



ASEAN-Canada Research Partnership Working Paper Series  
Working Paper No. 4  
November 2016

## **Linking Resources to Livelihoods: A Comparative Study of Two Villages in the Chin State of Myanmar**

Cin Khan En Do Pau, John  
Actions Coordination Director  
Center for Resources Mobilization (CRM)  
Tedim, Northern Chin State  
Myanmar

*This Working Paper Series presents papers in a preliminary form and serves to stimulate comment and discussion. The views expressed are entirely the author's own and not that of the S. Rajaratnam School of International Studies (RSIS).*

*This paper is the outcome of research conducted by junior fellows of the 2012–2016 ASEAN-Canada Research Partnership with the aid of a grant from the International Development Research Centre (IDRC), Ottawa, Canada. It focuses on the theme of 'Natural Resource Management for Sustainable Growth'.*

*The ASEAN-Canada Research Partnership was launched in January 2012 to mark the 35th Anniversary of the ASEAN-Canada Dialogue Partnership. It is jointly conducted by the Institute of Asian Research (IAR), University of British Columbia (UBC), as well as the S. Rajaratnam School of International Studies (RSIS). RSIS is the Coordinator of the initiative. It also serves as the Secretariat. Information on IAR UBC and RSIS may be found at [www.iar.ubc.ca/](http://www.iar.ubc.ca/) and [www.rsis.edu.sg](http://www.rsis.edu.sg) respectively.*

### **Terms of Use**

*This work is used with the permission of the S. Rajaratnam School of International Studies (RSIS). You are free to publish this material in its entirety or only in part in your newspapers, wire services, internet-based information networks and newsletters and you may use the information in your radio-TV discussions or as a basis for discussion in different fora, provided full credit is given to the author(s) and the RSIS Centre for NTS Studies. Kindly inform the publisher ([NTS\\_Centre@ntu.edu.sg](mailto:NTS_Centre@ntu.edu.sg)) and provide details of when and where the publication was used.*

### **Recommended Citation**

Cin Khan En Do Pau, John, 'Linking Resources to Livelihoods: A Comparative Study of Two Villages in the Chin State of Myanmar' (ASEAN-Canada Working Paper Series no. 4, Singapore: Centre for Non-Traditional Security Studies (NTS Centre) RSIS, 2016).

## **Abstract**

The various uses of resources, especially land and forests (as well as water resources, to a limited extent), in the Tualzaang and Ngalzaang villages of Myanmar's northern Chin State are compared here. First, the types of resources utilised by the people of these two villages for livelihoods and the practices employed by them as a way of life are described. Second, the impacts of these practices on the productivity and sustainability of the systems in the villages are analysed, and the existing mechanisms employed by the villagers to conserve or improve existing resources as well as the opportunities and constraints brought about by these systems of resource utilisation assessed. Third, a critical analysis of existing legal instruments that regulate access to and utilisation of resources, and public awareness of these instruments is presented, along with a few cases that highlight potential issues arising from their implementation. Finally, the paper suggests recommendations for improving productivity and sustainability by linking resources to livelihoods from the economic, social, environmental and legal perspectives.

**Keywords:** Resources, access, utilisation, productivity, sustainability

## **Biography**

Cin Khan En Do Pau, John, holds a Bachelor of Arts (Honors) in International Relations from Mandalay University, Mandalay, and a Master of Rural Development Management from Khon Kaen University, Khon Kaen. He has worked for over six years since 2008 with various humanitarian agencies, in both development and emergency contexts, holding key positions in relation to accountability, coordination, monitoring and evaluation, and proposal development.

John worked as a research fellow at the Regional Center for Social Science and Sustainable Development, Chiang Mai University, Chiang Mai, during 2012–2013, conducting research on ‘The uses and effects of small loans’ in the Chin State of Myanmar. In late 2012, he established the Centre for Resources Mobilization (CRM), focusing on food security, income generation and alternative household energy through project-oriented research, training and consultancy services. He has conducted five week-long intensive training sessions on resources-based development in Yangon and Chin State since December 2012, with funding support from the French Embassy in Yangon. During early 2013, John engaged in a preliminary assessment for piloting an integrated rural livelihood model in northern Chin State together with the Hong Kong-based Kadoorie Charitable Foundation.

He occasionally works also as an independent consultant providing consultancy and advisory services to local and international organisations in the areas of assessment, proposal development, monitoring and evaluation, value chain analysis, micro- and small-enterprise development, and memorandum of understanding/letter of agreement processes. John currently works as Actions Coordination Director of CRM, implementing an integrated livelihood trial project in Tedim Township of Chin State.

## Introduction

Myanmar has a strategic location in Southeast Asia and is endowed with abundant natural resources. Although it was once one of the fast-growing regional economies, the country lags behind others in the region in terms of development due to a legacy of socialist and military regimes ruling it for over half a century – the economy of the country under these regimes depended much on the uncontrolled exploitation of its natural resources while not contributing to the wealth or well-being of the majority of its citizens. Now that democratic transition has taken place in Myanmar, the new civil government has drawn up pro-poor policies focusing on poverty alleviation and rural development. However, the implementation of these policies will largely continue to depend on the extraction of its abundant natural resources.

Chin State, which forms the north-western part of Myanmar and borders with north-east India, is endowed with vast land area and forest cover, so that most households in the region rely mainly on land and forest resources for their livelihoods. However, unlike other states in Myanmar, the Chin State has no other valuable extractive natural resource (such as, gems, oil, gas, etc.) and, due to vast hilly terrains, has limited arable land. Natural forests, while still relatively abundant, rarely contain valuable timbers, such as teak and commercial hardwoods. Yet, most rural people in the state depend on natural resources for their livelihoods and coping strategies<sup>1</sup>. The livelihood system and related coping strategies of people in the state are thus prone to several issues that include but are not limited to food insufficiency<sup>2</sup>, limited income, and rapid deforestation, which all together limit the livelihood options available to them.

According to Myanmar's Central Statistical Organization (CSO), rural people account for 75 per cent of its total population and, in the Chin State, rural population is as high as 85 per cent.<sup>3</sup> Meanwhile, the Integrated Household Living Conditions Assessment (IHLCA) of United Nations Development Programme (UNDP) found that rural poverty in Myanmar is 29.2 per cent whereas that in Chin State is 80 per cent.<sup>4</sup> In order to realise poverty alleviation in the Chin State, it is necessary therefore to understand the linkages between available resources and livelihoods, as well as the manner in which rural people utilise natural resources to sustain or improve their livelihoods and the extent to which these practices are viable in terms of productivity and sustainability.

While previous works have examined natural resources and livelihoods separately in Chin State, there is a need for specific studies that link existing natural resources to the major livelihoods of people in the region. This study, which focuses on the Tualzaang and Ngalzaang villages of Myanmar's northern Chin State, assesses the manner in which local people utilise the resources available to them for making a livelihood by identifying the resources available, their use for livelihoods and the impacts of such use. The resources mainly dealt with by this study are land and

---

<sup>1</sup> In this study, the term 'coping strategy' is used to describe the alternative activities employed by households to solve temporary livelihood problems when major livelihoods have failed. 'Major livelihoods' was defined based on the answers provided by respondents at the time of data collection in response to questions regarding livelihood categories. Therefore, major livelihood activities for some households could be coping strategies for others and vice versa.

<sup>2</sup> The term 'food sufficiency', in this study, refers only to the state of a household having food (of whatever quality) available in sufficient quantity for family consumption. This contrasts with the term 'food security', which takes into consideration both the quantity and quality of food.

<sup>3</sup> Central Statistical Organization (CSO), *Statistical yearbook 2009* (Nay Pyi Taw: CSO, 2010), 29–30.

<sup>4</sup> United Nations Development Programme (UNDP) Myanmar, *Integrated household living conditions survey in Myanmar (2009–2010): Poverty profile* (Yangon: UNDP in Myanmar, 2011), 7–16.

forest although water resources are also examined to a limited extent. Resource use was assessed from the economic, social and legal perspectives to determine how it contributes to rural livelihoods and the local people's perception of the same. It tries to link resource use and livelihoods in the two villages to a broader Myanmar and Southeast Asian context through comparative analysis. However, the study did not include other communities whose situation was distinct from a majority of rural households in the state.

