of land as a feed crop for villagers' pigs.

The major commercial crop in the village is rubber which occupies a total of 78 ha of land and is managed privately. They will have to wait for two or three more years to start tapping rubber resin for latex production. They also cultivate banana at 20 ha of land under the contract farming. Only 3 ha of maize is cultivated in the village.

All of village households collect NTFPs such as mushrooms, bamboo shoot, rattan shoot, wild vegetables, wild honey, broom grass, mak tao, kii sii, cardamom and sakan. These collected NTFPs are sold to three private companies. Because the village is located in the National Protected Area, the hunting of wild animals is prohibited.

About 60 people migrated to provincial capital, Houayxai, to work as construction workers, drivers, private company staff and government officers. The other 10-20 villagers engage in wage work on banana plantations. However, most villagers don't want to work as hired labor on banana plantations, because they know about the negative effect of chemicals on workers' health.

One of the most remarkable livelihood systems in Baan Donchai are their well-managed home gardens where a wide variety of vegetables and fruits are cultivated all year-round. These home garden crops include cabbage, pak kard, eggplant, cucumber, pak salad, garlic, ginger, chili, yard-long bean, mango, jackfruit, tamarind, coconut, lime, mak kiap, mak fai, mak mankai, banana and pomelo. These home gardens in the residential area are well protected with bamboo fences to keep livestock out.

The villagers catch fish almost every day from Nam Ngao (Ngao River). According to the villagers, the amount of available fish from Nam Ngao has reduced in the past 10 years.

The villagers used to collect fuel-wood from the forest area nearby the village. However, now they have to buy fuel-wood from Hmong villagers who cut trees at the top of upland areas.

The villagers had used well water for drinking before Concern installed tap water systems. Currently, only a well is used for drinking water source together with tap water.

Some Hmong households engage in embroidery as an income source. According to a Hmong household head, his wife can earn 2,000 Baht/month by selling embroidery to a trader who regularly comes from Luang Pabang. Weaving clothes are produced for domestic use. A German organization (private organization according to the villagers) had supported the village women in organizing a weaving group (all village households) and product marketing from 2006–2008.

No informal financial organization exists in the village. According to the villagers, they can borrow money from relatives or friends if they need cash urgently.

There is a community market in the village which was established in 1998. The market facility was renovated with the support of Concern in 2002. The community market is currently organised twice a month. Sellers/buyers come to the community market from Houayxai, Luang Namtha, China and Vietnam (Vietnamese traders).

After the rice harvest, some collectors come to the village to buy the fresh harvest. Due to their prime location along Route No.3, livestock traders come to the village every two or three days. As mentioned already before, three private companies come to the village to buy NTFPs. The number of these outsiders visiting the village for trade has increased in the past decade.

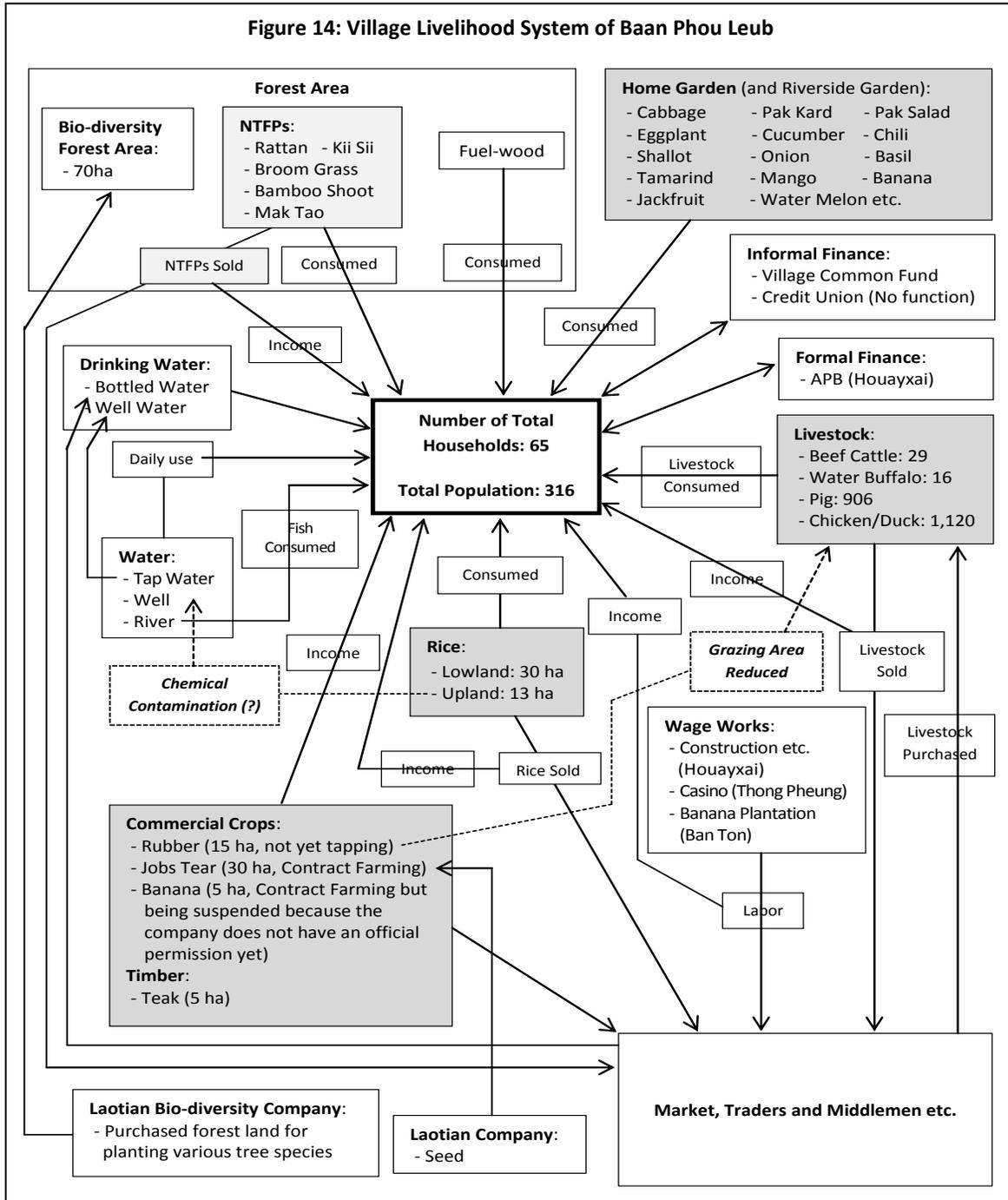
The villagers possess a total of 30 pick-up trucks in the village. All the village households own a motorbike. They can use public buses via the Houayxai-Luang Namtha (passes 3-4 times/day), Oudomxay-Houayxai (passes 1 time/day), Luang Pabang- Houayxai (passes 2 times/day) and Vientiane-Houayxai (passes 2 times/day) route for their travel needs.

4.2.4 Baan Pang Phou Leub, Bokeo

Baan Pang Phou Leub is a Khamu village comprised of 65 households; 25 households are better-off, 34 households are middle-class and five households are poor. Total population of the village is 316 (male 158, female 158). The village was established in 1980 by migrants from Oudomxay Province due to war during the 1970s.

The village primary school (grades 1-2) was established in 1990. The village children had to go to the primary school in Baan Nom Chan, 2 kilometres away from Baan Pang Phou Leub. Before 1990, arrival time took 40 minutes by foot. The nearest high school is located 6 kilometres from the village; accessibility has improved due to upgrading of the road and transportation means. It took an hour and a half by foot or 40 minutes by bicycle 10 years ago, but now it takes only 20 minutes by motorbike. The school attendance rate has dropped 30% in the last 10 years, because some villagers cannot afford to cover schooling costs (textbooks, tuition fee, and transportation cost). According to the villagers, a child's primary education requires 200,000-300,000 Kip annually for the tuition fee, while the secondary school education requires up to 2 million Kip (including 1 million Kip for tuition fee) annually. All the villagers can speak Laotian but only 60% can read and write. Those who cannot read and write Laotian are mainly female villagers (only 25% can read and write).

Access to the nearest health post is in Baan Phu Van. It is located 8 kilometres from Baan Pang Phou Leub and the available health facilities has improved since the completion of Route No.3. Arrival



time took an hour 10 years ago but takes only 20 minutes now. Similarly, Access to the nearest hospital in Houayxai which is 22 km away from the village; travel time to the hospital has also improved from an hour 10 years ago to 30 minutes now. Two village health volunteers manage a medical kit for first aid treatment in the village. The Provincial Health Department has supported the village through such programs as mother and child health, HIV Awareness Program, TB, toilet installation and clean water since 2006.

The village gained access to electricity in 2008. All the village households own a mobile phone. There are two notebook computers used by students in the village. The villagers, together with six other nearby villages, plan to renovate the unpaved road (1 km) from Route No.3 to the village, because it is only usable during the dry season. The total cost required for the road renovation is estimated at 30,000 US\$. It costs 500 Baht per household, but some village households cannot afford to pay it. Villagers have not yet come to a consensus on the issue. The village leaders expect to get financial support from the government.

Major livelihood activities in the village are lowland and upland rice cultivation, commercial crop cultivation, raising livestock and riverside garden cropping.

The 30 ha of lowland rice has a relatively good yield at 4 t/ha. 10 household also cultivate 13 ha of upland rice; the average yield of 1.5-2 t/ha. More prosperous households stock 1-2 tons of rice in their rice barn. However, poor households face rice shortages for three to four months out of the year.

11 households cultivate 15 ha of rubber privately and Job's Tears at 30 ha under contract farming. Some villagers recently started contract farming of bananas; however, it is currently being suspended because the company has not yet received official permission from the provincial government. The villagers used to cultivate maize and peanuts under contract farming with a Chinese company but failed as the produces' price dropped. Some villagers cultivated *Jatropha* under a contract with a Vientiane-based Korean company by which seeds and technology were provided. However, the Korean company did not come back for the subsequent stages of the *Jatropha* contract farming. Due to these past bitter experiences, the villagers worry about price fluctuations of rubber in the future. At the time of this research, the rubber trees were still too immature to extract rubber resin.

In Baan Phou Leub, 20 heads of beef cattle, 16 heads of water buffalo, 906 heads of pig and 1,120 heads of poultry are raised. According to the villagers, they used to raise many beef cattle and water buffalo before 2007 when rubber plantations began operating around the village. The number of these large livestock has drastically dropped since then.

Though the home gardens in the residential area of Baan Pang Phou Leub are poorly developed, the villagers still cultivate a variety of vegetables such as shallot, basil, onion, cucumber, pak salad, pak kard, cabbage and eggplant on small plots along a stream. The fruit planted in the home gardens and backyards of households include banana, coconut, tamarind, mango, jackfruit, and watermelon.

Some villagers go fishing at Nam Ngao (Ngao River), 20 km away from the village. According to the villagers, the number of fish available from the other river, Nam Hao (Hao River), was already small even a decade ago due to population pressure along the river.

NTFPs are still available from the forest area around the village. However, has become more difficult to collect them now compared to 10 years ago. These NTFPs include kii sii (resin), mak tao (palm), broom grass, rattan and bamboo shoot. Among these NTFPs, kii sii, mak tao and broom grass can be sold at the market for 2,500 Kip/kg, 2,000-2,500 Kip/kg and 3,000-6,000 Kip/kg respectively. Rattan and bamboo shoot are consumed by village households. These NTFPs and wild vegetables available from the forest area are important natural food sources for poor households. These poor households already began facing difficulties for their survival due to the trend of declining NTFPs available. Some villagers go to the National Conservation Forest area and stay there for seven to eight

nights collecting NTFPs during off-season farming. After each of these trips, they can earn 700,000-800,000 Kip selling their NTFPs at the local market. They usually go on extended NTFP gathering trips four to five times during off-season farming every year.

A private Laotian company that promotes bio-diversity in Laos (the same company that owns the Gibbon Experience) purchased a total of 70 ha of forest area in the village at 12,000-17,000 Baht/ha and planted several kinds of tree species there. The attempt was to re-forest the area with some of the plan species which were useful for the local villagers as part of their daily or weekly NTFP collection for food consumption.

Villagers collect fuel-wood from the village's common forest area located 2 kms from the residential area of the village. They also collect fuel-wood from upland farmland. According to the villagers, the availability of fuel-wood has become easier than 10 years ago, because many wood branches are available at this moment due to the reforestation efforts.

Between seven and eight villagers, especially young people, engage in non-farm work such as construction work in Houayxai, Thong Pheung (casino) or work on banana plantations in Baan Ton (12 kilometres away from Baan Pang Phou Leub). The accessibility through Mobile phone availability has increased accessibility to the employers in Houayxai and has played an important role for wage laborers in the village.

The villagers use well water (available from two wells in the village) for drinking. These wells were dug in 1980. The gravity tap water supply system was constructed in 1998. However, tap water began to be contaminated due to the chemical use on upland areas (the water source). The water pipe joints are also experiencing some problems at the water source. Furthermore, the amount of water flow drops during the dry season. Currently, all village households purchase 20-litre bottled water when the drinking water company comes to the village. According to the villagers, 2 - 3 people can consume a 20 liter water bottle every 1 – 2 days.

The village common fund was established in 1980. The villagers can borrow money from the fund at a monthly interest of 3%. The village's Lao Women's Union organised a credit union during 2010–2012; however, it not currently operating. A group of the villagers had borrowed 5-6 million Kip at 14% annual interest for farm inputs from Agriculture Promotion Bank-Houayxai branch.

There are 40 motorbikes and 30 hand tractors in the village. Several markets, including the Houayxai market along Route No.3, are easily accessible with arrival time taking about 10-20 minutes.

4.2.5 Baan Naam Nguen, Vieng Poukha, Louang Namtha

Baan Nam Ngeun is located along Route No.3, 73 kilometres from Louang Namtha. The village is composed of Leu, Kam Ou and Tai Dam, but its distribution data was not known by the village head at the time of our village interview. There are a total of 105 households with a total population of 490 (male 249 and female 241). According to the villagers, the village was originally established by Leu in 1842 when they migrated to the village's current location from Phongsaly to find better living conditions. More than a century later, beginning in 1961, the other ethnic minority groups relocated to Baan Naam Nguen due to road construction.

The village's primary school only had up to second grade when it was established in 1975; since 2003, grades 1-5 and kindergarten has been available. Currently, the school's attendance rate is 100% (male 44 and female 29), but it was only 60% 10 years ago. There is also the lower secondary school (1-6) in the village. The nearest upper secondary school is located at Baan Nam Fa, 5 kilometres away from Baan Nam Ngeun. Now, it takes 15-20 minutes by motorbike or vehicle thanks to the well-paved road of Route No.3. Before the road's completion in 2008, it took more than an hour to arrive by foot. According to the village head, as of 2014, only six children completed grade 12 and the other 10 students could not continue their study due to lack of funds. However, all villagers can currently speak, read and write Laotian; only a half of the villagers could do so 10 years ago.