## Context

According to International Fund for Agricultural Development (IFAD), over 70 per cent of the world's poor live in rural areas (IFAD, 2001 cited by Kuiper, Meijerink and Eaton, 2007).<sup>5</sup> In rural areas, people are close to natural resources, especially forests. As such, rural livelihoods in developing countries often heavily rely on natural resources, especially for food, income and shelter materials. People in rural areas, who do not use natural resources for major livelihoods, use them at least as a coping strategy when major livelihoods fail or when encountering stresses and shocks. Therefore, rural people with no or limited access to natural resources are vulnerable to various shocks and stresses.<sup>6</sup> On the other hand, livelihood remains sustainable only if it can cope with and recover from stresses and shocks, and maintain and enhance its capabilities and assets while not undermining the natural resource base.<sup>7</sup>

Where livelihoods heavily depend on natural resources, access to natural resources provides rural households with opportunities to diversify their livelihood activities in order to insure them against agricultural failures.<sup>8</sup> This is true especially for emerging and transitional economies in Southeast Asia, where most poor households still heavily depend on natural resources for subsistence. Though Southeast Asian countries are known for their abundant natural resources, each country in the region, except Vietnam, has reached a notable rate of deforestation.<sup>9</sup> This is because extraction of natural resources often leads to overexploitation, which further results in rapid degradation of natural resources. In this regard, pressure on natural resources may be reduced when households have alternative sources of income.<sup>10</sup> Here, the most possible alternative sources of income for poor rural households could be rural

---

<sup>5</sup> Marijke Kuiper, Gerdien Meijerink and Derek Eaton, 'Rural livelihoods: Interplay between farm activities, non-farm activities and the resource base', in *Science for agriculture and rural development in low-income countries*, eds R. P. Roetter et al. (Dordrecht: Springer, 2007), accessed 25 September 2014,

[www.researchgate.net/publication/40792072\\_Project\\_Assessments/links/004635230985a27631000000](http://www.researchgate.net/publication/40792072_Project_Assessments/links/004635230985a27631000000), 77–82.

<sup>6</sup> Simon Norfolk, 'Examining access to natural resources and linkages to sustainable livelihoods: A case study of Mozambique' (LSP Working Paper 17, No Place: Livelihood Support Programme [LSP], Food and Agriculture Organization of the United Nations [FAO], 2004), accessed 29 August 2014, <ftp://ftp.fao.org/docrep/fao/007/j3619e/j3619e00.pdf>, 4–7.

<sup>7</sup> Ian Scoones, 'Sustainable rural livelihoods: A framework for analysis' (IDS Working Paper 72, No Place: Institute of Development Studies [IDS], 1998), accessed 3 July 2014, [www.staff.ncl.ac.uk/david.harvey/AEF806/Sconnes1998.pdf](http://www.staff.ncl.ac.uk/david.harvey/AEF806/Sconnes1998.pdf), 10–12.

<sup>8</sup> Bruce McKenney and Prom Tola, 'Natural resources and rural livelihoods in Cambodia: A baseline assessment' (Working Paper 23, Phnom Penh: Cambodia Development Resource Institute, 2002), accessed 12 September 2014, [www.cdri.org.kh/webdata/download/wp/wp23e.pdf](http://www.cdri.org.kh/webdata/download/wp/wp23e.pdf), 73–92.

<sup>9</sup> Orapan Nabangchang and Eathipol Srisawalak, 'Good governance and natural resources tenure in South East Asia region' (Land Tenure Working Paper 4, No Place: Food and Agriculture Organization of the United Nations, 2008), accessed 30 August 2014, <ftp://ftp.fao.org/docrep/fao/011/ak015e/ak015e00.pdf>, 7–11.

<sup>10</sup> Kuiper, Meijerink and Eaton, 'Rural livelihoods', op. cit., 77–82.

non-farm activities in the form of microenterprises given the little capital required and the higher employment generated per unit of capital.<sup>11</sup>

Despite the opportunities that exist for linking resources to livelihoods, poor rural households need to ensure proper access to natural resources.<sup>12</sup> Most Southeast Asian countries have made reforms in policies and legal instruments, which are intended to benefit poor households. However, the impacts imposed by these reforms do not seem to be always positive for the poor. Negative impacts, such as overlapping claims or conflicts over land and forest resources, often originate due to mismanagement by people implementing the policies or laws concerned. Information about these policies and legal instruments does not reach poor households at grassroots communities either at all or in time.<sup>13</sup> Failure to raise public awareness creates a huge gap of information on such policies and legal instruments. For instance, in the case of the Central Highlands of Vietnam, the new land law is difficult to understand and has not been explained to local people even though the new policies and legal instruments focus mainly on protection (instead of sustainable use), which creates conflicts between forest protection and livelihood development needs.<sup>14</sup>

As access to natural resources matters, it is worth knowing also about the allocation of resources among individual households. Women, typically women-headed households, in many developing countries have no access to land although land is the most important productive asset for rural households. Also, land tends to be distributed unevenly between men and women, with the former enjoying a larger share.<sup>15</sup> Another form of marginalisation could be on the basis of the status of households, that is, whether they are principal households or extended households.<sup>16</sup> This is because people in Chin State have a strongly patrilineal kinship system that decides land inheritance among sons who will later become extended families.<sup>17</sup> According to the system, principal households are supposed to gain more assets than extended households.

## Research Methodology

This study combines qualitative and quantitative methods with larger emphasis placed on the qualitative aspect. Two villages were selected through consultation

---

<sup>11</sup> International Fund for Agricultural Development (IFAD), 'Rural enterprises and poverty reduction in Asia and the Pacific' (Discussion paper presented at the Governing Council's 27th Session, No Date, No Place: IFAD, 2014), accessed 15 September 2014, [www.ifad.org/events/gc/27/roundtable/pi/discussion.pdf](http://www.ifad.org/events/gc/27/roundtable/pi/discussion.pdf), 9–16.

<sup>12</sup> Robert Chambers and Gordon R. Conway, 'Sustainable rural livelihoods: Practical concepts for the 21st century' (IDS Discussion Paper 296, Brighton: Institute of Development Studies [IDS], 1991), accessed 5 July 2014, [www.ids.ac.uk/files/Dp296.pdf](http://www.ids.ac.uk/files/Dp296.pdf), 5–6.

<sup>13</sup> Stephen R. Tyler, ed., *Communities, livelihoods and natural resources: Action research and policy change in Asia* (Warwickshire: Intermediate Technology Publications Ltd and International Development Research Centre (IDRC), 2006), accessed 15 September 2014, [www.idrc.ca/EN/Resources/Publications/Pages/IDRCBookDetails.aspx?PublicationID=134](http://www.idrc.ca/EN/Resources/Publications/Pages/IDRCBookDetails.aspx?PublicationID=134), 78–92.

<sup>14</sup> Ibid.

<sup>15</sup> Stephan Klasen, Tobias Lechtenfeld and Felix Povel, 'What about the women? Female headship, poverty and vulnerability in Thailand and Vietnam' (Discussion Papers No. 76, Göttingen: Courant Research Centre, 2011), accessed 15 December 2014, <http://www.oecd.org/dev/pgd/46982877.pdf>.

<sup>16</sup> 'Extended household', in this study, refers to the household of a son who splits off from the household of his parents and establishes his own household while 'principal household' refers to the household of his parents or of his elder or younger brother who is entitled to inherit his parents' properties in accordance with the customs.

<sup>17</sup> Food Security Working Group (FSWG), 'Upland land tenure security in Myanmar: An overview' (Yangon: FSWG, 2011), 17–18.

with key stakeholders and on the basis of the major resources used for making livelihoods in each village. At the village level, sampling was done using a stratified random sampling method and a sample drawn to cover 30 per cent of the total population.<sup>18</sup> First, sampling frames were constructed for each village and households were categorised as principal households and extended households, which were further stratified by women-headed households. This procedure derives from the assumption that women-headed households and extended households might be more marginalised in terms of access to resources.<sup>19</sup> For data collection, key informant interviews, a small survey questionnaire and short case studies were conducted using separate checklists. Direct observations were made, as and when needed, and data collected were descriptively analysed using the Microsoft Excel software.