The village health post was established in 2005. Before its construction, the villagers had to ask the lignite company to help transport them to Houayxai (and then transfer to Chiang Rai, Thailand) or Luang Namtha at the time of serious illness or injury. It took about five hours by the company's vehicle. The nearest district hospital (established in 1978) is located at Vieng Phoukha, 12 kilometres from Baan Nam Ngeun. Now, it takes only 15 minutes by public transportation from the village to Vieng Phoukha; a decade ago, it took an hour. There are about 10 malnourished children in the village. All pregnant village women deliver their babies at the village health post or hospitals.

It is noteworthy that there was a lignite company operating until recently (1993–2013) in the village area. The lignite company helped the villagers in several ways such as skill trainings for mushroom cultivation and livestock raising in 2003, as well as tap water system constructed in 2003. The trainings were useful for the villagers in the initial years but as the area got developed and contract farming increased. Livestock raising practices too declined and with the increased commercial agricultural farming, growing mushrooms also is on the decline due to increase in contract and/or commercial agricultural farming. About 30 villagers were truck drivers hired by the lignite company. They are currently working as drivers at various locations in Louang Namtha and neighboring provinces. Other wage work opportunities for villagers is in the realm of urban-oriented construction.

The village gained access to electricity in 2010. All households own mobile phones. One or two computers are owned in the village. Each village household owns between one to three motorbikes. All households have hand tractors, including two Kubota-made tractors.

Major livelihood activities in the village are lowland rice cultivation, commercial crop cultivation, raising livestock, wage work and NTFP collection.

The villagers cultivate rice during the rainy season in Baan Nam Ngeun. They prepare land in June, transplant rice seedlings in July and harvest mature rice in December. All the households own rice fields (maximum 2 ha/household and minimum 500 m²/household). According to the village head, almost all households (95%) have a rice barn and stock 1.5 tons of rice in each. Some village households produce lao khao (rice spirits) used by stocked rice (both for home consumption and sale).

The village's major commercial crop is 45 ha of upland rubber. All the village households plant rubber trees (5-10 years old, maximum 2-3 ha/household and minimum 4000 m²/household). According to a rubber cultivator, he learnt the technique of rubber cultivation from China; specific techniques included spacing between rubber trees (8m and 3m), weeding (3 times/year for 8 years) and protection from beef cattle (because beef cattle break rubber tree roots). He learnt these locally developed rubber

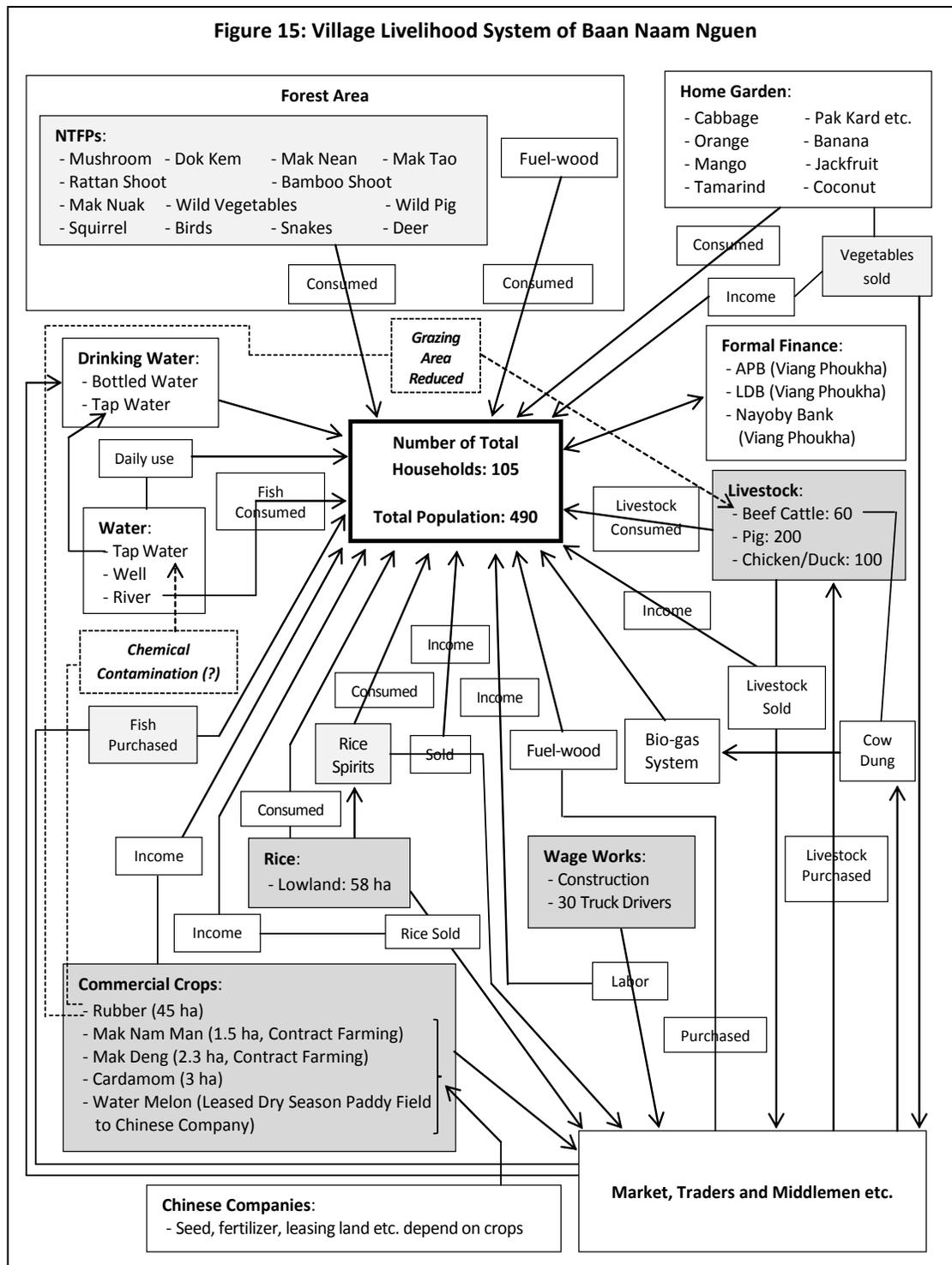
cultivation methods through his kinship network (Leu ethnic group) in China. Rubber tree farmland is managed privately by the villagers. A total of 15 households cultivate 3 ha of cardamom. They can sell its unpeeled fruit at 8,000 Kip/kg in the market. According to the villagers, they can earn 8 million Kip annually from 1 ton of cardamom fruit produced on 0.5 ha of land.

Currently the villagers cultivate newly introduced commercial crops such as mak daeng (unknown in English), mak nam man (unknown in English) and watermelon. All of these commercial crops are cultivated under contract farming. Mak daeng was introduced by a Chinese company in 2010; currently, 15 households plant 2.3 ha of it on their farmland. The farmers can produce 150 kg of fruit annually from 5000 m² and sell its fruit to the company at 35,000-40,000 Kip/kg. Mak nam man has been promoted in the village since 2013. 12 households are engaged in mak nam man cultivation at a total of 1.5 ha of their farmland. The Chinese company provides the contract farmers with seed and fertilizer. The villagers consider man nam man as an alternative income source, in addition to rubber, which requires less labor input than rubber cultivation. A Chinese company leases paddy fields during the dry season at 5 million Kip/ha and cultivates watermelon with a local hybrid breeding technique (breeding watermelon with pumpkin). According to the villagers, this hybrid technique results in larger watermelon fruit. It also provides the farmers with labor opportunities for 4 months at 50,000 Kip/day (with almost 3 months of full work during its cultivation).

Other crops cultivated on villagers' farmland or in their home gardens are cabbage, pak kard (50% home consumption, 50% for sale), shallot, mint, garlic, chili, eggplant, basil, papaya, orange (2 ha by 4 households), banana, mango, jackfruit, tamarind, and coconut. However, these home gardens seem to play a minor role in supporting home consumption needs.

The livestock raised in Baan Nam Ngeun are 60 heads of beef cattle owned by 25 households, 200 heads of pig and 100 heads of poultry owned by all households. Only beef cattle are vaccinated in the village. According to the villagers, the number of beef cattle has reduced as the grazing area has been occupied by rubber trees. They can still find many kinds of wild vegetables easily in the forest area. They can still hunt wild bird, squirrel, wild pig, deer and several kinds of snake, but the available amount has declined. Up until 20 years ago, they could find tiger's and leopard's in the forest.

Baan Nam Ngeun was surrounded by forested areas a decade ago. Now, the villagers need to go to 2-5 kilometres away from the village in order to collect NTFPs. These NTFPs include mushrooms, rattan shoot, various kinds of wild vegetables, dok kem, mak tao, cardamom and mak muak.



Fish raising was once introduced but failed because of water overflow during the rainy season and insufficient water during the dry season. They catch fish from Nam Ngao (Ngao River), but the number of fish available from the river has been drastically reduced because of population pressure (increased number of households along the river) and overfishing that uses electric shock equipment. Almost every day, a Chinese trader comes to the village to sell fish.

The villagers in Baan Nam Ngeun still collect fuel-wood from the forest and rubber cultivation area (dead rubber trees) but the amount has been reduced. Some households have to spend 300,000 Kip annually to buy fuel-wood. Five households have installed bio-gas system for cooking, introduced by DAFO in 2013. According to a bio-gas system user, it requires 2 tons of an initial input of cow dung and 100-200 kg of cow dung needs to be added every week. However, these bio-gas system users face difficulty in collecting enough cow dung, as the number of beef cattle raised in the village has declined since the introduction of rubber trees 10 years ago.

The villagers used to drink water from three wells until 2006. These wells are not in use because tap water became available in 2003, and the well water became contaminated by toilet drainage tank waste. Even though there were tap water systems installed, the upland source of tap water has since been contaminated by the use of chemicals in another village. By 2010–2013, the villagers were forced to buy bottled drinking water produced by a Vieng Phoukha-based company. They buy a 20-litre bottle for 4,000 Kip.

Since 2011, approximately 50% of village households have bank accounts with either, the Agriculture Promotion Bank (APB), Lao Development Bank (LDB) or Nayoby Bank in Vieng Phoukha. 15 households have borrowed loans from these banks.

A grocery shop located along Route No.3 was established in 2002. According to the shop owner, the customers were mostly retail traders from neighboring villages. Its sales were very good, up to 5 million Kip per month. However, the income of the shop has been reduced by 50% after the paved road was constructed. This was because the retailers have greater access to more suppliers including mobile pick-up carriers and shops in the town of Vieng Phoukha.

4.2.6 Baan Prang, Vieng Poukha, Louang Namtha

Baan Prang is located along Route No.3, 31 kilometres from Louang Namtha. It is a Khamu village with a population of 231 (male 112, female 119), 48 households (17 better off, 29 middle class and 7 poor households). The village was established in 1994 when they moved from a nearby village (1 kilometre away) because of they were facing difficulties related to water access. Baan Prang gained access to electricity in 2012 and approximately 90% of the households have a mobile phone.

The village primary school (grades 1-5) was established in 2002. According to the village head, almost all (95%) village children go to the school. The nearest secondary school, established in 2009, is located at Baan Nam Sing (Gum Baan Nam Sing or Nam Sing cluster), 4 kilometres away from Baan Prang. Accessibility to the secondary school has improved due to better road conditions and transportation means. It took an hour and a half by foot before Route No.3 was paved; now, it takes only 15 minutes by motorbike or an hour walking. However, the villagers mentioned that it has become more dangerous than before due to the increased traffic on the road. Recently, one individual died due to a traffic accident.

The nearest health post, established in 2006, located in Baan Nam Sing. Its access for the villagers improved from an hour and 20 minutes to only 15 minutes by vehicle after the completion of Route No.3. Similarly, the access to Vieng Phoukha District Hospital (24 kilometres from the village,

arrival time of 30-40 minutes) as well as to Luang Namtha Provincial Hospital (31 kilometres from the village, arrival time of one hour) improved after Route No.3's completion. According to the villagers, there are about 10 malnourished children in the village, because their parents are too busy with their labor work until the late evening; hence, their children cannot receive proper meals. Almost all (95%) pregnant village women deliver their babies at the health post or hospital. They increasingly use health services of the hospital for prenatal care and child delivery. Currently, there are, at least, three tuberculosis patients in the village. The other three tuberculosis patients died during the past two years. It seems, based on our direct observation in the group interview, most of the villagers do not have sufficient knowledge on the cause, the symptoms and the prevention measures of tuberculosis.

Major livelihood activities in the village include lowland and upland rice cultivation, commercial crop cultivation, raising livestock and wage work.

A total of 10 households cultivate 13 ha of lowland rice. The yield of lowland rice is relatively higher than other neighbouring villages at 4 t/ha, even without using fertilizer. There is a small-scale irrigation system, but it dried up this year. About 50% of the village households cultivate 15 ha of upland rice. According to the village head, almost all the village households have a rice barn to stock their harvest (maximum 3-4 tons, minimum 0.4-0.5 tons).

A total of 38 households cultivate 23 ha of cardamom. It was originally introduced by ADB's Biodiversity Project (in Nam Ha National Biodiversity Conservation Area) from 2006–2011. Currently, the villagers cultivate cardamom under the contract farming with a Chinese company, with technical support and seed provided. According to the villagers, they can earn 2-3 million Kip, at 8,000-10,000 Kip/kg, from 1 ha of land.