## **Community Profiles**

### *Geography and demographics*

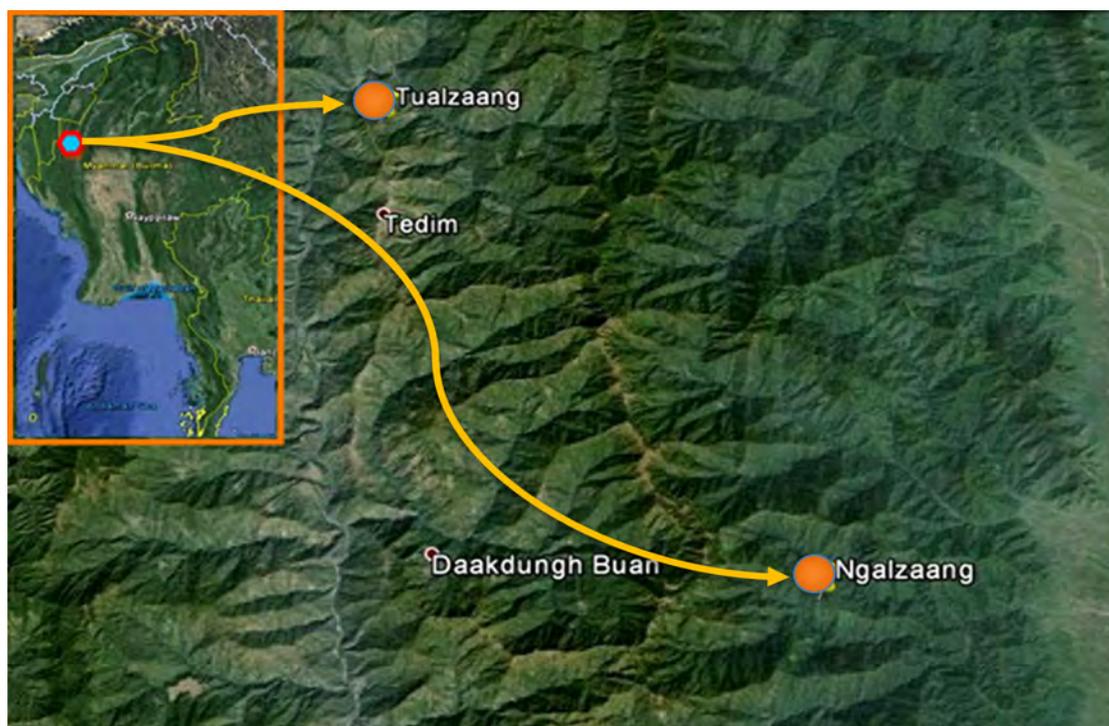
The two study villages selected were Tualzaang and Ngalzaang in the Tedim township of Chin State (See Figure 1). Tedim is the second northernmost township in Chin State, where most forms of resource use practised in the entire region can be found. Tualzaang is about 7 km and Ngalzaang is about 50 km away from the Tedim town. Tualzaang is situated at over 5,400 ft (1,400 m) above mean sea level, lying northwards, while Ngalzaang is at about 3,500 ft (1,130 m) above mean sea level, lying southwards. Consequently, Tualzaang has a dry and hot climate while Ngalzaang enjoys a bit warmer and moist climate. Soil types of red clay and clay loam are common in Tualzaang while clay loam and sandy loam are found in most parts of Ngalzaang. These different factors characterise their agro-climatic conditions and thus the livelihood systems of the two villages.

---

<sup>18</sup> The sample was set to this size because it was enough to cover all livelihood categories in the villages, and also because the study focused on the qualitative method and the sample was not intended to be statistical representative of the study population.

<sup>19</sup> Klasen, Lechtenfeld and Povel, 'What about the women? Female headship, poverty and vulnerability in Thailand and Vietnam', *op. cit.*, 4–5; David Millar, 'Improving farming with ancestral support', in *Ancient roots, new shoots: Endogenous development in practice*, eds Bertus Haverkort et al. (London: ZED Books, 2003), accessed 15 December 2014, [http://www.compasnet.org/blog/wp-content/uploads/2011/03/ARNS/arns\\_15.pdf](http://www.compasnet.org/blog/wp-content/uploads/2011/03/ARNS/arns_15.pdf), 161–2.

Figure 1: Map of the study areas.



Source: Adapted by the author from Google Earth 2014.

People in both villages belong to the same ethnic group although there are minor differences in verbal accent and sociocultural traditions. Tualzaang village has 102 households, with 651 people (315 males and 336 females). Ngalzaang has a population of 450 (203 males and 247 females) in 64 households spread over two settlement areas, Ngalzaang and Suahliim<sup>20</sup>. Thus, household sizes are 6.4 and 7 for Tualzaang and Ngalzaang, respectively. Tualzaang, with a larger population, is endowed with a smaller land area while Ngalzaang, although it has a smaller population, is larger. Though there is no ethnic difference, both villages belong to diverse kin groups and religions. A majority in Tualzaang belongs to Laipian<sup>21</sup> while most people in Ngalzaang are Christians. People in Tualzaang rarely migrate whereas many extended households in Ngalzaang migrate to other areas of the country.

#### *Development initiatives*

Despite the perceived need of development support, the presence of development agencies is limited not just in Tualzaang and Ngalzaang but Chin State, in general, compared with other regions in Myanmar.<sup>22</sup> Since 2003, UNDP has initiated various development projects targeting the poorest of the poor and mobilised communities for institutional development and livelihood improvement. Activities undertaken include forming women's self-reliant groups and livelihood development committees, establishing rice banks, and providing technical training and financial support for

<sup>20</sup> A new ward established by extended households from Ngalzaang and situated at about 6 km north of Ngalzaang.

<sup>21</sup> A non-Christian religion founded by a local prophet named Laipian Pau Cin Hau.

<sup>22</sup> Myanmar Information Management Unit (MIMU), 'Contacts and coordination: The MIMU contact list', <http://www.themimu.info/contacts>.

livelihoods. Most beneficiaries of livelihood support in Ngalzaang bought irrigation pipes although no one utilises them for irrigation, as the village area is not suitable for irrigated farming. These villagers proposed irrigation pipes only because UNDP had to provide irrigation pipes for income generation.<sup>23</sup>

The financial support provided by UNDP was allocated among villagers as revolving funds for livelihood activities, but only a few households were able to repay the loans to the livelihood development committee. As UNDP phased out in 2012, most of the self-reliant groups and livelihood development committees are no longer active. In Tualzaang, Karuna Myanmar Social Services (KMSS), a faith-based local non-governmental organisation, runs a project for terrace development through cash for work. Similarly, Merlin, which is an international non-governmental organisation currently active in Ngalzaang, provides support for public health. Key informant interviews indicate that villagers in Ngalzaang expect increased presence of development agencies.

### *Key stakeholders*

Major resource and livelihood stakeholders include the villagers, village authorities, relevant government departments and civil society organisations. Other potential stakeholders are private sector actors, such as commercial companies and individual businessmen. The government departments concerned are supposed to implement the policies and legal instruments of the government, and village authorities function as middlemen facilitating both the process of this implementation and lobbying the government for the villagers' causes. Although their involvement has not been significant historically, the villagers expect civil society organisations to play a catalytic role in linking resources to livelihoods and exist in line with the progresses in transition.

### **Resources and Livelihood System**

People in both villages primarily recognise themselves as 'farmers', irrespective of the extent to which farming contributes to their livelihoods, and livelihood systems are primarily land-based. 'Land resources'<sup>24</sup> are primarily used for growing food and cash crops while 'forest resources'<sup>25</sup> help to earn cash income. For some households, extraction of forest resources was a coping strategy in times of food insufficiency whereas others used it for generating additional income. In short, the use of land resources was mainly confined to farming for food and cash crops, and that of forests to generating additional income. Available water resources included rivers, streams and springs that could be utilised for livelihoods.

### *Land and its uses*

The common purpose of growing crops was to ensure food sufficiency although some households in the two villages cultivated both food and cash crops together, as cereal crops were almost always not sufficient for family consumption – most households used all of their incomes from cash crops for consumption smoothing, implying that they might not have any additional funds to meet other basic needs. It was evident that the livelihood system of people in Tualzaang was totally land-based

---

<sup>23</sup> Interview with key informants in Ngalzaang.

<sup>24</sup> The term 'land resource', in this study, is confined to arable land, that is, any land cultivated for growing food or cash crops.

<sup>25</sup> This study uses the term 'forest resources' in conjunction with standing trees and related non-timber forest products.

and households ensured a more regular level of food sufficiency whereas the livelihood system in Ngalzaang was partly land-based and partly forest-based, so that food sufficiency levels were not consistent.