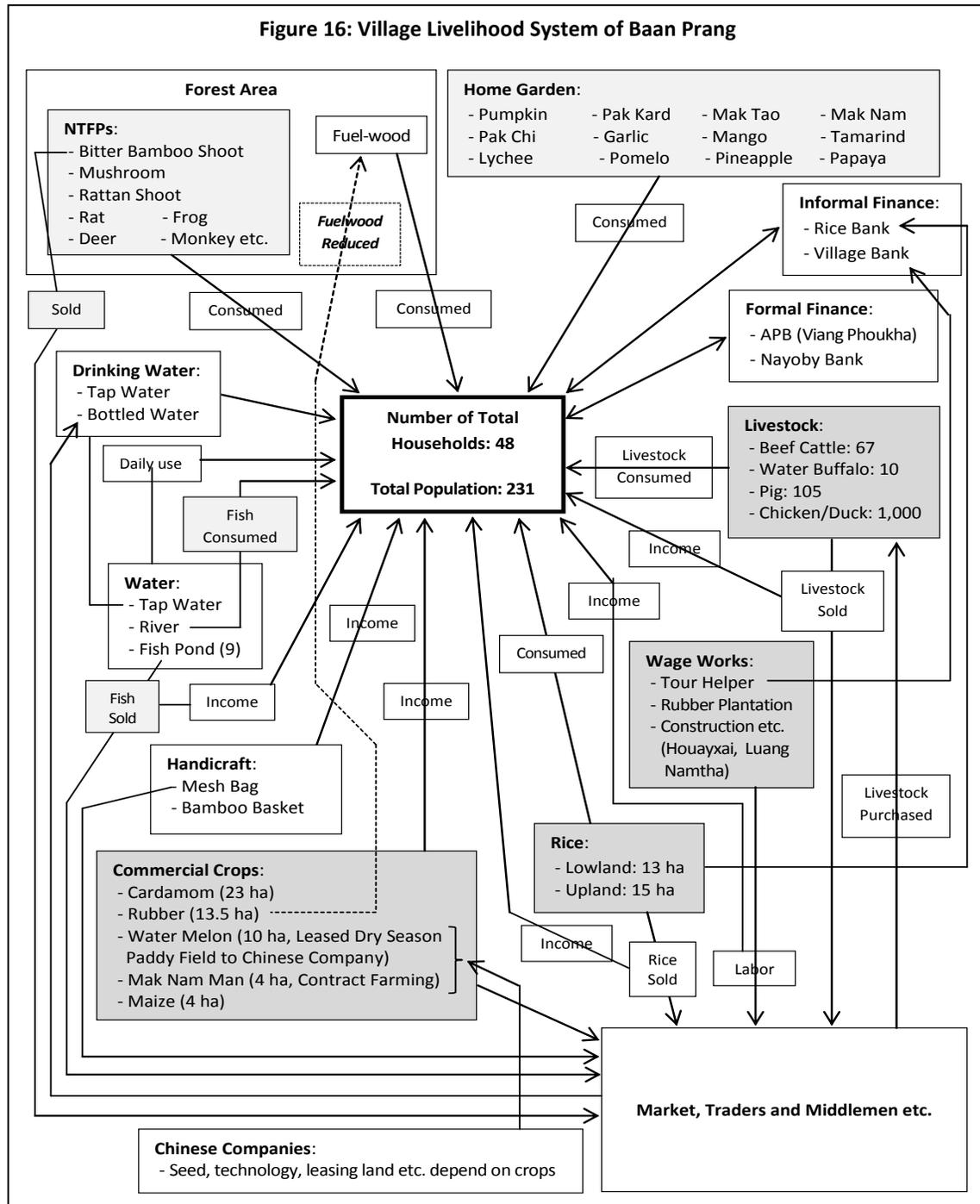
Rubber cultivation in the village was initiated by five households in 2008 and became popular amongst the villagers in 2013. Currently, almost all the village households (45 households) cultivate 13.5 ha of rubber (maximum 2 ha, minimum 5000 m²). Among these rubber cultivators, 25 households are under contract farming with a Louang Namtha-based Laotian company. Under this contract, technology, seedlings and marketing are the responsibility of the company, while the contracted farmers provide the company with land and labor. The contracted farmers can get 2/3 share of the profit of rubber latex sales, and the other 1/3 share goes to the company.

Recently, beginning this year, a Chinese company leased a total of 10 ha of rice field from 10 households during the dry season and cultivated watermelon, adopting the local hybrid technique with pumpkin as previously mentioned.

The contract farming of 4 ha of mak nam man (unknown in English) introduced from China for cooking oil extraction, has been promoted by a Chinese company in the village since 2013. According to the villagers, they can harvest its fruit 8-12 months after it was sown. The company provided 17 contracted farmers with seed and technical inputs. Additionally, small-scale maize (less than 10,000 m²) is cultivated by nine households in the village.

The livestock currently raised in the village are 67 heads of beef cattle raised by 43 households, 10 heads of water buffalo by three households, 105 heads of pig (the number declined due to outbreak of disease in the village) and about 1,000 heads of poultry by all the village households.

ADB has promoted community-based tourism in Baan Prang. The village charges an entrance fee



at 5,000-10,000 Kip/person, 15,000 Kip for camp rental and 60,000 Kip/day for villagers' service/guide from tourists. During the peak season (rainy season), between four to five groups visit the village per month; only one to two groups per month during low season (dry season). The village households are

rotationally assign the role of village helpers who accompany the tour guide (assigned by the tour company) during camping, for carrying foods, cleaning the camp site and cooking meals (if needed).

Other wage work opportunities for the villagers include general labor on nearby (rubber plantations and construction work (currently four people) in Houayxai or Louang Namtha.

There are nine fishponds along Route No.3, owned by three households. Fish raising was promoted by an ADB supported project in 2011. The largest fishpond owner has five ponds and manages the ponds with the help of his Thai son-in-law (a truck driver) who supplies him feed and fingerlings from Thailand.

The village children are able to catch fish from the stream. They use diving goggles to find and spear fish by a small, hand-made fish shooter. According to the village children, they can catch only small fish by this method. However, it seems to be a quite important food source for home consumption, especially for poor households.

Some village households have home gardens to cultivate various kinds of vegetables such as pak kard, eggplant, pumpkin, coriander and garlic. These home gardens in Baan Prang are relatively well organised and managed compared with other research villages. In their backyard, they plant fruit trees such as mango, tamarind, lychee (introduced by ADB), pomelo, pineapple and papaya.

There are two community forests near the village. The villagers rely on these community forests to collect NTFPs and daily food sources. These wild plants include mushrooms, bamboo shoot and rattan shoot. Bamboo shoot – according to the villagers, it is called, “bitter bamboo shoot” which can be collected only in specific areas in the village – is sold to the market. They hunt wild rat, deer, monkey and frog in the forest. However, the number of available wild animals has drastically declined in the past 10 years. According to the villagers, it took only an hour to hunt some animals 10 years ago; now, hunting is much more time-intensive. The villagers pay 15,000 Kip/household to the government as a permission fee (loyalty) to collect these NTFPs and fuel-wood from the forest area.

2 kilometres away from the village, villagers used to collect fuel-wood from the forest area on a daily basis. However, it became difficult to collect fuel-wood from the forest area as the rubber cultivation expanded. Currently, fuel-wood is only available from the village’s upland area.

A tap water system was constructed by ADRA in 2001. The villagers boil and use it for drinking. However, its water volume declined 2 or 3 years ago when the pipeline’s joint was broken at an upland water source. The villagers buy bottled drinking water only for special occasions such as cooking. Between four to five households buy and use bottled drinking water regularly in the village. They use the stream for bathing.

The village women hand-craft mesh bags for domestic use and sale. They buy yarn for weaving from a Thai trader. The village children use it to store caught fish while fishing. A few of mesh bag producers sell it at 50,000 Kip. Some villagers make bamboo baskets for fishing (domestic use).

The number of Chinese and Vietnamese traders coming to the village were very small 10 years ago, but their numbers and frequency contacting villagers have drastically increased after the completion of Route No.3.

A total of 25 households have borrowed loans from either Agriculture Promotion Bank (APB) or Nayobay Bank located in Vieng Phoukha District since 2010. There is a rice bank and a village bank in Baan Prang. The rice bank was started with 50 kg of rice provided by ADB. Currently, it has 3.3 tons of rice stock and provides rice at an annual interest rate of 20%. The village bank was established with the capital of the beef cattle bank and is maintained with installments from tour guide fees. Its loan interest rates are set at 5-7% depending on the purpose of loan use.

4.2.7 Baan Soun Ya, Namtha, Louang Namtha

Baan Soun Ya is located in a valley surrounded by hills, about 9 kilometres inland from Route No.3. The road stretching to the village remains unpaved and muddy on the steep slope of the hills. This unpaved road was constructed with support from the EU in 1993 and has been renovated four times by the government since then. Maintenance of the road has to be done every three months.

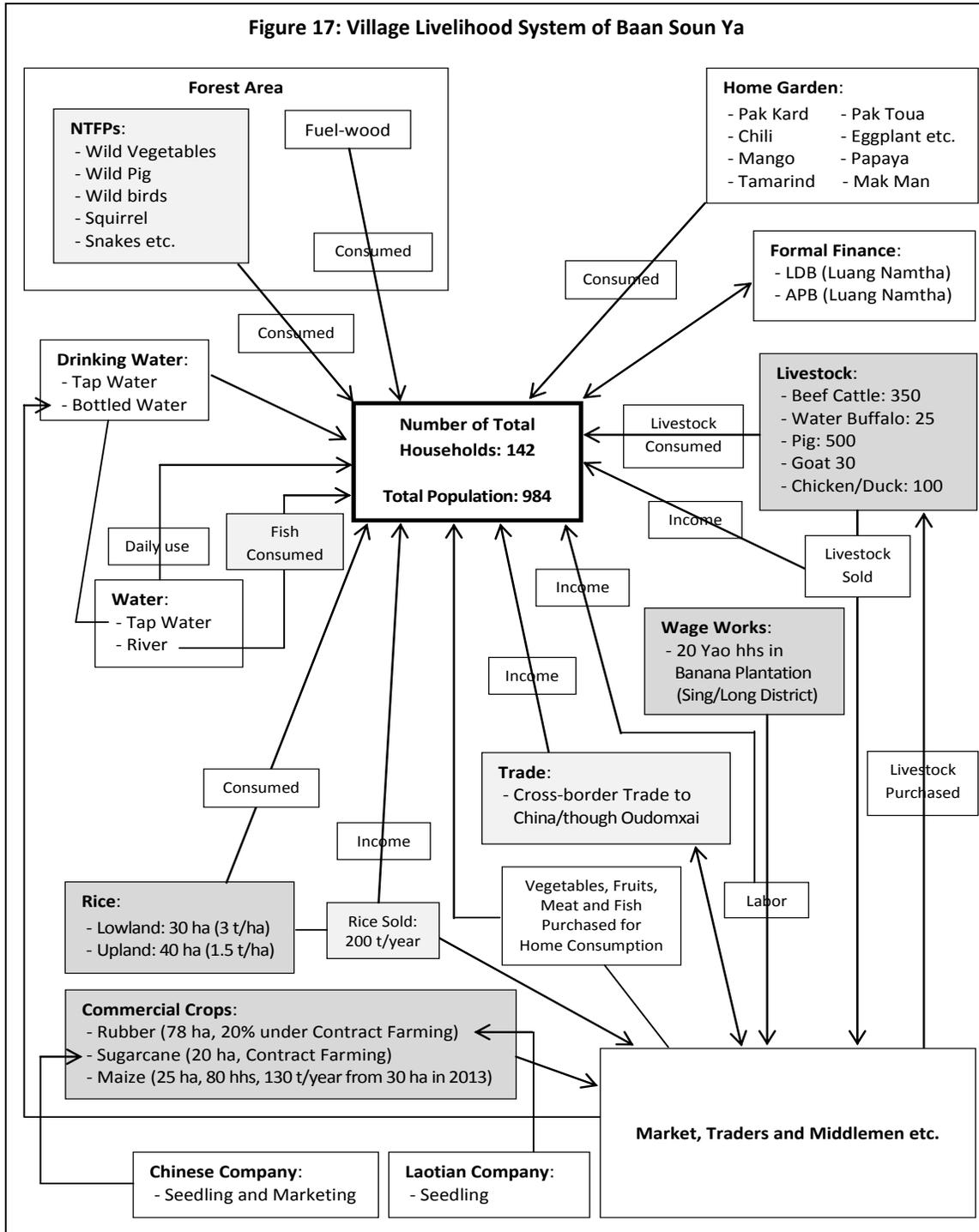
According to the village head, Baan Soun Ya is composed of five ethnic groups, including Hmong (45%), Yao (30%), Len Then (or La Houay, 20%), Khamu and Tai Dam (5% each). They have lived in the area for more than a century, but congregated in the same location in 1995 when Hmong (from 4 kilometres away) and Yao (from 7 kilometres away) settled in the current village. Khamu and Tai Dam migrated from Bokeo. Now, the village population is 984 (male 498, female 486) with a total of 142 households (better off 3, 132 middle class and 7 poor households).

The village gained access to electricity in 2012 (currently available for 91 households). According to the village head, almost all (95%) households own mobile phones; signal became available in the village in 2011. Three villagers own personal computer.

There is a village primary school (grades 1-5 including kindergarten) established in 1996. Currently almost all (95%) village children go to this school, though it was about 70% 10 years ago. Most drop-outs are girls. After graduating from primary school, village children go to the nearest secondary school (established in 2010) located at the junction of Route No.3, 9 kilometres away from Baan Soun Ya. It takes two and a half hours to arrive by foot, but only 30 minutes if they use motorbike. Before this secondary school began operating, they had to go to secondary schools either in Baan Na Teuy or Louang Namtha. Almost all (95%) villagers can speak Laotian and 80% can read and write.

A village health post was established in 1996 by the EU. When the villagers need to go to hospital for better medical treatment, they go to the provincial hospital in Louang Namtha, 37 kilometres away from the village. It takes an hour by hand tractor to arrive at the provincial hospital during the dry season but three hours during the rainy season due to poor road conditions. According to the villagers, about 30% of village children are under-nourished because their parents are busy earning livelihood and, hence, cannot feed them properly.

There are about 50 tuberculosis patients in the village. A total of nine tuberculosis patients died during the past three years. Currently, 70% of babies are delivered at home, and the other 30% at a



health post or hospital. There are three village midwives trained by an EU program. Child delivery at home was common 10 years ago.

Major livelihood activities in the village are lowland and upland rice cultivation, commercial crop cultivation (rubber, maize and sugarcane), raising livestock and wage work. Though its detail were not available from the interview, the cross-border trading to China or through Oudomxay also seems to be an important income source for some villagers.

There are a total of 30 ha of lowland rice fields along the stream owned by 25 households. According to the villagers, the total area of rice fields was 48 ha before; currently, only 30 ha of these fields are usable due to water availability. Yield of lowland rice in the village is 3 t/ha without application of chemical fertilizer. All the village households cultivate upland rice (total 40 ha, maximum 4 ha, minimum 1 ha). The yield of upland rice is 1.5 t/ha with application of chemical fertilizer. They can still rotate four upland plots due to land plenty in the area. Each household's rice barn stocks 3-4 tons of rice. Annually, villagers sell a total of 200 tons of surplus rice at 2,000-2,500 Kip/kg.

Rubber was introduced in the village in 2004. A Chinese company, Thaijiang Co. and a Laotian company, Thongli Co., provided the villagers with 80,000 rubber seedlings in 2007. Currently, 80% of village households cultivate a total of 78 ha of upland rubber, but only 20% are under contract farming with these companies. They had already collected rubber latex two to three times at the time of interview. 16 rubber cultivators earn 20 million Kip annually.