Most farmlands in both villages were ‘freehold’<sup>26</sup> in local terms although they are not legally recognised as freehold lands. Freehold lands are locally equated to ancestral lands and are not usually taxed.<sup>27</sup> The system of land allocation is primarily based on village-specific customary laws, which are commonly accepted among members of the communities concerned. Land ownership is primarily entitled to principal households who later allocate their lands to extended households. Still, there are some extended households and migrants who have no land of their own. However, this does not mean lack of access to land for cultivation since land tenure is usually made possible by communal systems without any charge, except for gifts voluntarily rendered by the landless. Consequently, issues arising from land use rarely reach the courts or higher levels of authority.

Most principal households in Tualzaang own 3–4 plots of land of varying sizes. In Tualzaang, the shifting cycle of cultivated land is more than 15 years (some even up to 30 years) in comparison with the usual practice in other parts of the region, including Ngalzaang, which is a cycle of 6–9 years.<sup>28</sup> Most households have separate plots of firewood land, but there is no common practice for the sustainable production of firewood.

In the village of Ngalzaang, farmlands are similarly nominally freehold, but all managed by village authorities, who first designate respective plots for farmland and allow landowners to choose their preferred plots. Afterwards, the rest are randomly allocated among all other households of the village. All households in Ngalzaang are entitled to at least one plot of firewood land, the difference being that all households in the village follow a uniform and systematic mechanism of managing firewood lands. In general, the two villages ensure access to land for all villagers, including migrants.

In Tualzaang, people mainly use land for growing food and cash crops while most people in Ngalzaang use land only for food crops (Appendix 1). The land use system in Tualzaang appears to be more intensive, assuring some key features of conservation farming<sup>29</sup>, when compared with the practices in Ngalzaang, where cultivated land shifts from place to place every year. For this reason, the area annually cultivated in Ngalzaang is equitable with the area deforested annually in the village. In general, the land use systems, while not productive in both Tualzaang and Ngalzaang, are more sustainable in Tualzaang. In the two villages studied, a key issue that needs addressing is the farming system rather than the interval of

---

<sup>26</sup> Ancestral lands in the two study villages are locally recognised as freehold lands since ancestral times. However, the new Land Law 2012 does not recognise these as freehold lands. In this study, the term ‘freehold land’ is used in accord with local perception, so as to describe the practices associated with the term.

<sup>27</sup> United States Agency for International Development (USAID), ‘USAID country profile: Property rights and resource governance – Burma’, n.d., accessed 15 December 2014, [http://usaidlandtenure.net/sites/default/files/country-profiles/full-reports/USAID\\_Land\\_Tenure\\_Burma\\_Profile.pdf](http://usaidlandtenure.net/sites/default/files/country-profiles/full-reports/USAID_Land_Tenure_Burma_Profile.pdf), 10–11.

<sup>28</sup> Food Security Working Group (FSWG), ‘Upland land tenure security in Myanmar’, op. cit., 10–17 [See also World Bank & Myanmar Development Research (Oct 2012) Qualitative Social and Economic Monitoring: Round One Report (Yangon: World Bank & Myanmar Development Research, 2012), 20–29].

<sup>29</sup> Food and Agriculture Organization of the United Nations (FAO), *The economics of conservation agriculture* (Rome: FAO, 2001), accessed 25 May 2014, <ftp.fao.org/agl/agll/docs/econsagr.pdf>.

rotational cycling. Understanding the extent to which land use contributes to the livelihoods of individual households in these two villages is thus of utmost importance.

### *Crops and farming systems*

According to the quantitative data obtained through this study, farming is the major source of food for 87.1 per cent of households in Tualzaang and 72 per cent of households in Ngalzaang. In Tualzaang, maize is the major staple crop and groundnut the major cash crop for most households. Farmers in Tualzaang maintain a semi-permanent farming system by intercropping maize and groundnut with various legumes, such as cowpea and soya bean. Some farmers also grow sunflower for family consumption. Most people in Ngalzaang use the land resource mainly for growing food crops through traditional shifting cultivation. Farmers at lower altitudes grow taro, sesame and sulphur bean, mixed cropping them with maize or upland rice. At higher altitudes, some households grow potato and leafy vegetables, intercropped with maize, as cash crops. Farmers in Ngalzaang have continued practising shifting cultivation, as land is still abundant and the general perception is that repeated cultivation of the same plot of land results in low yields.

Where cultivation practices are concerned (Appendix 2), farmers in Tualzaang first prepare the land by uprooting weeds and plants of harvested crops during January and February. Then, land is cleared by burning the dry weeds and crop residues, and seed sowing is undertaken from March through mid-April. As most cultivated lands are repeated lands, rapid and widespread growth of weeds and bushes is seen. Although many farmers know that weed infestation can be substantially reduced if weeds are cleared before their seeds mature and the monsoon rains stop, in practice, most households fail to do timely weeding. Newly grown weeds and bushes are usually eliminated during the mid-April to May period. As the rainy season approaches, one or two instances of weeding are done before crop harvest in September. Cultivation on repeated land is considered tedious but less labour intensive than that on new land due to the practices of slashing and burning. Generally, farmers in Tualzaang feel that they benefit by not felling trees.

“Look! The big mango trees you see over there were planted some 30 years ago, the time the farmland was first cultivated. Here, we cultivate a land for at least 15 years and maintain our harvest by intercropping maize with various legumes. We know that fertiliser application will improve our maize yield. But, we are not used to apply[ing] fertiliser because ancestors said it destroys soil quality.”<sup>30</sup>

In Ngalzaang, shifting cultivation begins with tree felling during January-February and a collective burning of the fallen trees in March by the villagers. Seed sowing is undertaken in March if the lands are burned well. If not, farmers spend much time and labour on clearing unburned twigs and branches, so that seed sowing is delayed. As unburned lands attract more weeds, it is a struggle for farmers to eliminate weeds from such plots. The practices of farmers in Suahliim are nearly the same as those in Tualzaang, except that the activities are undertaken a bit earlier due to the cooler climate. For this reason, farmers in Ngalzaang are exempted from the tedious work of eliminating weeds. In fact, some farmers in Ngalzaang have even ensured good harvests when growing maize on repeated lands by doing early weeding. However, they eventually went back to shifting cultivation due to the labour-

---

<sup>30</sup> A farmer in Tualzaang.

intensive nature of the initial weeding exercise and also damages caused to standing crops by wild animals.

“We know the benefits of early weeding on repeated lands, but we keep on slash-and-burn cultivation as we still have abundant lands. In fact, I have ever tried early weeding on my repeated land some ten years ago. Maize plants grew very well even with no fertiliser and under irregular rains, bearing large and long cobs. Unfortunately, wild boars destroyed all my standing maize crops just before the cobs got matured and I harvested nothing.”<sup>31</sup>

In both villages, farmers avoid applying inorganic fertilisers due to: (i) the perception that fertilisers destroy soil quality; and, (ii) unaffordability. By the term ‘fertiliser’, farmers were found to be referring to only nitrogen fertiliser.<sup>32</sup> This, together with the failure of performing farm activities at the appropriate times, led to low crop yields. According to farmers in Ngalzaang, rains too early or too late also affected yields, especially for maize, upland rice and potato. For instance, although the staple crop for 2013 was maize, most households in Ngalzaang during the study period were found to consume rice gruel prepared from rice brought from Kalay, which is nearly 60 km away from the village.

A comparative analysis of the farming systems in Tualzaang and Ngalzaang and their effects is provided in Table 1.

*Table 1: Comparison of farming systems and their effects.*

<b>Variable</b>	<b>Tualzaang</b>	<b>Ngalzaang</b>
Access to land	By all	By all
Farming system	Semi-permanent	Annual shifting
	Rotational cycle of 15–30 years	Rotational cycle of 6–7 years
Cultivation	Repeated on the same lands	Always shifted to new lands
	Land clearing every year	Tree felling every year
Timeliness of farm activities	Most households fail to plant at the appropriate time <sup>33</sup>	Most households fail to plant at the appropriate time
Staple crop	Maize of local variety	Maize/upland rice of local variety
Fertiliser inputs	Applied by none	Applied by none
Yield	Higher	Lower

### *Forests and their uses*

In both Tualzaang and Ngalzaang, there were no households that: (i) had never extracted forest products; or, (ii) totally depended on forest products for livelihoods.

<sup>31</sup> A farmer in Ngalzaang.