A Mungla-based Chinese company, Jong Yung Co., started contract farming of sugarcane with 42 village households in 2013. Currently, 37 households are under the contract with this company. Jong Yung Co, provides the villagers with seedlings for free in the first cropping year; however, the contracted farmers have to buy seedlings at 200 Kip/kg for the second cropping year. A total of 15 tons of seedlings are required for 1 ha of sugarcane cultivation from which approximately 80-120 tons of sugarcane can be harvested. They can sell the harvested sugarcane at 300 Kip/kg to the company. The main reasons of decline in the number of contracted farm households at this moment, according to the villagers, are that it requires intense labor, it is difficult to assemble laborers, the traders act badly with them and the contracted farmers have not yet received payments from the company. Payments have been delayed for two to three months already. However, the number of contracted farmers is expected to increase this year, because the target number of contracted farmers was set by the company; additionally, PAFO/DAFO officers are forcing the villagers to meet the target.

According to villagers, maize cultivation is undertaken privately and is favored over sugarcane. Currently, 80 village households cultivate upland maize at a total of 25 ha. Last year they produced 130 tons of maize from 30 ha. According to the villagers, maize can be sold easily because five or six traders come to the village to buy maize at 1,000 Kip/kg.

350 heads of beef cattle are raised by 16 households, 25 heads of water buffalo by five households, about 500 heads of pig by every household, 30 heads of goat by six households and about 100 heads of poultry. According to the villagers, they usually buy chicken and duck meat from the market. Roughly 15-20% of beef cattle and water buffalo and 40% of pig are consumed by the households. Annually, they sell 40-50 heads of beef cattle and water buffalo through cross-border trade with China. It is a six to seven-hour walk from the village to the border.

According to the villagers, 20 Yao households have worked on banana plantations in Sing and Long District since 2011; it was introduced by a cousin who lives in Sing District. From the second year, of

the start of contract farming, the Chinese traders came to the village to pick up laborers and bring them to the banana plantations. Each worker takes care of 5,000 banana trees and receives 400 Kip/kg (US\$ 0.04) from the harvest.

Some villagers engage in cross-border trade with China through Oudomxay. The main commodity sold through cross-border trade is large livestock, as mentioned before. However, some of them go to Nam Khot (tentative a small town in Oudomxay province) frequently during dry season (5-6 times/month) for cross-border trading through Oudomxay, though these details were not available in our village interview. The villagers own a total of 12 vehicles including four Hyundai-made trucks and, at least, 10 10-wheel trucks. The detail of these vehicles' usage was not available during the interview.

According to the village head, only one-third of the village households cultivate vegetable crops such as pak kard, pak tua, chili and eggplant. Home gardening is relatively uncommon in the village. The other two-thirds of the village households buy vegetables from the market in Louang Namtha and Na Teuy. They also plant mango, papaya, tamarind and mak man (unknown in English) in their backyards, but fruits are relatively uncommon among the villagers.

The villagers hunt wild animals such as wild pig, wild bird, squirrel and snake. Small wild animals are available one to two kilometres away from the village's residential area, but they have to go deeper into the forest area (10-20 kilometres away) to hunt large wild animals. According to the villagers, hunting of wild animals has become difficult mainly because the village population has increased. They also collect various kinds of wild vegetables for home consumption.

An EU project constructed four fish ponds in the village, but they remain unused. The villagers catch fish in two nearby streams. The amount of available fish from these streams decreases during dry season. According to the villagers, they do not need to buy fish from the market because they can catch enough amount of fish from the streams, except during the dry season.

The villagers collect fuel-wood from upland areas. As they have expanded crop cultivation in upland areas further away from the village, the availability of fuel-wood also has become difficult. They have to carry fuel-wood for a longer distance and time than before. A tap water system was installed by ADRA in 2010. The water source is located at 3 kilometres away from the village. Currently, only two to three households buy drinking water from Louang Namtha.

Some villagers have bank accounts with LDB or APB in Louang Namtha. There is neither a rice bank nor village bank in the village. According to the villagers, when they need to borrow money without interest, they ask their more prosperous friends within the same ethnic group, then ask other friends of another ethnic group if needed. Ethnic groups seem to be the major unit of mutual help within the village. Each ethnic group in the village organises their own ethnic festival separately. The village women still make traditional ethnic clothes for domestic use. As far as means of transportation, almost all (99%) of the village households own a motorbike (since 2010). All 25 lowland rice households own a hand tractor.

4.2.8 Baan Tin San, Namtha, Louang Namtha

Baan Tinsan is a Hmong village located 4 kilometres away from Route No.3. The unpaved road from Route No.3 was constructed by a Chinese construction company in 2006 when Route No.3 was

constructed. The village was established in 1986 when they migrated 12 kilometres to the present location due to lack of farmland as well as the government relocation policy. The total population is 438 (male 228 and female 210), consisting of 65 households. 15 village households are categorized as poor.

There is a village primary school (grades 1-5 including kindergarten) established with the support of the EU. The villagers constructed a dormitory at nearby the school building for a teacher who came from Louang Namtha. The nearest secondary school is located at Baan Na Teuy, 6 kilometres away from Baan Tinsan. Most village children walk to the secondary school for an hour, but some children use motorbike, taking only 10 minutes. According to the village leaders, it took an hour and half before the unpaved road and Route No.3 were constructed in 2006. Currently, all village children go to these schools. Approximately 75% of the villagers can speak Laotian, but only 50% can read and write Laotian. According to the village leaders, the literacy rate has improved in the past 10 years.

When the villagers become sick, they go to Baan Na Teuy Health Post, 8 kilometres away from the village, by a Hyundai or pick-up truck. It takes 30 minutes. According to the village leaders, it took two hours by foot 10 years ago. In some serious cases, they go to Louang Namtha, 42 kilometres and an hour away from the village. Before Route No.3 was constructed, it took 3.5 hours. The district hospital trained two health volunteers and also provided them with the necessary medical kits. While some of the pregnant women prefer to deliver babies at home, some do so at the village health post. At least 10 villagers suffered from tuberculosis, but all of them have been cured with the medical support from health post.

The village gained access to electricity in 2010. Before that time, 10 village households used hydropower generators (dynamo), introduced by their relatives in China. All the village households own mobile phones after the signal became available in 2004. There are three computers in the village. A total of five vehicles (including three Hyundai-made trucks) are owned, and all the village households have a motorbike (some of them have two or three). All the 40 lowland rice farm households have a tractor.

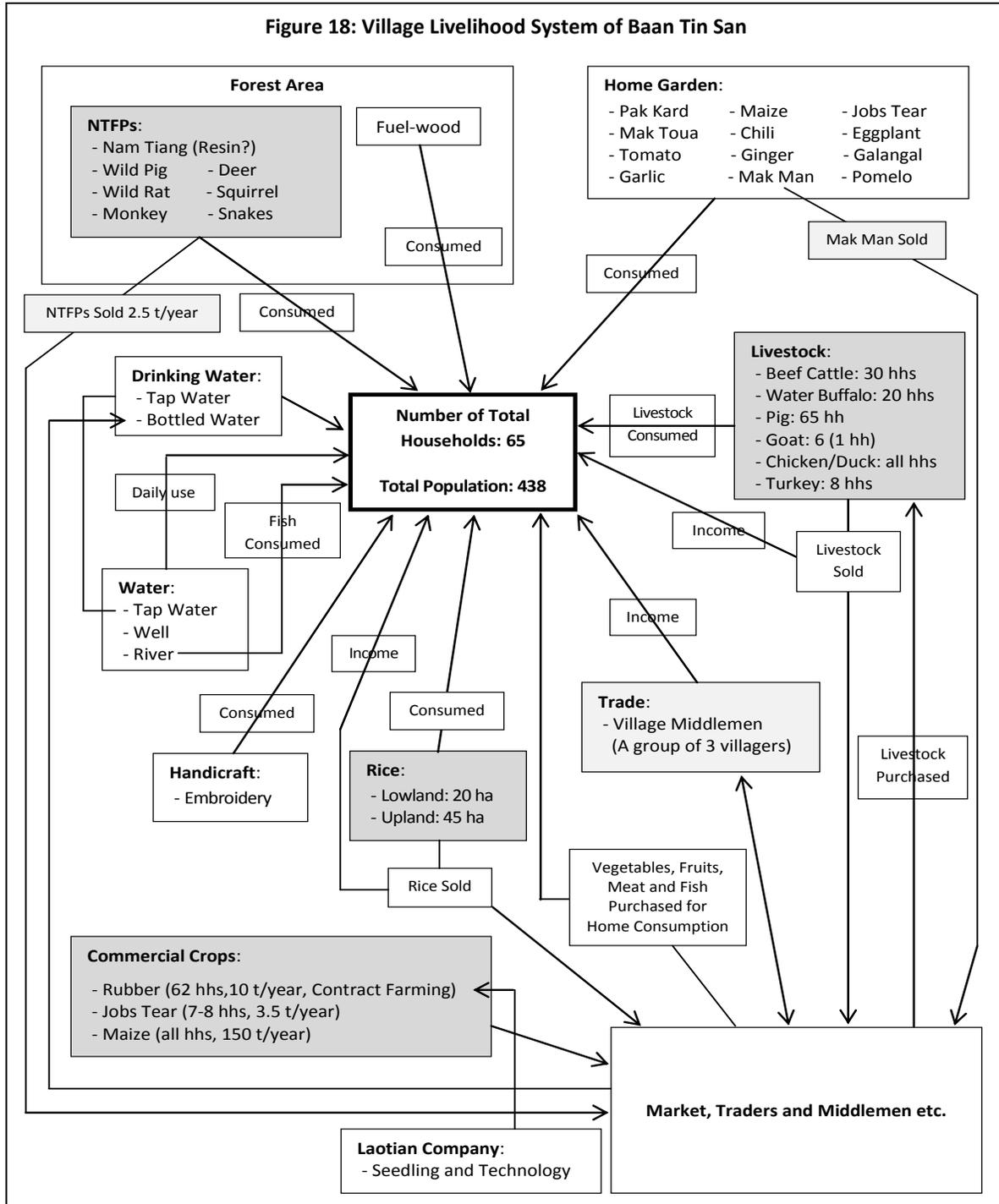
Major livelihood activities in Baan Tinsan are lowland and upland rice cultivation, commercial crop cultivation (rubber, maize and Job's Tears), raising livestock and NTFP collection.

40 village households own and cultivate 20 ha of lowland rice. Their yield of lowland rice is about 4 t/ha without application of chemical fertilizer. All the village households own upland soil (average of 2 ha, two plots rotated between rice and maize) at a total of 45 ha. According to the village leaders, yield of upland rice is about 4.2 t/ha⁷³ without application of chemical fertilizer. Every household in the village owns a rice barn, stocking 3-4 tons each. Due to relatively sufficient amount of rice surplus, they sell a total of 78 tons (32 tons of lowland rice and 46 tons of upland rice) annually.

All the village households cultivate upland maize, rotated with rice as previously mentioned. According to the village leaders, they can produce 10 tons of maize from 30 kg of seeds bought at 20,000-25,000 Kip/kg. The villagers sell a total of 150 tons of maize annually.

⁷³ This seems quite high as upland rice yield. However we could not verify why they can produce such a high yield without application of chemical fertilizer in the interview.

40 ha of rubber cultivation was introduced by a Laotian company under contract farming with 40 households in 2003. The company provided farmers with technical support and rubber seedlings at a cost of 7 million Kip/ha. The rubber cultivators are required to pay back this initial input cost within 10 years or before the contract's expiration date. Currently, 62 village households plant rubber. The rubber cultivators collect rubber latex every two to three days, from 3 a.m. to 7 p.m., from April through December.



According to a rubber cultivator, one person can manage up to 1 ha of rubber cultivation. Currently, these rubber cultivators produce and sell 10 tons of rubber latex annually. Additionally, about seven to eight

households cultivate Job's Tears in the lower part of their upland soil and sell a total of 3.5 tons of it annually.

Livestock raised in the village are beef cattle raised by 30 households (maximum 7-8 heads/household, minimum 1-2 heads/household), water buffalo raised by 20 households, pig raised by 65 households (2-3 heads/household), 6 heads of goat raised one household, turkey raised by eight households and chicken and duck raised by all households.⁷⁴ Beef cattle, water buffalo, pig, goat are raised for both sale and home consumption, while turkey, chicken and duck are only for home consumption.

The villagers collect nam tiang (a kind of resin), January through March, from the forest and sell at 8,000 Kip/kg. According to the village leaders, they can still easily collect nam tiang. Wild animals are still available, but their numbers have drastically decreased in the past 10 years. The villagers hunt wild animals such as wild pig, deer, rat, squirrel, monkey and snake. Villagers rarely see large animals such as bear and tiger now (only tigers' footprints). According to the village statistics, a total of 2.5 tons of NTFPs are sold at local markets annually.

The villagers collect fuel-wood from upland and garden areas around the village. It has gradually become difficult to collect fuel-wood as the village population increased. They collect fuel-wood only for domestic use.

The villagers established a village middlemen group composed of three people in 2006. They work as village middlemen and transport village products/produce by Hyundai truck and other local vehicles.

The villagers cultivate vegetables such as pak kard (for sale), mak tua (yard long bean and other beans), chili, eggplant, tomato, ginger, garlic etc. at home gardens. Some of these vegetables are transported by via Hyundai truck or motorbike and sold by village women at the market in Baan Na Teuy. Some villagers also plant mak man (plum) and pomelo in the village. Since 2009–2010, about two to three households have cultivated mak man, introduced from China as it is only 15 kilometres away from the village. They can harvest one ton of mak man fruit (yellow and green variety) every day and sell to Louang Namtha and Oudomxay markets at 5,500-10,000 Kip/kg.

The villagers in Baan Tinsan usually buy fish from the market. Only small fish are available from the stream nearby. The amount of caught fish has decreased as village population increased.

A tap water system was installed by ADRA during its 2009–2012 project.⁷⁵ The villagers boil and use tap water for drinking. Before this tap water system was installed, they used well water sources. There are two wells in the village but, currently, nobody uses well water for drinking. Only some village households (about 15%) buy bottled drinking water from Boten.

The villagers in Baan Tinsan do not use any bank. There is neither a micro-finance/credit union nor village bank. When the villagers need to hire someone for labor work, they use a mutual help scheme of labor exchange. Another specific system they use includes how each household will contribute 3,000-

⁷⁴ The number of each category of livestock was not available from the interview because of the absence of the village head and the vice village head.

⁷⁵ A tap in the village primary school indicates that it was constructed on 28 December 2009 with ADRA's logo.

5,000 Kip plus a kilogram of rice for funeral ceremonies. They contribute larger amounts for a marriage ceremonies. Furthermore, the village women produce embroidery for their ethnic clothes.

The villagers want to construct a bridge over the stream, located at the entrance of the village residential area. According to the village leaders, it is difficult for schooling and other activities when the stream has a high water level after heavy rain during the rainy season. They also want to renovate the roof of the village primary school, because it has a leak on the roof.