<sup>32</sup> Interviews with key informants in Ngalzaang.

<sup>33</sup> The term ‘in time’ in this study, when used in conjunction with farm activities, refers to a state in which farmers complete their farm work at the time designated for the respective farm activities. For instance, doing land clearing before the monsoon rains stop and weeding before the seeds get mature will not only allow uprooted weeds to decompose but also reduce weed incidence.

Most households mainly used forest products as coping strategies in times of food insufficiency, with only a few households regarding them as major income sources. Exploitation of forest products was more intensive in Ngalzaang than Tualzaang, as the former still has a vast forest area and a much smaller population. Along with the comfort of having an easily accessible coping strategy, these were reasons due to which the people of Ngalzaang tended to pay less attention to their farm work. For both villages, the availability of forest products was seasonal and the market not stable.

The major forest products being extracted in Tualzaang were mainly firewood, local wood, elephant foot yam and dragonflies.<sup>34</sup> The study survey showed that most households (73 per cent) in the village had designated areas of firewood land where they could also extract local pinewood. Wild mangoes<sup>35</sup>, Indian gooseberries and fig fruits, although still abundant in the villages, are only sparingly collected by some villagers, mainly for their own consumption. A community forestry project partnership initiated by two local non-governmental organisations was discontinued, as the designated area had already been registered for a golf club and a tenure certificate could not be granted.<sup>36</sup> Although the total forest area of Tualzaang was limited, its semi-permanent farming system enables villagers to conserve their forests to a certain extent.

Ngalzaang, with its vast land area and remoteness, is home to a variety of forest products, the most commonly extracted being firewood, hard and local woods<sup>37</sup>, elephant foot yam, and wild plants and tubers of medicinal value (such as, rare orchids). Other forest products, not being used as a source of income, include, but are not limited to, fruits (such as, *phan kha* [*Terminalia chebula*]<sup>38</sup>) and the bark of *gilpiumza*<sup>39</sup> trees. According to key informants, elephant foot yam has become the cash crop with most potential in Ngalzaang, as the climate and soil are favourable for it. Villagers mainly collect elephant foot yam from the forests, but as an exception one villager buys and processes fresh elephant foot yams using sulphur. Elephant foot yam products processed in this manner fetch lower prices (by nearly 30 per cent) than the normal market price. The sustainability of elephant foot yam production in Ngalzaang is of critical importance, as its production depends mainly on the abundance of this particular species in the forests, which according to elephant foot yam collectors rapidly decreases with extraction. This also holds true for other forest products, especially plant species of medicinal values. Without conservation and/or propagation measures therefore most of these plant species will become extinct sooner or later.<sup>40</sup> Current extraction and conservation practices for elephant foot yam in Ngalzaang is shown in Figure 2.

---

<sup>34</sup> Interviews with key informants in Tualzaang; elephant foot yam and dragonflies are collected only in limited quantities.

<sup>35</sup> A local mango variety that has very thin, fresh and large seeds, but is highly susceptible to various infections.

<sup>36</sup> Interview with a key staff at the Settlement and Land Records Department (SLRD).

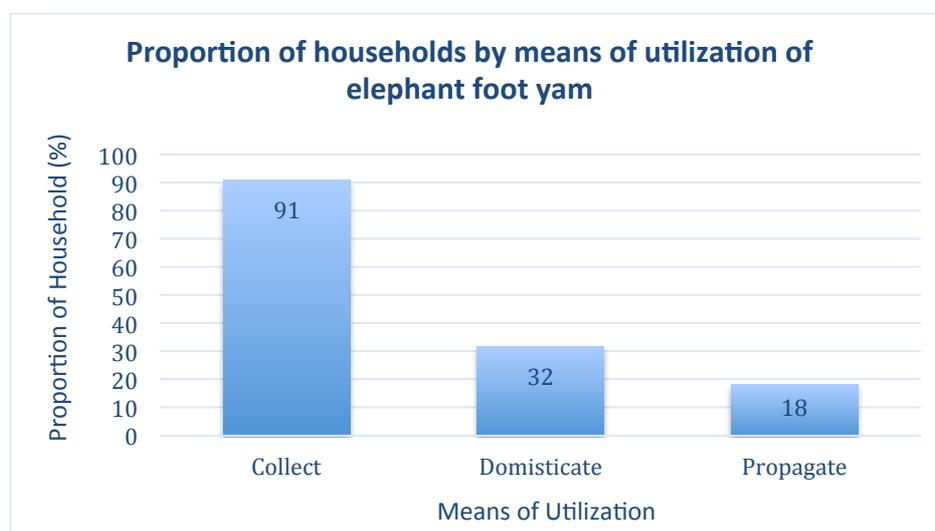
<sup>37</sup> Hard woods include teak, Burmese ironwood, *eng* and Myanmar *sal*; local woods include pine and *hualsing* (*Gmelina arborea*).

<sup>38</sup> A native plant species, with an acrid or astringent tasting bark, that is used by villagers in Ngalzaang as traditional medicine for treating gastric disorders.

<sup>39</sup> The term '*gilpiumza*' in the local language means medicine for gastric pain or disease. Local people use the bark of the *gilpiumza* plant for treating various forms of gastric disorders.

<sup>40</sup> Michael Toman, 'The roles of the environment and natural resources in economic growth analysis' (Discussion Paper 02-71, Washington, D.C.: Resources for the Future, 2003), 4–7.

Figure 2: Practices of elephant food yam extraction in Ngalzaang.

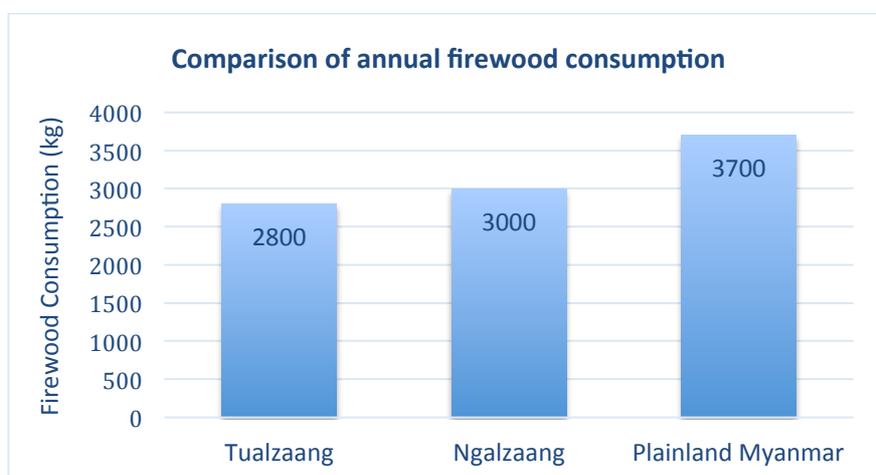


Note: Multiple counting applies as some farmers engage in more than one.

All households in Ngalzaang have firewood land but none in Suahliim do. There is no initiative for community forestry in this village either by the government or development agencies. The availability of hard wood and most herbal plants is rapidly decreasing due to excessive extraction. The rates of firewood consumption in both Tualzaang and Ngalzaang are relatively high when compared with that in urban Tedim, where demand for firewood is supplemented in part through electricity. Firewood consumption rates are mainly characterised by the type of food cooked and the abundance of the stock of firewood. Yet, the mean annual firewood consumption of households in Tualzaang (2.8 tonnes) and Ngalzaang (3 tonnes) are still lower than that in plain land Myanmar, i.e. 3.7 tonnes (Figure 3).<sup>41</sup> The availability of firewood, in terms of area and volume, is more limited in Tualzaang. Firewood extraction is more sustainable in Ngalzaang as villagers cut trees at the very bottom and burn branches and twigs, a practice that supports rapid growth and regeneration of new trees.

<sup>41</sup> U Hla Kyaw et al., 'Myanmar: Country assessment on biofuels and renewable energy, Greater Mekong Sub-region Economic Cooperation Program' (No Place: Greater Mekong Sub-region Economic Cooperation Program, 2009), accessed 26 December 2014, [http://www.asiabiomass.jp/biofuelDB/myanmar/pdf/Biofuel\\_Myanmar\\_Report\\_%20finaledited.pdf](http://www.asiabiomass.jp/biofuelDB/myanmar/pdf/Biofuel_Myanmar_Report_%20finaledited.pdf), 18.

Figure 3: Comparative mean volumes of annual firewood consumption.