4.2.9 Baan Bo Piet, Namtha, Louang Namtha

Baan Bo Piet is a multi-ethnic village composed of Pana (61 households), Yao (17 households), Khamu (10 households), Leu (4 households), Hmong (4 households), Lao (4 households), Ho (4 households) and Tai Dam (1 household). Most of them, except Yao, were relocated from the Boten Specific Economic Zone (SEZ), 4 kilometres away from Baan Bo Piet in 2005. Yao households joined the village in 2007. A group of seven Yao households are located downstream, apart from the village's residential area. Among a total of 105 households, five households are recognised as poor. According to the village head, these poor households are composed of young family members; hence, they have an insufficient number of people to work in order to maintain their livelihood.

The villagers complain about three issues regarding their relocation: (1) the village primary school (which was already established before their relocation to the village) remains in poor condition, and the government has ignored their request to renovate it so far, (2) the water tank for their tap water system was partly damaged when a Chinese contractor expanded Route No.3 and (3) those who settled in Baan Bo Piet earlier now occupy relatively better farmland, while the late-comers were allocated poorer farmland or have not yet received farmland at all.

According to the village leaders, Route No.3 was already a paved road as of 1972, but the volume of transportation was minimal. After it was upgraded in 2006–2007, the number of vehicles drastically increased.

The village primary school was established in 1986, before the majority of the villagers migrated from Boten SEZ. Currently, 35 children study in grades 2 and 3. The school building, with crooked wooden walls and a rusty zinc roof, has three small rooms. The nearest lower secondary school is located at Baan Boten, 1 kilometre away from Baan Bo Piet and takes 20 minutes to arrive by foot. The nearest higher secondary school is located at Baan Na Teuy, 11 kilometres from Baan Bo Piet. Most village children do not continue their studies after completing grade 9 (M.3). According to the villagers, it is enough education to maintain their livelihood.

Teuy.

The village gained access to electricity in 2006, and, simultaneously, mobile phones became popular among villagers. Currently, all village households own mobile phones. There are, at least, two personal computers in the village. Major livelihood activities in the village are transportation service business, commercial crop cultivation, wage work, migrant work and lowland and upland rice cultivation.

Some villagers bought mini-vans by using land compensation money and organised a transportation service group in 2005. Currently, a total of 52 mini-vans are registered in the group and provide customers with transportation services from the Boten border checkpoint to other places such as Oudomxay, Louang Namtha and Houayxai. They work in three-day cycles (two days on and one day off) and earn an average of 300,000 Kip/day (excluding gasoline cost). According to the village head, who is also a leader of the transportation service group, the benefit from their transportation service was much higher when the casino in Boten SEZ was operating. Many Laotian customers used their transportation service to go to and from the casino. He also expressed his concern about the future business scenario being more competitive with rival Chinese companies which use larger vehicles in transportation business and in better financial conditions.

The villagers cultivate three commercial crops, rubber, maize and cardamom. Rubber began in 2005. They received seedlings from China. Currently, about 70% of the village households cultivate upland rubber privately (an average of 1 ha/household). In the first year, they use 30 litres of herbicide for 600 rubber trees. The amount is gradually reduced to 20 litres during the second year and 10 litres by the third year. The total cost of herbicide for the first year is 280,000 Kip. Herbicide is applied only the first three years of rubber cultivation. If manual weeding is applied, it costs 1,000 Kip/tree (600,000 Kip for 600 rubber trees for an entire weeding operation). According to the villagers, this is the main reason why they prefer herbicide use to manual laborer. However, they also point out the problem of some careless cultivators who expose themselves to herbicide without any protection. At the stage of rubber latex collection, they need intensive labor input; however, according to them, they can hire other wage workers from Na Teuy and Phongsaly. They can sell collected rubber latex to a Chinese rubber processing factory in Na Teuy. Currently, they worry about the factory's purchase price may drop in the future. The villagers pay tax (35,000 Kip/ha) to the government for rubber cultivation.

All the village households have 2-3 ha of upland maize with an application of chemical fertilizer. They plant a total of 2 tons of seeds annually. After harvest, they sell maize to traders who come to the village. They also pay tax (20,000 Kip/plot) to the government for maize cultivation. All the village households cultivate cardamom (maximum 30 ha/household). The yield of cardamom in the village is 1 t/ha or less. They can sell its unpeeled fruits at 17,000 Kip/kg.

A half of the village households engage in wage work at the truck reloading station in Baan Boten. The other wage work a total of 10 other households are involved in wage labor on either watermelon or banana plantations in Oudomxay. About 10 people work in Louang Namtha or other provinces. The other 3-4 people work as translators (Laotian-Chinese) at Chinese companies in the area. They can earn 300 Yuan/day.

Lowland and upland rice cultivation is a relatively minor livelihood activity in Baan Bo Piet. Only eight households cultivate 11 ha of lowland rice, and 6-7 households at upland. According to the village head, about 50-60% of the village households have a rice barn that can stock a maximum of 1-2 tons.⁷⁷

The livestock raised in the village are 8 heads of water buffalo, 120 heads of pig and poultry (chicken and duck). According to the village head, 70% of the village households raise pig. Though the number was unknown for the village head, all the village households raise, at least, 5-6 heads of chicken and/or duck (maximum 40-50 heads/household).

Vegetables, fruits, meat and fish are usually bought from the market or Chinese traders in Boten SEZ. Some village households plant pomelo, mango and some green vegetables in their home garden or backyard.⁷⁸ Sometimes they hunt wild pig and bird in the forest area near the village. Villagers collect fuel-wood from the forest and upland areas around the village. However, they now have to go deeper into the forest than 10 years ago.

There is tap water system in the village. However, as mentioned already, it has been troubled due to water tank damage from a Chinese constructor when it expanded Route No.3. All the village households have had to buy 20-litre bottled drinking water at 5,000 Kip, delivered every 2-3 days by local drinking water companies since 2007. In order to manage home finances, some villagers have bank accounts with the APB or LDB located in Baan Boten.

The village leaders express their concern that they might not be able to access Boten SEZ in the future due to restrictions placed by the company running SEZ, and if that happened, it would result in a lot of loss of work opportunities for the local villagers in surrounding areas.

4.3 Individual Stories of Livelihood Situations

In order to ensure safety of the individuals sharing their personal stories, the full, public identity of the individuals has been depicted using initials while sharing their actual situation.

4.3.1 Individual Story 1: Mrs B, 54 year-old widow, Khamu

Phu Van Tai Village, Houayxai District, Bokeo Province, Lao PDR, May 2014

“New source of income from labor work on Chinese owned banana farms”

Mrs. B lost her husband six years ago. She is now living with her 20 year-old son and her daughter-in-law. One of her daughters had recently passed away due to a serious stomach problem (unknown disease, according to her) and the other two daughters are married and live separately along with their husbands and families in the same village.

Out of the total 147 households in Phu Van Tai village, 82 households are categorized as “rich/better-off” and 65 categorized as “middle-income”. B’s family is one of the households which falls

⁷⁷ The village observation by the research team indicates that these rice barns are relatively smaller size than other research villages.

⁷⁸ These are very small size compared with other research villages.

under the latter category and within the lower middle-income. This is indicated by the poor house conditions, shortage of or barely enough rice production for consumption, few or no large animals or cattle and limited sources of household income.

B and her son's family currently live in a small semi-permanent house with old bamboo sheet walls and deteriorating zinc roofs. She owns 4 rai of paddy field and 8 rai of upland field, 2 buffaloes, 1 mother pig and 40 small chickens. She shared that her last years' rice yields were just 4 tons from paddy field soil (which is considered high due to good soil conditions) and 8 bags (approximately 10 Kgs/bag) from upland soil.

According to B, she and her son are the only two main labourers in their paddy fields; therefore, their rice production is minimal. Her daughter had been sick, when the research team met her, and daughter-in-law was pregnant and in weak health. In a situation with immense personal difficulties and external challenges, B expressed that she is presently in an insecure situation regarding the future of her household's food security. She needs to share her paddy rice with her daughter's family too, which means that her own household's rice supply will be inadequate.

The only source of monetary income she can earn regularly is from the collection and selling of broom grass collected from the community forest area and sold in the local market. Usually, from December through February, B mentioned that she and other women in the village would go to the community forest area for NTFP collection, which is an hour walk from the village. Last year, she earned about Kip 66,000/- for approximately 12 kilograms of broom grass sales.

In emergency situations, B mentioned that she relies on the "Village Bank" to borrow cash. She borrowed money for her daughter's medical expenses and also to pay for her household electricity. She took out a 2 year loan for 1,500 Baht at 12% interest.

B was, however, delighted to share the fact that now her son was able to earn money and become a major breadwinner for the household, as he had found work on a banana farm run by a Chinese company not far from the village. He was able to earn 60,000-100,000 Kip/ day working from 7 a.m. until 6 or 7 p.m..

*B has lived in Phu Van Tai village almost all her life until now; for her, Route No.3 (NSEC/Asian Highway No. 3) is "the main road to Houayxai". She shared that she had observed the changes that went on in and around her village as the road was being developed. Before the road was upgraded to Route No.3 by the Lao government, she mentioned that the access road to her village was very difficult; it took more than **an** hour to reach the nearest health post which was about 8 kilometres away from the village using a Tac-tac. She admitted that she has hardly ventured out from her village, and her travels were mostly limited to the local village cluster market. She had never even traveled to the main market in Houayxai that is only 20 kilometres away.*

"Route No. 3 has been beneficial for me and other villagers, especially the women. We are now able to sell wild vegetables, poultry, local produce and NTFPs at the local markets and, in return, buy pork, groceries and clothing, including other vegetables that cannot be grown in our kitchen gardens."

4.3.2 Individual Story 2: Mrs K, 46 years old and Mr. I, 53 years old (Khamu couple)

Nam Ngao Village, Houayxai District, Bokeo Province, Lao PDR, May 2014

“A big family is at risk of rice insecurity and cash income”

Mrs. K and Mr. I are a Khamu couple living in this village since their childhood. The couple has seven children; the eldest is 20 years old and the youngest is seven. Only three of them are able to continue their education while others had to discontinue (dropout of school) due to their family's income and financial circumstances.

Mrs. K's family is one of the eight households (out of a total 87 households) in the village that is categorized as “poor” by the village authority.

According to K, she and her husband did not inherit any rice paddy(s) from their respective parents, and this is “the main cause of them being poor”. The one hectare of upland field the family currently occupies (not own legally) does not produce enough rice to feed the nine people in their family. Due to good climate conditions in 2013, the upland rice field yielded about 4.2 tons of rice. However, due to the bad weather this year (2014), the yield has been much lower, about 1.4 tons of rice.

K's family now plans to grow Job's Tears (*Coix lacryma-jobi* or Chinese pearl barley) in their upland field; they hope that this will generate additional family household income after selling it in the local market. K and her husband hope that the income raised from selling Job's Tears could be used to buy an adequate quantity of rice for their household's consumption and ensure their food security situation, as rice is their main staple diet. They have a small kitchen garden and her children also collect wild vegetables for daily consumption from the community forest area, which is about a 30 minute walk as compared to 5-10 minutes' walk previously.

K and her husband own only five pigs (large and small), no large animals (which is usually the source of cash when urgently needed). K's husband currently volunteers for the neighbor to take care of and raise their two cows and eight buffalo, with the mutual understanding that he would get, in return for his voluntary labor, a calf or baby buffalo that would be born in a month's time. The husband and wife do not have any other adequate and regular cash based household income.

K shared that, just recently, their four children (school dropouts) are now starting to find work on banana farms operated by the Chinese investors near the village. The family is hopeful that this would help them generate a more regular income, thereby stabilizing their overall household food security situation.

4.3.3 Individual Story 3: Mr. M, 32 years old and Mrs. J, 25-years old (Hmong couple)

Donchai Village, Houayxai District, Bokeo Province, Lao PDR, May 2014

“R-3 opens up economic opportunities to the dwellers on the road side”

Donchai village consists of three different ethnic groups: Leu, Hmong and Lamed since 2007 following the government re-settlement policy.

Originally, M and his parents had lived in the upland area around Donchai consisting of only Hmong people. He moved to live in the flat land area in 2005 when he got married to J and established his own family. His house is just alongside R-3. Before the road was properly commissioned for upgrading to be an Asian Highway under NSEC and identified as R-3, M recollected that it was just a dirt road and traveling was only possible during dry season. It is in 2005, M recalls that the improvement of R-3 started in front of their village.

M shared with the research team that one of the first immediate benefits to him living next to the road during the ongoing construction was the opportunity to sell local products/food, including vegetables, chicken, piglets and other necessary items to the construction workers. According to him, some other local villagers were doing the same.

M mentioned that he built good relationships with the company's workers and in exchange/barter for food items he would sometimes request the company's workers to clear, fill in and flatten his private land areas, which had been affected by the road widening and drainage system construction along R-3. M said he would have, otherwise, had to pay quite high costs for hiring cranes and machinery in order to level and fill land.

According to him, the newly developed and improved R-3 brought him many opportunities to make good cash-based household income. He turned the front part of his house into a small grocery shop. At the house's immense backyard, he allocated land to various farming activities: 3 rai of rice, 1 rai of Maize, 4 rai of cassava and 1.5 ha of rubber. He and his wife raise five beef cattle, three cows, eight pigs and fifteen chickens. He owns one Tac-tac, and recently bought a pick-up truck (using his savings from his grocery business, cash crops and livestock sales), which he is using as his transport (on-call) business for the local villagers.

Overall, his family generates the following income: grocery retailing (2-3 million Kip/month), transport services (8,000-12,000 Baht/month), livestock sales (2 cattle and 5-10 pigs/year) and Hmong costumes and embroidery made by his wife (2000 -3000 Baht/month). This is in addition to selling the agriculture crops he grows.

Speaking highly of the new R-3, he said, "It has brought a lot of benefits to me; the transport is now very convenient. There are frequent public buses that pass by to Houayxai from different provinces (including Vientiane and the northern provinces of Louang Namtha, Oudomxay and Louang Pabang. Most individual households now own motorbikes (more than one), many own pick-up trucks. These have made life easier in regard to attending school, the health post, market, etc.."

His main concern while living next to the R-3 and the increased heavy traffic was, "the traffic is quite dangerous for the kids (looking at his own children). I have observed frequent accidents on R-3 near my house."

4.3.4 Individual Story 4: Mr. Th, 21 years-old semi-orphan, Khamu

Pang Phou Leup Village, Houayxai District, Bokeo Province

"A young Khamu man with rural livelihood security and a dilemma to take advance skills in furniture making, thus, creating an alternative job opportunity"

Mr. Th lost his mother when he was 10 years old. He is now 21 now and living with his older brother, 26 year-old Mr. Be, in a small semi-permanent house with old bamboo sheet walls and a zinc roof located in the middle of Pang Phou Leup village. Their father had divorced their mother and is living in the same village along with his new family.

Th's brother, Be, has no schooling; Th stopped attending school when he was in grade 2. This was when their mother passed away due to a severe case of tuberculosis.