In both villages, the volume of collected forest products has decreased year-on-year due to excessive exploitation and rapid shrinkage of tree cover. For instance, the volume of rare orchids collected per day per person has decreased by about four-fifths (nearly 80 per cent) when compared with levels 10 years ago.<sup>42</sup> Collection of forest products thus cannot be considered a viable coping strategy, as income earned is seasonal and inconsistent. The decline in collection volumes is made worse due to the absence of conservation and reproduction measures. Thus, increasing forest degradation poses a trade-off between environmental sustainability and livelihood security. So, situations could worsen if laws restricting the extraction of forest products were tightened.

“In the past, I was able to collect up to 1.5 kg of shrimp flower a day. But, we find it difficult now to collect even 300 g a day. Our collected volume was relatively high in the past because we just cut down the trees on which orchids grow. Now, we climb up the trees to collect the orchids that the collected volume decreases but the trees are saved.”<sup>43</sup>

#### *Water and its uses*

Water resources available in the two study villages included rivers, streams and springs. Water resource was scarce and the farming systems were rain fed, with no evidence of water being used for irrigation, livestock or other purposes, except for drinking and domestic use. Water was being used for hydropower in Tualzaang, which has a small hydropower plant that is operational only during rainy season. In Ngalzaang, however, there were no similar projects. No examples of villagers using hydroelectric power for income-generating activities were found.

<sup>42</sup> Interview with orchid collectors in Ngalzaang.

<sup>43</sup> A woman of Ngalzaang.

### *Access to market*

While the two study villages depended on farm and forest products for food and income, all products were being sold in their raw forms. Farmers evinced little concern about adding value to their products, so that earnings were limited. Although most farmers cited a lack of technology and capital for value-adding activities, there was also a lack of innovative ideas in both villages. For every product, farmers lacked market information beyond that provided by middlemen or intermediate dealers. For instance, groundnut growers in Tualzaang could create added value by processing groundnuts into cooking oil just as elephant foot yam collectors in Ngalzaang could maximise their earnings by adopting improved drying technologies. In Ngalzaang, elephant foot yam collectors reported higher prices when products were sold collectively, and some people have tried making gastric syrup from phan kha fruits and gilpiumza barks. However, these attempts failed to ensure viable markets due to a lack of extraction technologies, improved packaging materials, and proper business and marketing skills.

### **Impacts on Livelihoods**

#### *Household food sufficiency*

Historically, farmers in Tualzaang and Ngalzaang have consumed food cultivated by themselves first, engaging in various coping strategies only subsequently. While the mean areas of land cultivated for maize per household was 1.2 acres<sup>44</sup> in Tualzaang and 1.4 acres in Ngalzaang, per acre yield of maize in Tualzaang and Ngalzaang was 11.6 baskets<sup>45</sup> and 6.8 baskets, respectively. Again, food sufficiency levels in the two villages for the year 2013 were 3.9 months for Tualzaang and 2.3 months for Ngalzaang according to quantitative data. A majority of households in Tualzaang (76.7 per cent) and Ngalzaang (80 per cent) were food sufficient for less than six months (Table 2). Among the other major crops, groundnut had yields of 17.6 baskets per acre in Tualzaang while upland rice and potato had yields of 15.5 baskets and 318.2 kg, respectively, in Ngalzaang. Most farmers were almost always food insufficient, so that coping strategies were part of regular livelihood activity and consumption patterns had changed. Many farmers in the two villages consumed maize and rice alternately. Major sources of food are shown in Table 3.

*Table 2: Ranges of household food sufficiency levels.*

<b>S. No</b>	<b>Level of Food Sufficiency (months)</b>	<b>Tualzaang (% of Households)</b>	<b>Ngalzaang (% of Households)</b>
1	Less than 6 months	76.7	80.0
2	6 to 12 months	20.0	20.0
3	More than 12 months	3.3	0.0

<sup>44</sup> 1 acre = 0.405 hectare; 1 hectare = 2.571 acres.

<sup>45</sup> 1 basket = 33.3 kg.

Table 3: Major sources of food for household consumption.

S. No	Major sources of food	Tualzaang (% of Households)	Ngalzaang (% of Households)
1	Farming	87.1	72.7
2	Purchase	9.7	27.3
3	Gift	3.2	0.0

Yields for most crops grown in the two villages were remarkably low compared with that in other parts of the region or country.<sup>46</sup> Where farmers were not food sufficient from their own staple crop production, the greatest proportion of cash incomes earned through other coping strategies were spent on food. Given this struggle for food, farmers were unable to pay attention to improved food production systems initiated by development agencies to improve food sufficiency levels. These were factors causing chronic food shortage, further prolonging the vicious cycle of poverty in the two study sites. Matters were worse in Ngalzaang, where forest products were also major coping strategies for food insufficiency. Overall, farmers in Tualzaang ensured a higher level of food sufficiency than those in Ngalzaang due to more sustainable farming systems and coping strategies.

Two broad critical issues affect food sufficiency: (i) production; and, (ii) processing. Where production is concerned, farmers usually fail to coordinate farm activities with the timing of rains in spite of the farming system being totally rain fed. They also lack essential farm inputs, such as improved seeds and fertilisers, all of which combine to result in low crop yields. Food processing begins with harvest followed by storage, milling (manual pounding and sieving) and cooking. Traditional food processing systems affect food sufficiency, and even households with sufficient grain harvests can remain food insufficient if they do not adopt improved processing methods. According to local practices, women pound maize or rice kernels and the bran is fed to domestic animals. The cooking of maize as porridge overnight requires a lot of firewood, which is also collected mainly by women.

#### *Household cash income*

Annual household income is an important determinant of livelihood security based on the type of resources used by individual households for generating incomes. For households that do not convert cereal products into money, household income represents only cash income and not necessarily their total production. Land and forest resources were major income sources in both Tualzaang and Ngalzaang (Table 4), and villagers paid more attention to income generation than staple food production. Due to the fungible nature of money, however, most households spent their cash income not only for food but also for various other needs, so that the contribution of cash income to household food sufficiency was insignificant.

<sup>46</sup> Central Statistical Organization (CSO), *Statistical yearbook 2009*, op. cit., 94–5.

Table 4: Various sources of household income.

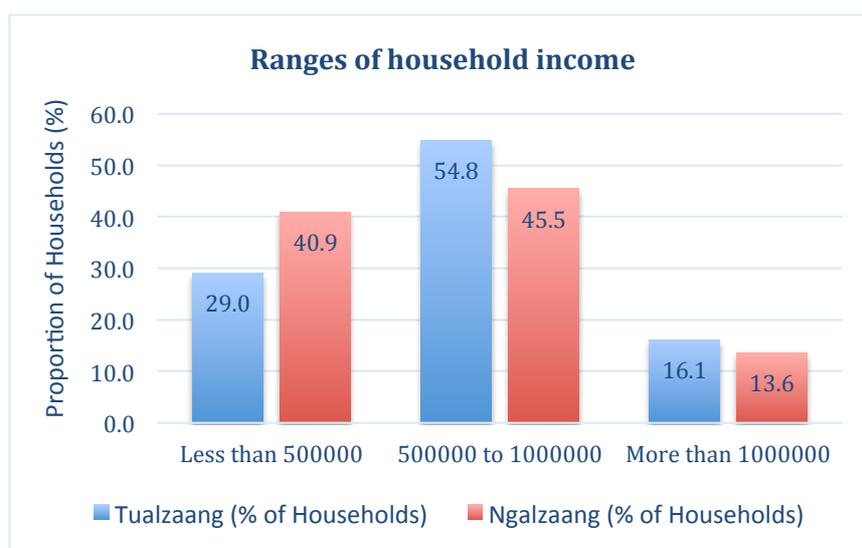
S. No	Major sources of income	Tualzaang (% of Households)	Ngalzaang (% of Households)
1	Farming	48.4	36.4
2	Forests	0.0	9.1
3	Trading	3.2	4.5
4	Wage labor	32.3	36.4
5	Migration	6.5	13.6
6	Others	9.7	0.0

In Tualzaang, 48 per cent of households earned their major income from farm-based activities while, in Ngalzaang, the proportion for households engaged in farm work as a major source of income was 36 per cent. Wage labour, in the form of seasonal odd jobs, was a major income source for 32 per cent of households in Tualzaang and 36 per cent in Ngalzaang, especially for households that were worse off. Indeed, the incomes earned by households through labour migration (6.5 per cent in Tualzaang and 13.6 per cent in Ngalzaang) and forest products (no households in Tualzaang and 9 per cent in Ngalzaang) were more than those earned through wage labour. This indicates that the amounts of income from wage labour are low in amount though the number of households involved is proportionally high. Yet, it is evident that most activities for wage labour were related to farms or forests.