Th's family is categorized as one of the five poor households by the village authority. He inherited from his mother only two plots of upland soil which produces 30 bags of rice per year (or approximately 1 ton). Typically, he keeps two-thirds of the yield for home consumption and sells the remaining in return for a small amount of cash that he and the brother spend on essential household items.

According to Th, he and his brother have no animal assets, nor a traditional household kitchen garden. They live in the village in a modest and self-sufficient way. Most of his time, he makes a living from natural resources, such as seeking wild vegetables from the forest and catching fish in the river for daily home consumption. This is in addition to working in his upland field, which, unlike the paddy rice cultivation, requires intensive labor; they begin land clearance around March or April, then plant for another month or two and weed invasive grasses year-round until the harvest from November to December.

Th maintains that he is quite content with his rural livelihood at the moment. According to him, the only time he has a moment to relax is from January to February, about two months per year. During these two months, Th works full-time in a Houayxai furniture workshop. In fact, he has learned the furniture making skills from the workshop, starting from being a helper and has upgraded to be a more skillful carpenter. He lives at the house of the furniture workshop's owner, where food and accommodation are provided to him on top of a daily wage of about 60,000 Kip/day. Th shared that he is quite confident in his carpentry skills. Accordingly to him, he sometimes also works for a day or two during the upland rice season, when he the daily grass weeding is finished.

The convenient transportation provided by R-3 now has made travelling from Pang Phou Leup Village to Houayxai, approximately 22 kilometres, more convenient. It was now possible for him to travel there within 30 minutes on motorbike, as compared to earlier when it took one hour and was only possible during the dry season.

The availability of mobile phones at an affordable price, along with telecommunication development in the rural area has made the "on-call" arrangement of work possible for him. He further shared that there were between 10-20 young men, similar to his age, working in Houayxai and having similar arrangement like him.

When asked by the research team if he wanted to advance his carpentry skills by attending a Vocational School⁷⁹ in Houayxai district, which could help him upgrade his skills, create confidence and perhaps provide an alternative job along the same lines as skillful carpentry and self-employment perhaps

⁷⁹ Note: The vocational school (accordingly to the information received from the Provincial Labor and Social Welfare Department) offers special treatments for disadvantaged students, including rural poor and ethnic students; they will be provided free accommodation and free course. The attendees, however, are required taking care of their own food and personal needs.

more income, he seemed very interested and shared that such a program would also be of interest to other young men whom he knows. However, he added that for people like him coming from a lower-income group, he would not be able to afford the costs related to such a course and was reluctant to talk much in detail. His only explanation to the research team was that he could not leave the upland farm unattended for a long period and that there would be no one to take care of the rice farming, meaning no rice at home and that he could not afford to buy food from the market based on his and his brother's daily but irregular cash income.

For the research team, given life's experiences of a 21 year-old semi-orphan Th, it is unlikely for him to be able to find way out of his poverty and manage to pursue proper vocational skills advancement (even though he wishes to do so), including obtaining vocational education. Given Th's current rural livelihood situation – food security from his own rice farming, NTFP collection and the irregular cash income generated though not much from furniture making during off-season farming, it is too risky for him to pursue any alternative livelihood income source and foresee the financial benefit to him and/or benefit to the community.

4.3.5 Individual Story 5: Mr. MN, 67-years old, Leu

Nam Ngeun Village, Vieng Phoukha District, Louang Namtha Province, Lao PDR, June 2014

“R3 has brought about changes in economic activity and livelihood of the rural villagers”

MN has lived in Nam Ngeun village since a young age. His wife “In” is from the Leu ethnic group and migrated from China as a young girl to marry him. Together, they have six children: two sons and four daughters. All are grown up and have their own families living in the same village and nearby areas. The husband and wife are living in the household of one of their children.

MN, fortunately, inherited good land from his parents; therefore, each of his children also has inherited land for rice cultivation and rubber plantation. Due to rice and rubber farming, he was able to increase his income by selling the produce and, now, MN alone has got about 4 ha of paddy field and 16 ha of rubber plantation. He and his family appear to have high household food security; on average, his rice paddy field yields up to 4.5 ton/ha per year per season.

He started his grocery business, located on the road side of R-3 many years before the road improvement and upgrade in 2005 in Nam Ngeun Village; it was the only shop in the area also serving many other small dwellings located nearby. Before the upgrade, his grocery business operated profitably, he was able to earn at least 1 million Kip/per day from the wholesale and retail home consumption items he bought in bulk from Louang Namtha District. Now, he noted, that there are many mobile traders coming with pick-up trucks and motorbikes full of various consumer goods and household appliances, selling them for cash and as well as monthly installments. MN shared with the research team, “This has made my business less competitive and now it generates much less income than before.” “The sales are much less than before... not even 100,000 Kip/per day. I still run the grocery shop just to keep myself and my wife something to do in our old age”, he added with a smile.

He implicitly acknowledges that while R-3 has been a business threat to him, he has also seen the changes in his village and the way the rural lifestyle of the community and the people has also

changed. “One of my daughters runs a guesthouse business in Vieng Phoukha”, he stated beamingly, adding how the driving engine of economic development was opening doors to other new economic prospects for his family.

He proudly shared with the research team that he was, in fact, the first one in the village to initiate rubber plantation. He had learnt the technique from his extended family while visiting his wife’s cousin across the border in Xieng Hung District, P.R. China in 2004 and 2005. He returned with 300 rubber seeds that the cousin shared with him and urged him to use the new technique of growing rubber trees. He now has 2000 rubber trees growing on his land which is, actually, large enough to grow up to 8,000 rubber trees. He will be doing his first rubber tapping in 2015 and will be inviting his Chinese cousin to come and teach him the tapping techniques they are using.

As per his observation, he noted more economic activities introduced by the Chinese traders and investors, especially the industrial trees and cash crop plantations: rubber, banana, and pumpkin plant-based watermelon (research team was unable to verify this physically).

Presently, he employs labourers from neighboring villages to clear out weeds, which is usually done three times per year. He would be paying about 1,000 Kip per tree for the weeding as this is the heavy job before the rubber is mature enough to be tapped. As per his calculations, he would be paying approximately 6 million per year as labour costs for clearing weeds from his 2,000 rubber trees. To ensure good care, he has engaged labourers from the same family, 2-3 people are presently staying in the plantation area and do all the jobs. He, as the owner, will take care of selling the tapped rubber to either the Chinese rubber processing manufacturing company located in Vieng Phoukha District or to a Chinese trader in Louang Namtha District. He will be sharing the profit on the basis of 40:60 ratio between workers and owners, or 30:70 ratio if they agree on a long term basis.

He labeled himself as an entrepreneur willing to try new things and was open to the idea of exploring new agricultural practices (if good) initiated by Chinese investors.

4.3.6 Individual Story 6: Mrs. La, 45-years old widow, Khamu

Plang village, Louang Namtha District, Louang Namtha Province

“A widow living under an insecure livelihood situation”

Mrs. La, is living with her three sons: 16, 14 and 7 years old. The eldest son stopped going to school after grade 5, while the second one is still studying grade 3 but attends classes irregularly. The youngest one has yet to go to school. La is a soft spoken widow, who maintained minimal eye contact with the research team, spoke limited Laotian language and lacked confidence in herself and her life situation.

La’s life has become tough and difficult to manage since 2012, when her husband passed away after being seriously ill with tuberculosis. He had been suffering from TB for number of years. La and her husband, during that time sold all the big animals the family had, including buffalo and cows, in order to pay for all the medical expenses to cure her husband and raise the kids.

La shared with the team that she was feeling desperate, as after the death of her husband there seemed no future for herself and her children. According to her, the eldest son had recently left for work in Houayxai, there was no news where he actually lives and what work he has found or if he would be able to send some money to her for the family expenses. Wishing for her son's return, she hoped to look for him if she could afford to do so.

La mentioned that she was labouring by herself on the 1 ha of upland soil she possessed. The maximum yield of upland rice could be up to 2-3 tons, but as she was the only one labouring in the field, the yield was much less, equal to about 300 kilograms. "This quantity of rice is not enough for me and my sons", she added with sadness. In order to meet her household's food-security needs, she had borrowed 100 kilograms of rice from the village's rice bank and is required to return back along with interest about 120 kilograms of rice during the next rice farming season. "My son may have to stop going to school and help me with the farm and housework; at present, it is difficult to meet the current family needs", she further emphasized sadly.

Sharing that she was occasionally collecting NTFPs, including cardamom and galangal, last year she was able to earn about 200,000 to 300,000 Kip from selling the products. She added that her son is also part of the Village Guide Service, an eco-tourism activity in Nam Ha Protected Areas, where Plang Village is located. The villagers are hired on a rotational basis and the guide receives 60,000 Kip per day. Usually one trip would last for 1-2 days for a group of 4-5 tourists. "It is a good source of income, but this happens once in a while, as all the 48 households in the village take turn to provide the service."

She shared that while she saw the R-3 as beneficial to the villagers as there were many small businesses along the road and more traders and trading activities than before; yet, for her family there has not been much scope of moving out of poverty. "The only good thing that R-3 so far has provided to me is the opportunity to sometimes visit my Khamu cousins living in Houyxaï District in Louang Namtha. This is because, now, there is increased public transport service and good road conditions. Otherwise I could not manage to go."

ANNEX 5: List of interviewed persons from the respective government agencies

#	Name	Position	Organization	Contacts	Document obtained
Bokeo province					
1.	Mr. Khammy Philamone	Head of Livestock Division	Dept. of Agriculture and Forestry	Mob. 55784228	Strategy of Agriculture and Forestry of Bokeo province up to 2020. Report of Implementation of Agriculture and Forestry Development Plan 2012-201; and Agriculture and Forestry 2013-2014. Development Plan
2.	Mr. Chanpheng Intavong	Deputy Head of Agriculture Division		Mob 55998879 chanphengbk@gmail.com	
3.	Mr. Amone Khamlathanong	Deputy Head of Planning Division		Mob 55666143 KL.amone2013@gmail.com	
4.	Mr. Vanthong Bunyaphone	Deputy Head of Cabinet Office	Rural Development Office	Mob 59976333, Off (084) 212380 Chanthy.silapasai@yahoo.com	Statistics of Poverty Situation of Bokeo Province, 2005-2014 Report on Village Development Fund, 1998-2014
5.	Mr. Sisouk Khounvithong	Deputy Director	Dept. of Planning and Investment	Mob 55684224 Off (084) 211490	List of Investment Projects in Bokeo, 2004-2013
6.	Mr. Bounma Chaynghahak	Technical Staff		Mob 22381964	
7.	Mr. Thongchanh Vannasith	Deputy Director	Dept. of Labour and Social Welfare	Mob 55483590 Off (084) 211487	Na
8.	Mr. Somneuk Somphuiseth	Head of the Cabinet Office	Dept. of Environment and Natural Resource	Mob 56826511	Statistics of Government Land Lease and Concession of Bokeo, 2005-2013
9.	Mr. Somsak Sayavong	Deputy Head of Land Management Division		Mob 55683295	
10.	Mr. Khunthavong Khutthavong	Deputy Head of Geology Division		Mob 97756616	
11.	Mr. Mainoi Vidavanh	Deputy Head of the Forest Management Division		Mob 55783152	
12.	Mr. Bunkeng Thammakhan	Deputy Head of Tourism Division	Dept. of information, Culture and Tourism	Mob 55783308	Statistics of Tourism in Bokeo, 2005-2014
Louang Namtha province					
1.	Mr. /////	Director	Dept. of Planning and Investment		List of Investment Projects 2004-2014
2.	Mr. Saisomphone Larhsoukanh	Head of International Cooperation		Mob 23933366 Sai_2020@hotmail.com	

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#	Name	Position	Organization	Contacts	Document obtained
		Division			
3.	Mr. Sophit Sithbunlam	Director	Rural Development Office	Mob 22390101	Poverty statistics, 2010-2014
4.	Mr. Dethsayfeng Oulavandy	Deputy Director		Mob 22393158	
5.	Mr. Thongson Sisoulin	Head of Planning and Cooperation Division	Dept. of Agriculture and Forestry	Mob 55686849 Thonsone@live.com	Statistics of Agriculture Land and Production, 2003-2004 to 2013-2014
6.	Mr. Boundy Phetsavang	Deputy Director	Dept. of Environment and Natural Resource	Mob 22529929	Na
7.	Mr. Peulae Thongsavay	Deputy Director	Dept. of Labour and Social Welfare	Mob 28818222	Lao employment 2010-2014 Foreign employment 2010
8.	Mr. Amkha Thammsith	Deputy Director		Mob 28819996	
9.	Mr. Soulisith Phanavanh	Deputy Head of Skills Development and Employment		Mob 28818678	
10.	Mrs. La-ongkham	Head of Tourism Division	Dept. of information, Culture and Tourism	Mob 23542888	List of Tourist 2003-2013 CBT report in Louang Namtha Strategy of NSEC 2020
11.	Mr. Alayphone	Deputy Head of Tourism Division		Mob 22010180	
12.	Mr. Linthong	Deputy Head of Tourism Division		Mob 29140098	
13.	Mr. Mulipphavanh	Technical Staff		Mob 22239245	

ANNEX 6: Key Development Cooperation Agencies in GMS

In 1992, the Greater Mekong Sub-region (GMS), Cambodia, Lao, Myanmar, Thailand, Vietnam and Yunnan province of China, was supported by ADB's development cooperation program to promote transport and economic development. GMS is the fast growth region and is rich of natural resources, but social and economic development of the region is lower than other countries in ASEAN and the integration of GMS to ASEAN by 2015 has brought international agencies, developed countries, and other region cooperation programs to cooperate with GMS countries to address and support socio-economic development in the region. There are many international development agencies, countries, and regional cooperation program, such as U.S. Agency for International Development (USAID), Australia Aid (AUSAID), Asia Development Bank (ADB), United Nation (UN), Swiss Agency for Development and Cooperation (SDC), Japan International Cooperation Agency (JICA), German Cooperation (GIZ), China, Japan, United States, European Union (EU), ASEAN-Mekong Cooperation Program (AMBDC), etc.

United Nations

United Nation (UN) supported the establishment of Mekong River Commission which is joined by Cambodia, Laos, and Vietnam, after Geneva Accords of 1954 (Chheang, 2010). This is the largest single development project which had ever undertaken by UN and Mekong region is regarded as "Untamed River". The 1995 Mekong Agreement established the MRC, which is the river basin agency and no longer under the umbrella of other organization. The management responsibility of the commission has covered Cambodia, Laos, Thailand and Vietnam. Vision of MRC is to be an economically prosperous, socially just and environmental sound Mekong River Basin by focusing on two main strategies, the Integrated Water and Related Water Resource Management (IWRM)-based Basin Development Strategy, and the 2011-2015 Strategic Plan, which is more comprehensive and new direction for the agency⁸⁰.

Asian Development Bank

Asian Development Bank is the most development actor in GMS, with the support of other development partners in the GMS program to achieve the connectivity, competitiveness, and a greater sense of community. The connectivity is being achieved through transport development; particularly transport corridor, power interconnection system and telecommunication backbone. Competitiveness is being improved through transport and trade facilitation, logistic system development and communication technology. A sense of community is being prevented the communicable disease. By the end of 2011, ADB had extended \$5.1 million of loan and grants for 56 investment project with a total project cost of \$ 15 billion. The next future of ADB investment program in the development framework of 2012-2015 will comprise multi-sector including physical infrastructure investment, urban development, rural and integrated area development along the corridor, etc (ADB, 2012a).

ASEAN-Mekong Basin Development Cooperation (AMBDC)

The ASEAN-Mekong Basin Development Cooperation was established in 1996 to promote economic integration among the ASEAN member, helping in the achievement of ASEAN Community by 2015. Infrastructure development and human capital development are under the AMBDC framework supported by ASEAN and China dialogue for sub-regional economic development and poverty reduction cooperation. The Singapore-Kunming Rail Link (SKRL), the flagship project of the AMBDC, would be

⁸⁰ <http://www.mrcmekong.org/about-the-mrc/vision-and-mission/>

another model of land transport connecting AMBDC's riparian and non-riparian states⁸¹. 15th Ministerial Meeting on AMBDC in 2013 raised the need the fund around \$276.7 million for 22 projects (excluding the Singapore-Kunming Rail Lin Project) and financing is main challenge of project implementation. Beside the infrastructure interest, the Ministers highlighted the interest in other areas of cooperation such as human resource development and capacity building through providing as technical assistance and training for the CLMV countries.

Peoples Republic of China (P.R.C)

The Mekong region is seen as the strategic and economic backyard of China which is a top trader, investor and donor in the region and China uses economic tools to increase political influence in the Mekong region (Chheang, 2010). China has strong engagement through energy, trade and investment cooperation. According to country report on China's participation in the Greater Mekong Subregion Cooperation in 2011, beside the main cooperation in transport, power, and telecommunication, China has cooperated in various areas and highlighted the remarkable achievement in infrastructure and industrial cooperation and steady progress in educational cooperation. In the future cooperation, China will further its cooperation with GMS countries on road, water transportation, railway, and civil aviation, and will promote the comprehensive and effective implantation of the CBTA. In power sector, China will push forward the development and construction of power project under the framework of the GMS Program (2012-20122). Moreover, China will train another 300 agricultural professional for other GMS countries in China and send 100 agricultural expert and technician to provide field guidance (Chinadialy USA, 2011).

Japan / Japan International Cooperation Agency (JICA)

Japan actively pledged US\$5.5 billion in late 2009 to support in Japan-Mekong initiative and Mekong development through infrastructure development, human resources development and technical support. Japan-Mekong Cooperation⁸² has 3 main pillars: comprehensive development, sustainable development, and greater cooperation on parliamentarian visits and exchanges, tourism and cultural heritage (Chheang, 2010). During 2010-2012, a lot of works were achieved remarkably in all pillars⁸³. In the first pillar Japan will strongly support ASEAN connectivity, which would realize the vision of building ASEAN community by 2015. In term of challenges in sustainable development pillar, Japan will continue supporting the improvement of maternal, newborn, natural disaster, water resource management, and concrete advancement on climate change and environment issues. Remaining works needed to tackle in the third pillar are enhancement of cultural exchange and people to people exchange, and enhancement of tourism to boost economy in the region.

JICA is working with many countries in the Mekong region including Cambodia, Lao PDR, Vietnam, Myanmar and Thailand. According to Japan development assistant policy in 2012 to Cambodia, Laos and Vietnam, there are many priority areas of cooperation. Priority areas in Cambodia are development of infrastructure, strengthening of private sector, agriculture and natural resources, and development of water supply etc (JICA, 2012a). In Loa PDR, priority areas are the development of

⁸¹ <http://www.asean.org/communities/asean-economic-community/category/overview-16>

⁸² Ministry of Foreign Affairs of Japan (Tokyo Strategy 2012 for Mekong-Japan Cooperation):
http://www.mofa.go.jp/region/asia-paci/mekong/summit04/joint_statement_en.html#actionPlan

⁸³ Ministry of Foreign Affairs of Japan (Tokyo Strategy 2012 for Mekong-Japan Cooperation) :
http://www.mofa.go.jp/region/asia-paci/mekong/summit04/joint_statement_en.html#actionPlan

economic and social infrastructure, agriculture development, education, and health⁸⁴. In Vietnam, JICA focuses on promoting economic growth and international competitiveness, response to fragility, and good governance (JICA, 2012b).

U.S. Agency for International Development (USAID)

The 2009 US-Lower Mekong Meeting in Phuket, Thailand was the landmark of the return of United States to the Mekong region. Environment, health and education are the top priority. More than US\$7 million in 2009 and US\$22 million in 2010 are provided in environmental program and the impact of climate change. US\$147 million was earmarked in health sector including enhanced response to pandemic treats and US\$16 million was granted to support education and other programmes in 2009 (Chheang, 2010). USAID are working actively in the Mekong region, which is called Sustainable Mekong and Lower Mekong Initiative. Due to Large-scale infrastructure and agriculture investment which can have significant social, environmental, economic impact over in Lower Mekong River Basin (Thailand, Cambodia, Vietnam and Lao PDR). USAID has supported two programs, Sustainable Infrastructure for the Mekong (SIM) and Mekong Partnership for the Environment Project (MPE), toward sustainable, green growth in Lower Mekong region over the next five years⁸⁵.

Lower Mekong initiative is multinational partnership effort initiated by the United State in 2009, comprising six pillars: Agriculture and Food Security, Connectivity, Education, Energy Security, Environment and Water, and Health, Gender and other cross-cutting issues. These pillars will solve the common concerns through action plan 2011-2015 in the Lower Mekong sub-region, including trans-boundary water resources management, infectious diseases such as dengue and pandemic influenza, and vulnerability to climate change⁸⁶.

India/Mekong-GANGA Cooperation (MGC)

Mekong-GANGA Cooperation was initiated by six countries—India, Cambodia, Lao PDR, Myanmar, Thailand and Vietnam in 2000 at Vientiane, Lao PDR, for cooperation in tourism, culture, education, as well as transport and communication. The 6th MGC Ministerial Meeting in 2012 expanded the cooperation area including health research, pandemic management, food security, and preserving the rich bio-diversity of the Mekong region. In the 6th MGC meeting, India announced a commitment of \$1 million annually to the India-CLMV Quick Impact Project Revolving Fund to strengthen ties with Cambodia, Laos, Myanmar, and Vietnam for short gestation project.⁸⁷

Australian Aid (AUSAid)

Australia is one of development partners working in the Mekong region, concentrating on two main programs, supporting water governance in the Greater Mekong Sub-region and Mekong connectivity. AUSAid is working to improve water governance in the Mekong region since 2007. During 2012-2013 \$8.5 million is providing to continue the important work by working with national government, non-state actors and Mekong River Commission (MRC). During 2007-2012, Australia provided over \$18 million to improve the capacity of staff, and implement procedures to MRC⁸⁸. To improve trade facilitation

⁸⁴ <http://www.jica.go.jp/laos/english/activities/policy.html>

⁸⁵ USAID (Sustainable Mekong) : <http://www.usaid.gov/asia-regional/sustainable-mekong>

⁸⁶ USAID (Lower Mekong Initiative): <http://www.usaid.gov/asia-regional/lower-mekong-initiative-lmi>

⁸⁷ Mekong-Ganga Cooperation: <http://www.aseanindia.com/about/mgc/>

⁸⁸ AUSAID (Supporting Water Governance in the Greater Mekong Subregion):
<http://aid.dfat.gov.au/countries/eastasia/regional/Pages/supporting-water-governance-greater-mekong-subregion.aspx>

which will create better conditions for trade and economic development in the Mekong region, Australia' infrastructure funding makes a direct contribution to more than \$1 billion in infrastructure projects, which provide employment opportunity, healthcare and education but it will have negative impact if not properly managed⁸⁹.

European Union (EU)

According to the 1980 Cooperation Agreement between the European Economic Community and Indonesia, Malaysia, the Philippines, Singapore and Thailand, it was subsequently extended to most of the ASEAN, set general guidelines for cooperation at the Union level. The EU has concerned on upland development, food security, and human rights with ASEAN and the approach was changed from "traditional project support" to a policy dialogue approach and a "strategic dialogue with EU member states" (Chheang, 2010). In 2013, the EU committed over US \$6 million to the Mekong River Commission to boost its effort in responding to the region's climate change challenges⁹⁰.

Swiss Agency for Development and Cooperation (SDC)

Mekong Region Cooperation Strategy (2013-2017) is a new strategy supported by SDC and the strategy cooperates bilaterally with Cambodia, Lao PDR, and Vietnam. Of central concern of SDC are local governance and citizen participation, agriculture and food security, as well as employment and vocational education, yet SDC works with Myanmar in separate strategy (2013-2017) by 4 priority areas: employment and vocational skill development; health and social inclusion; agriculture and food security; and promotion of peace, human rights and protection. SCD highlighted new challenges in the Mekong region, especially Lao PDR, which causes of rapid economic growth and the rapid depletion of natural resources and increasing pressure on land, foods security, and the narrow spaces for democratic development.

United Nation Inter-Agency Project on Human Trafficking (UNIAP)

UNIAP is working with six countries, Cambodia, China, Lao PDR, Myanmar, Thailand, and Vietnam, in the Greater Mekong Sub-region, with separate action plan in each country in the Mekong region. UNIAP works as coordinator of the policy and operational response to human trafficking with the GMS in collaboration with the GMS governments and civil society partners at both central and local levels.⁹¹

German International Cooperation (GIZ)

GIZ is working in various themes of development based on challenges of countries in the Mekong region such as rural development, sustainable economic development, environment, urban development, agriculture and vocational training etc. GIZ is also supporting ASEAN and MRC. GIZ is focusing on two main areas⁹² in Lao PDR, rural development in poor regions and sustainable economic development; three main areas⁹³ in Cambodia, rural development, health and social security; three main areas⁹⁴ in

⁸⁹ AUSAID (Connecting the Mekong): <http://aid.dfat.gov.au/countries/eastasia/regional/Pages/connecting-the-mekong.aspx>

⁹⁰ <http://www.mrcmekong.org/news-and-events/news/the-european-union-provides-over-6-million-usd-to-tackle-climate-change-in-the-mekong/>

⁹¹ <http://www.no-trafficking.org/where.html>

⁹² GIZ working in Lao: <http://www.giz.de/en/worldwide/371.html>

⁹³ GIZ working in Cambodia: <http://www.giz.de/en/worldwide/383.html>

⁹⁴ GIZ working in Myanmar: <http://www.giz.de/en/worldwide/11988.html>

Myanmar, promote vocational training, strengthening private sector, and developing financial sector; and three main sectors⁹⁵ in Vietnam, sustainable economic development, environmental policy, and health.

United Nations Development Program (UNDP)

Even though no development cooperation strategy at regional level to Mekong region is established by UNDP, UNDP is working with Mekong countries in separate development program 2011-2015. Among Mekong countries, UNDP is working mainly on sustainable economic development, climate change and governance. The detail of cooperation program in each country of Mekong region, Cambodia (UNDP, 2009), Lao PDR (UNDP, 2011a), Vietnam (UNDP, 2011b), and Myanmar (UNDP, 2012) can be found in UNDP in Asia Pacific website.

Thailand International Development Cooperation Agency (TICA)

TICA was established in 2004 and was under the Ministry of Foreign Affairs of Thailand. TICA is working in two cooperation frameworks, Greater Mekong Sub-region (GMS) and Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS). ACMECS, comprising Cambodia, Laos PDR, Myanmar, Thailand, and Vietnam, is cooperating in trade and investment facilitation; agriculture; industrial and energy cooperation; transport linkages; tourism; and human resource development. In 2011, Thailand contributed 10.38 million baht (around US \$346,000) under the framework of ACMECS⁹⁶. In GMS framework, TICA is cooperating in transportation, telecommunication, energy, trade, investment, agriculture, environment, tourism, and human resources development, which is funded in the form of partnership with ADB. In 2010 and 2011, Thailand has given 22.15 million baht (around US \$738,333) and 1.1 million baht (around US \$36,666) to support the human resource development activities under the framework⁹⁷.

Many development agencies are working in GMS in various sectors and ADB is a leading agency in the region since 1992. Transportation, energy, and agriculture are the backbone of ADB's effort to accelerate economic integration in GMS. Only few development agencies, such as SDC, UNDP, GIZ, and EU, don't focus their strategies on connectivity and energy sectors. The lack of coordination and cooperation among international agencies by using different mechanism of cooperation to develop development strategies in GMS would be a concern of financial resources fragmentation to promote inclusive economic growth, human development and prosperity for people living in GMS countries.