The average household income in Tualzaang in 2013 was 780,000 kyats<sup>47</sup> whereas, in Ngalzaang, it was 710,000 kyats. Per capita income for Tualzaang and Ngalzaang was 120,000 kyats (USD 126) and 100,000 kyats (USD 105), respectively. Many households in Tualzaang (29 per cent) and Ngalzaang (40.9 per cent) earned incomes less than 500,000 kyats in 2013 (Figure 4). The major income source for a majority of households in Tualzaang was groundnut. For households in Ngalzaang, forest products were the major source of income although some also grew potato, elephant foot yam, beans and leafy vegetables. Incomes in some households also came in the form of remittances consequent to domestic and international migration.

<sup>47</sup> 1 USD = 965 kyats as of July 2014.

Figure 4: Comparative range of household incomes.



With an income of 500,000 kyats, households could attain food sufficiency, if they were able to sustain themselves for a few more months on their own staple crop production. For instance, with mean incomes of 780,000 kyats (nearly USD 800) in Tualzaang and 710,000 kyats (approximately USD 736) in Ngalzaang, households could buy at least 20 bags (1,000 kg) of rice or 100–130 baskets of maize<sup>48</sup>, which should be more than enough to sustain a family of five for one entire year. Interestingly, not all resources available for income-generating purposes in the two villages had been mobilised. Most villagers in Tualzaang and Ngalzaang were focussed on subsistence livelihoods rather further growth.

### Coping Strategies

For most households in Tualzaang and Ngalzaang, coping strategies were at times as important as major livelihood activities, as activities that were coping strategies for some households were major income sources for others. As staple crop production was nearly always insufficient for family consumption, most households were unlikely to be able to sustain themselves without coping strategies. The coping strategy in Tualzaang was simple, dealing primarily with groundnut cultivation apart from other minor seasonal or casual income-earning activities. In Ngalzaang, coping strategies, although generally based on forest products, were subject to certain complexities.

Overall, food sufficiency depended, in part, on the success or failure of coping strategies. When not food sufficient, households engaged in varied coping strategies, such as growing cash crops, collecting forest products, and opting for odd jobs or wage labour. Thus, although most households did not engage in odd jobs as a major livelihood activity, the proportion of households engaged in wage labour was much higher than expected. Income earned was mainly used for purchasing food. Where households failed to sustain themselves on coping strategies, livelihood assets were either pawned or sold. However, coping strategies, if properly planned and managed, could become drivers for further growth beyond subsistence-based livelihoods, as farmers were more willing to adopt innovative measures for coping strategies than for major livelihood activities. Nevertheless, people in both villages exhibited strong social capital, helping each other in times of food insufficiency.

<sup>48</sup> The price of maize grains fluctuated within a range of 6,000–7,500 kyats/basket during the 2013–2014 period.

## **Constraints and Opportunities**

Many of the land and forest use strategies employed in Tualzaang and Ngalzaang, whether for livelihood purposes or as coping strategies, were neither productive nor sustainable. Arable land was limited and of poor soil quality. Although land is mainly used for farming, most farmers lacked improved farming practices and essential farm inputs, and failed to perform farm work at the appropriate times. There were limited extension services and transferred technologies, and where available, were either not adaptable to the region or were unaffordable to the farmers. In both villages, and particularly in Ngalzaang, farmers paid little attention to farm activities although farming was their major livelihood activity.

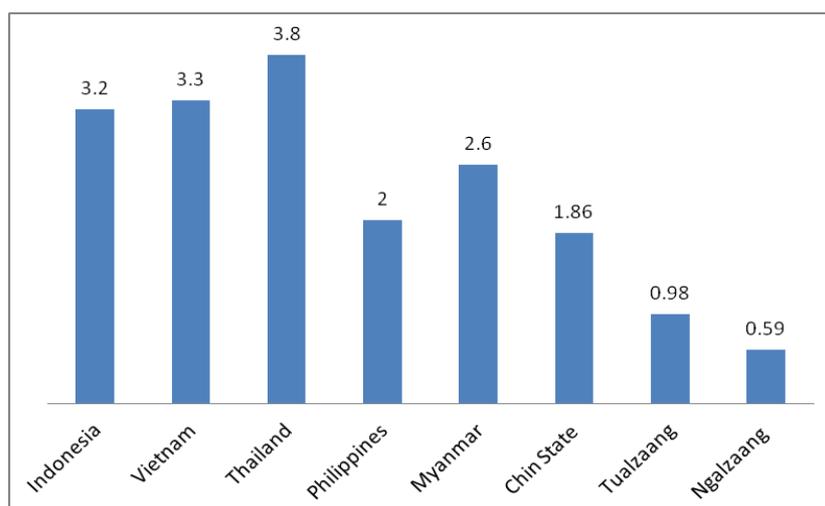
As villagers merely collected forest resources and products to sell them raw, income earned was not proportionate to the destruction caused to the forests. In the absence of conservation and regeneration measures for forest resources, their utilisation was not productive or sustainable. This was partly because villagers had limited access to technical skills, financial capital, market information and marketing skills. No services that provided the essential inputs required for diversifying household incomes by way of adding value to forest products were available. Uncontrolled grazing, forest fires and theft were other constraints associated with utilising and conserving natural resources that limited livelihoods in the two villages.

There are, however, a number of opportunities in Tualzaang and Ngalzaang for earning income through farm and forest products. On the one hand, where remoteness and related difficulties in transportation and limited communication were major constraints limiting access to the market, they were also the reason why forest resources were still abundant in Ngalzaang. The introduction of appropriate business and marketing ideas when planning livelihood activities could begin with activities that add value in line with existing farm and forest products. Other constraints, such as uncontrolled grazing, forest fires and theft, could be resolved through participatory community mechanisms.

## **Productivity and Sustainability**

Although both villages primarily depend on land resources for livelihood, failure to ensure timeliness of farm work, employ improved farming systems and apply essential farm inputs have limited productivity and sustainability of staple crop production. The cropping pattern in Tualzaang appears more sustainable and productive, even though yields remain very low compared with the national average and most households do not have enough food for over four months in a year. Meanwhile, shifting cultivation in Ngalzaang has not contributed either to increased productivity or improved sustainability. What needs to be corrected in this village is the perception among farmers that repeated cultivation on the same lands is labour intensive and not productive without fertiliser inputs rather than its cultivation practices. Farmers in Tualzaang have reversed these constraints by adopting some key features of conservation farming. Figure 5 presents the comparative maize yields of selected countries in Southeast Asia and the study villages.

Figure 5: Comparison of maize yields (ton) in Southeast Asia and the study sites.



Source: J. M. C. A. Pasuquin and C. Witt (2007)<sup>49</sup> and FAO and WFP (2009)<sup>50</sup> in combination with quantitative data of this study.

The utilisation of forest resources also needs innovation for increased productivity and sustainability. Forest products are collected and sold in their raw form, and the daily volumes of collected forest products have gone down by 80 per cent compared with levels seen 10 years ago. Also, villagers merely collect forest products as and when the need arises, but rarely take measures for conservation. If current trends continue, valuable forest products (such as elephant foot yam and some medicinal plants) would disappear soon. As there are other non-timber forest products with considerable market potential, there is a need for innovative measures aimed at conserving, propagating and adding value to existing forest products. However, such innovative measures require tangible and intangible inputs that are often not affordable for villagers.

### Success stories

Provided that the essential inputs mentioned above become available, villagers could utilise existing resources to improve livelihoods. A good example is the 'One Tambon One Product' (OTOP) scheme in Thailand, as the raw materials for most OTOP products are derived from land and forest resources.<sup>51</sup> Another success story is from the Gaviotas community of Eastern Colombia, where villagers develop over 30 different products, more than half of which are also based on land, forests and water

<sup>49</sup> J. M. C. A. Pasuquin and C. Witt, *Maize in Asia and the global demand for maize* (Singapore: IPNI-IPI [International Plant Nutrition Institute-Intellectual Property Intermediary] Southeast Asia Program for Indonesia, Vietnam, Thailand, Philippines and Myanmar, 2007), [www.ipipotash.org/en/eifc/2007/14/6/english](http://www.ipipotash.org/en/eifc/2007/14/6/english)

<sup>50</sup> Food and Agriculture Organization of the United Nations (FAO) and World Food Programme (WFP), *FAO/WFP crop and food security assessment mission to Myanmar* (Rome: FAO and WFP, 2009), 19.