⁹⁵ GIZ working in Vietnam: <http://www.giz.de/en/worldwide/357.html>

⁹⁶ TICA (Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy): <http://www.tica.thaigov.net/main/en/aid/40616-Ayeyawady-Chao-Phraya-Mekong-Economic-Cooperation.html>

⁹⁷ TICA (Greater Mekong Sub-Region): [http://www.tica.thaigov.net/main/en/aid/40617-Greater-Mekong-Sub-region-\(GMS\).html](http://www.tica.thaigov.net/main/en/aid/40617-Greater-Mekong-Sub-region-(GMS).html)

ANNEX 7: Strategies and Policies of Development Agencies in the Mekong Region

Updated: Dec/2013

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trade Facilitation	Other
ADB 2012-2015	<p>GMS Transport Sector Strategy for 2006–2015</p> <p>-the framework for developing future multimodal linkages between emerging production centers and demand centers, and potential links between the GMS and other regions</p>	<p>GMS Information Superhighway Network (ISN) initiative</p> <p>-network interconnections through point- to-point cross-border links -interconnected fiber-optic cable loops</p> <p>The succeeding phases</p> <p>-completing the ring network -laying the foundation for integrated ICT services and applications</p>	<p>-cooperation in the development of the regional power trade -developing a policy and institutional framework for the power trade -adopting a master plan for grid interconnections -cooperation in other energy subsectors, such as energy efficiency, renewable energy, gas, and coal</p>	<p>The Core Environment Program (CEP)</p> <p>-ensuring the environmental sustainability of the GMS Program's sector and economic corridor strategies -institutionalizing environmental performance assessment practices -carrying out the Biodiversity Conservation Corridors Initiative</p> <p>The next phase (2012–2016) of the CEP–BCI</p> <p>-integration of biodiversity conservation, climate change, and rural development -scaling up of GMS capacities for environmental planning, monitoring, reporting, and management</p>	<p>GMS Tourism Sector Strategy</p> <p>-to develop and promote the GMS as a single destination</p> <p>spatial strategy and road map for 2011–2015</p> <p>-Tourism-related HRD, subregional marketing and product development, and pro-poor tourism.</p>	<p>GMS human resource development (HRD) strategy and action plan 2012-2017</p> <p>-support HRD initiatives that directly facilitate the process of subregional cooperation and integration -address cross-border HRD issues directly linked to GMS integration</p> <p>Current Initiative</p> <p>-preventing and controlling the transborder spread of communicable diseases -preventing and mitigating the spread of HIV/AIDS in infrastructure development -preventing human trafficking and promoting safe migration,</p>	<p>Agriculture Support Program (CASP II), 2011–2015</p> <p>-promote food safety and modernize agricultural trade -promote climate-friendly agriculture and natural resource management -promote agriculture as a leader in providing rural renewable energy and supporting eco-friendly cross-border supply chains</p>	<p>comprehensive medium-term Program of Actions for Transport and Trade Facilitation (TTF)</p> <p>-transport facilitation through enhanced exchange and implementation of traffic rights, improved custom transit systems -trade facilitation through enhancing coordinated border management, improving the Sanitary -developing the logistics sector -</p>	

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
MRC				- Adapt to climate change					<p>Integrated Water and Related Water Resource Management</p> <p>-Address the opportunities and consequences of the ongoing developments including development in the Lancang-Upper Mekong Basin</p> <p>-Expand and intensify irrigated agriculture for food security and poverty alleviation</p> <p>-Improve the sustainability of hydropower development</p> <p>-Acquire essential knowledge to address uncertainty and minimise risk of the identified development opportunities</p>
AMBDC	Singapore-Kunming rail link	N/A	N/A	N/A	N/A	Capacity Building and technical	N/A	N/A	

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trade Facilitation	Other
						assistance for CLMV			
China (Next stage from 2012)	Next stage of China Cooperation -cooperate with the other GMS members on road, water transportation, railway, and civil aviation	N/A	Next stage of China Cooperation -to push forward the development and construction of power projects- to realize connectivity of the Chinese power grid with the power grids of the other GMS countries -Cooperate with Strategic Framework for the Next Ten Years of the GMS Program (2012-2022)	Next stage of China Cooperation -protect the ecological environment and the common development of GMS countries -Cooperate with CEP-BCI program	N/A	Next stage of China Cooperation -Cooperate with the other GMS countries in the fields of women development and gender equality -Host training courses at Guangxi International Youth Exchange College in China for young leaders from ASEAN countries	Next stage of China Cooperation -to deepen cooperation with the other GMS countries in such fields as food security, agricultural infrastructure, agricultural investment and trade, agricultural technological innovation, agricultural consultancy services, cross-border monitoring of animal and plant epidemics and diseases	N/A	
Japan									Cooperate in 3 pillar -Enhance Mekong connectivity -Facilitate economic development -Human

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
									security and environmental sustainability
USAID (action plan 2011-2015)	N/A	N/A	<ul style="list-style-type: none"> -To strengthen international and regional cooperation -To support the production, use, research, and development -To promote energy efficiency and conservation -To encourage inter- and intra-regional information sharing and capacity building -To expedite regional connectivity projects 	<ul style="list-style-type: none"> -Promote sound and sustainable natural resource management and climate change policies -Strengthen existing regional institutions, cooperation among national institutions, natural resource related research -Encourage incorporation of good governance tools for sustainable management of natural resources 	N/A	<ul style="list-style-type: none"> -Bring English opportunity to LMI -Continue International Visitor programs and possible other exchanges - Strengthen Human Resource Development to promote regional competitiveness 	<ul style="list-style-type: none"> -Promote collaboration in research and development, extension, institutional capacity building, and human resources development -Identify agricultural policies and enhance the implementation of agreements to improve food production -Enhance household capacity to meet food security and nutritional needs 	N/A	<p>Health</p> <ul style="list-style-type: none"> -Communicable and Emerging Infectious Diseases -Prevention and control of counterfeit and substandard medications -Regional collaboration to support implementation of the International Health Regulations <p>Connectivity</p> <ul style="list-style-type: none"> -Mobilize private sector funding through public-private partnerships to provide a market-based approach to infrastructure development -Increase information technology throughout the LMI nations -Support and

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trade Facilitation	Other
									promote social and environmental impact assessment and effective remediation methods
MGC	Cooperation (Note: No activity information)	Cooperation (Note: No activity information)	N/A	N/A	Cooperation (Note: No activity information)	N/A	Cooperation (Note: No activity information)	N/A	-Health research -Pandemic management- Preserving the rich bio-diversity of the Mekong region
AUSAid	Cooperate in transport	N/A	N/A	N/A	N/A	N/A	N/A	Cooperate in trade facilitation	-supporting water governance in the Greater Mekong Subregion
EU	N/A	N/A	N/A	Cooperate with MRC to work in climate change	N/A	N/A	Cooperate in food security	N/A	-Human right -Upland development
SDC (2013-2017)	N/A	N/A	N/A	N/A	N/A	N/A	-contribute to improved land and forest governance -address the potential negative effects of foreign direct investment in land, which in many cases restricts local communities in	N/A	Employment and Vocational Education and Training (VET) -Be enable work- ers from CLMV countries to find employe

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trade Facilitation	Other
							their access to and use of agricultural land -promote the use of agricultural practices that are both climate change- and disaster-resilient		nt in the opening labor markets in the ASEAN region - contributes to ensuring that migrant workers' rights are known and respected by governments and employers Local Governance and Citizen Participation -contribute to improved cross- border economic and environmental governance -to improve the cooperation between public, private, and civil so- ciety actors along value chains or in the governance of natural resources.
UNIAP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Human Trafficking -coordinate the policy

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
									and operational response to human trafficking with the GMS in collaboration with the GMS governments and civil society partners at both central and local levels
JICA	Cambodia -Development of Economic Infrastructure	N/A	N/A	N/A	N/A	N/A	Cambodia -Agriculture and Rural Development	N/A	-Strengthening of the private sector -Promotion of social development -Strengthening of governance
	Lao PDR -Development of Economic and Social Infrastructure	N/A	N/A	Lao PDR -Improvement of Educational Environment	N/A	Lao PDR -Improvement of Human Resource Development	Lao PDR -Agricultural Development, Forestry and Conservation	N/A	-Improvement of healthcare services
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Vietnam -Promotion of Economic Growth and Strengthening International Competitiveness

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
									s -Response to Fragility (Response to the Negative Impacts Brought by Economic Development) - Good Governance
GIZ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Cambodia -Rural Development -Health and social security
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Lao PDR -rural development in poor regions -sustainable economic development
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Myanmar -Promoting vocational training -Strengthening the private sector -Developing the financial sector
	N/A	N/A	Vietnam	Vietnam	N/A	N/A	N/A	N/A	Vietnam

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trade Facilitation	Other
			-Renewable energies	-Biodiversity, sustainable management of forests, climate change and coastal ecosystems					- macroeconomic reform, social security, and reform of vocational training -wastewater management -urban development -Health
UNDP	N/A	N/A	N/A	Cambodia (2011-2015) -securing pro-poor productive use of natural resources, and reducing vulnerabilities to climate change	N/A	N/A	N/A	N/A	Cambodia (2011-2015) -Government policies and reforms for green, inclusive, and diversified growth -expanding democratic space at central and local levels -advancing decentralization reform with a focus on social service delivery to the rural poor - localizing the Millennium Development Goals and strengthening accountability mechanisms

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trade Facilitation	Other
	N/A	N/A	N/A	Lao PDR (2012-2015) -Ensuring sustainable natural resource and environmental management, and adaptation to climate change	N/A	N/A	N/A	N/A	Lao PDR (2012-2015) -Achieving inclusive and sustainable growth and the MDGs, particularly through the round-table process -Effective governance -reducing UXO impact
	N/A	N/A	N/A	Myanmar (2013-2015) -Climate change, environment, energy and disaster risk reduction	N/A	N/A	N/A	N/A	Myanmar (2013-2015) -Effective local governance for sustainable inclusive community development -Democratic governance and development effectiveness
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Vietnam (2012-2016) -Use its convening power to bring together stakeholders and provide coordination, including on

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
									critical cross-cutting issues such as gender equality, HIV, climate change and human rights-based approaches to development -Provide policy advice, in particular on strategic issues and in line with international norms and standards, including support to integrate those norms and standards into national legislative and policy frameworks -Advocate and help to ensure that the voices of the most vulnerable and disadvantaged are heard, and issues related to inequality are addressed in national policy processes. -Facilitate a multisectoral approach and help the Government to

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
									coordinate its response to complex issues such as climate change, social protection, sustainable development -Maximize the comparative advantages and added value it offers as a multilateral organization that is 'delivering as one', capitalizing on a multidimensional approach to support the Government on cross-government
TICA	Transport linkages	N/A	Industrial and energy cooperation	N/A	Tourism	Human resource development	Cooperate in Agriculture	Trade /investment facilitation	
MI	N/A	N/A	N/A	N/A	N/A	Provide capacity development training	N/A	Trade and investment facilitation (Capacity development)	-Rural development for sustainable livelihood -Human migration management and care (Capacity Development)

Agency/ Focus	Transport/Infra structure	Telecom	Energy	Environment	Tourism	HRD	Agriculture	Transport/Trad e Facilitation	Other
									nt)

ANNEX-8: Strategies and Policies of Development Agencies working in North-South Economic Corridor (only main activities included)

Updated: Dec/2013

Agency/ Focus	Transport/Infra structure	Social concern	Logistics	Environment/ Natural Resource based industries and manufacturing	Tourism	HRD/Private sector	Agriculture/A gro-industries	Facilitate cross-border transport/trade	Other
ADB (2008- 2012)	-Improving major transport links in the corridor to further reduce travel time and increase carrying capacity, safety, and reliability -Upgrading other road infrastructure to link and support priority rural, agricultural, agro-industrial, and tourism projects in the corridor -Encouraging multi-modalism in transport development to best serve future transport and trade flows and address associated	-Cooperating in the control and improvement of surveillance, public awareness, and response to epidemics stemming from trans-boundary animal diseases -Cooperating in HIV/AIDS prevention and control -Formulating and implementing special programs for vulnerable and marginalized groups, including mechanisms for obtaining and incorporating their views in the decision-making process	-Promoting the logistics industry through deregulation and increased foreign participation, where possible and applicable, including cross-border investments in logistics-related services -Conducting information campaigns in national components of NSEC with less developed logistics services to increase	Environment -Conducting a strategic environmental assessment of NSEC using Geographic Information System tools, among others, and consideration of its findings -Ensuring that investments in transport, hydropower, and tourism are pursued sustainably -Developing frameworks and approaches for strengthening the management and protection of	-Conducting joint tourism promotion and marketing programs focused on key NSEC tourist attractions -Improving and developing tourist products and facilities in key tourist destinations in the corridor -Promoting cooperation among tourist organizations in the corridor in skills training for the tourism industry and in setting of standards for facilities and	-Conducting workshops and training programs to strengthen awareness, knowledge, skills, and management capacity of local officials in transport, trade, and investment facilitation, especially for those at border checkpoints -Conducting skills development programs, particularly in the less developed areas of the corridor such as those in the Lao PDR and Myanmar	-Promoting investment in the production, processing, and marketing of agricultural products in the corridor, including contract farming -Promoting cooperation in agricultural research and development to help upgrade technology and increase productivity -Promoting environmental management and sustainable	-Facilitating road transport in the corridor through the implementation of various provisions of the Cross-Border Transport Agreement (CBTA) -Simplifying, standardizing, and harmonizing customs, immigration, and quarantine procedures -Conducting information and training programs to improve the awareness, knowledge	

Agency/ Focus	Transport/Infra- structure	Social concern	Logistics	Environment/ Natural Resource based industries and manufacturing	Tourism	HRD/Private sector	Agriculture/A gro-industries	Facilitate cross-border transport/trade	Other
	<p>environmental impacts along the corridor -Upgrading infrastructure in border areas, including border checkpoints and facilities; and -Addressing deficiencies in other infrastructure requirements such as water, power, and telecommunication</p>	<p>-Cooperating to address concerns involving trafficking of women and children -Implementation of measures to ensure traffic safety along NSEC routes</p>	<p>awareness and knowledge of logistics concepts, operations, and development; and -Establishing an association of logistics companies in NSEC countries</p>	<p>natural resources in NSEC areas -Promoting the use of environmentally friendly technologies and approaches in agriculture, industry, and tourism development in NSEC areas</p> <p>Natural Resource based industries and manufacturing</p> <p>-Promoting investment and complementation in the production and processing of mineral and forestry products -Preparing and disseminating investment opportunities in NSEC areas in natural resource-based industries and manufacturing -Implementing promotional measures and policy support for developing small</p>	<p>services -Improving infrastructure to support tourism development, including access roads, power, water, and other utilities</p>	<p>-Promoting cooperative human resource development programs among educational and training institutions located in NSEC and surrounding areas -Expanding capacity for the use and application of information and communications technology for trade, investment, and other economic transactions in the corridor</p> <p>Enhance institutional mechanisms/public-private partnership</p> <p>-Establishing effective institutional arrangements for coordinating and implementing NSEC initiatives at the central and local levels,</p>	<p>practices in forestry and upland agriculture</p>	<p>-Increasing use of information and communications technology in transporting and clearing cargo -Increasing use of risk management techniques in cargo clearance -Establishing logistics centers, common wholesale markets, trading centers -Adopting suitable arrangements for financial settlement covering cross-border trade</p>	

Agency/ Focus	Transport/Infras tructure	Social concern	Logistics	Environment/ Natural Resource based industries and manufacturing	Tourism	HRD/Private sector	Agriculture/A gro-industries	Facilitate cross-border transport/trade	Other
				and medium-sized enterprises in NSEC areas		including those in border provinces -Strengthening capacity of local institutions and agencies to support NSEC development -Encouraging twinning arrangements between border towns to help facilitate resolution of trade issues and exchange of information on trade and investment opportunities -Enhancing the involvement of provincial governments and local communities in NSEC activities -Promoting private sector participation in NSEC development by fostering closer and continuing dialogue, and improving coordination between the			

Agency/ Focus	Transport/Infra- structure	Social concern	Logistics	Environment/ Natural Resource based industries and manufacturing	Tourism	HRD/Private sector	Agriculture/A gro-industries	Facilitate cross-border transport/trade	Other
						public and private sectors			
MI	N/A	N/A	N/A	N/A	N/A	-Business database in North-South Economic Corridor	-Appraisal of cross-border agricultural business along NSEC between China-Lao border	-Capacity building needs assessment of local chamber of commerce and industries and local institution capacities in Trade and investment facilitation along the North-South economic corridor in China-Lao- Bangkok	-A few research working papers about impact of China investment in Lung Namtha and Bokeo, and impact of transport development on ethnic group
China	Transportation development in NSEC	No information	No information	No information	No information	No information	No information	No information	
GIZ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-Rural Development in Mountainous Area of Norther Lao PDR, Luang Namtha, Sayabouri, and Bokeo provinces

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