<sup>51</sup> Kusuma Panyee, 'Benefit of local material utilization: A case of the One Tambon One Product project in Thailand' (Nagoya: Nagoya University Graduate School of International Development, No Date), accessed 16 September 2014, [www2.gsid.nagoya-u.ac.jp/blog/anda/publications/files/2011/08/25-kusuma\\_panyeee38080.pdf](http://www2.gsid.nagoya-u.ac.jp/blog/anda/publications/files/2011/08/25-kusuma_panyeee38080.pdf), 17.

resources.<sup>52</sup> However, lessons learned from previous development projects dealing with the adoption of improved technologies and acquisition of financial capital show that technology transfers and capital support alone do not always bring about changes in the livelihoods of the poor.

A successful example of innovative and sustainable production of non-timber forest products from the study sites is that of Mr Khual, a 33-year-old elephant foot yam grower from Ngalzaang. Mr Khual, who has a family of five, inspired by the growing market for elephant foot yam, first earned income by collecting wild elephant foot yams. Since 2002, he has been collecting seed corms of elephant foot yam and growing them on a plot of land, which he has expanded every year. Now, he has established two plots of land, with a total area of about 2 acres, cultivating the crop. According to Mr Khual, the two plots together might hold nearly 20,000 plants of the crop. In 2013, he harvested about 150 viss or about 225 kg (dry weight) of elephant foot yam. But, now he plans to leave the corms on site, so as to allow them to reach an average weight of 2 viss (about 3 kg). He expects to have at least 4,000 viss (dry weight) of elephant foot yam when he harvests. Mr Khual is the first villager to ensure the sustainable production of elephant foot yam in Ngalzaang without needing any external financial support.

### **Policy and Legal Issues**

With the democratic transition currently happening in Myanmar, the government has adopted a policy of poverty alleviation and rural development, enacting new laws and amending or rescinding parts of existing ones. Of the new or existing laws, the Land Law<sup>53</sup>, the Vacant, Fallow, and Virgin Lands Management Law<sup>54</sup>, and the Forest Law<sup>55</sup> are most related to the use of land and forest resources. These laws enable smallholder farmers to obtain licenses, certificates or permits for ensuring access to land and forest resources. The Forest Law also allows the establishment of community forestry for which a 30-year certificate can be issued while the Land Law provides opportunities to obtain land certificates. The laws also support a certain level of decentralisation throughout the administrative hierarchy and claim equitable allocation of resources among different interest groups. In addition, there are certain mechanisms for ensuring transparency in the implementation of the laws.

At the community level, customary landholding is still accepted and practised, and land tenure for all households is made possible through customary laws, which are embedded in communal systems and sociocultural traditions. In this manner, landlessness does not essentially mean lack of access to land. Moreover, these customary laws have been practised since ancestral times and tend to precede some of the existing laws. However, the new Land Law does not recognise customary landholding, which is fully recognised and accepted in the communities concerned.<sup>56</sup> Thus, the implementation of the new laws might create intra-community conflicts

---

<sup>52</sup> Kristin Helmore and Naresh Singh, *Sustainable livelihoods: Building on the wealth of the poor* (Bloomfield: Kumarian Press, Inc., 2001), 41–3.

<sup>53</sup> Pyi Htaung Su Hluttaw, *The Land Law 2012, Pyi Htaung Su Hluttaw Law No. 11* (Yangon: Shwe Taw Publishing House, 2012), 3–13.

<sup>54</sup> *Ibid.*; Pyi Htaung Su Hluttaw, *Vacant, Fallow, and Virgin Land Management Law 2012, Pyi Htaung Su Hluttaw Law No. 10* (Yangon: Shwe Taw Publishing House, 2012), 7–20.

<sup>55</sup> State Law and Order Restoration Council, *The Forest Law 1992, State Law and Order Restoration Council Law No. 8/92* (Yangon: Hteiktan Publishing House, 1992), 14–20.

<sup>56</sup> Food Security Working Group's Land Care Group, 'Legal review of recently enacted Farmland Law and Vacant, Fallow and Virgin Lands Management Law: Improving the legal & policy frameworks relating to land management in Myanmar' (Yangon: Food Security Working Group's Land Care Group, 2012), 10.

instead of benefits for the poor communities involved unless the existing customary laws and communal systems are taken into proper account.

“After the new land law was enacted, we the staff visited all villages and explained the villagers about the benefits of land registration. Though all lands belong to the government according to the law, the ownership of ancestral lands is widely recognised in the villages that we have difficulties to make villagers register their lands. Villagers know which land belongs to whom.”<sup>57</sup>

Another issue relates to the Vacant, Fallow, and Virgin Lands Management Law that allows individuals and private businesses alike to register for different sizes of land for business purpose, that is, up to 50 acres for rural farm families and 50,000 acres for commercial businesses. This can be subject to potential conflicts since most farmlands in hilly areas are vacant, while they are fallowed according to the rotational cycle of shifting cultivation. There is thus the possibility that commercial businesses could manipulate these laws to legally exploit poor rural farmers unless local communities are made aware of the law and certain protective measures are put in place.

One example of potential conflict was seen between a businessman and villagers of Ngalzaang. A businessman from Kalay started a tea plantation in the Taampi area of Ngalzaang in 2004 by obtaining a certificate from Nay Pyi Taw. He obtained the certificate for running a tea plantation on 97 acres of land, of which 65 acres belonged to 28 farmers from Ngalzaang. In practice, however, the businessman only grew tea on 32 acres of the land he was allotted. He obtained the certificate on the grounds that those lands were ‘fallowed’, although land being fallowed is part of the cycle of the shifting cultivation system followed in Ngalzaang. When cultivation time for these tracts of land approached, the villagers reclaimed their lands and there arose a conflict between the businessman and the villagers. As the issue was raised to the government, it was resolved in 2013 by a team composed of key staff from the departments concerned from Tedim. According to the resolution terms, the businessman regained only 32 acres on which he had actually cultivated tea; the remaining 65 acres were reallocated to the villagers.

What the above example highlights is the fact that businessmen might know how to manipulate the laws while villagers might not. The businessman in question misapplied the term ‘fallow lands’ to the rotational cycling system being followed by the local people for farming. He also registered more land than he could actually cultivate. Two points of importance are brought forth here: (i) the manner in which the new laws fit with local conditions unless local people are made aware of them; and, (ii) the situation could have been avoided if villagers had registered their lands before the businessman did. The latter is unlikely to happen unless the villagers become aware of relevant laws and government policies. There is thus a critical need for community initiatives that promote awareness of related laws and to identify suitable protective measures against potential exploitation from commercial businesses.

Villagers are also ignorant about the laws restricting the extraction of forest products. Only 29 per cent of villagers in Tualzaang and 27 per cent in Ngalzaang were partly aware of the restrictions on land use or extraction of forest resources. The awareness of villagers regarding such laws or restrictions is likely to depend on the pro-activeness of the village administrators and departments involved in these processes. While many households in Tualzaang had registered their lands, no

---

<sup>57</sup> Interview with a staff at the Settlement and Land Records Department (SLRD).

household in Ngalzaang had done so yet. This was partly because registration of land necessitates that farmers regularly pay taxes for plots of land that they do not always cultivate. Thus, the enactment and enforcement of laws alone, if not preceded or followed up by community consultation and participation, might not work well.

## **Conclusion and Recommendations**

Poor rural households rely heavily on natural resources, especially land and forests for their livelihoods, and this is a common feature in Myanmar and other developing countries.<sup>58</sup> Tualzaang employs a semi-permanent farming system while Ngalzaang still applies the traditional shifting cultivation system for growing food and cash crops. Villagers in Ngalzaang earn income mainly by collecting forest products although a few households do grow cash crops as well. All households grow crops of the local variety and no household applied inorganic fertilisers. Most farmers failed to perform farm activities at appropriate times. In instances where major livelihoods failed or could not provide enough food and income for the families, households exploited forest products as a coping strategy. Forest products were sold in their raw, unprocessed form and value-adding activities were rare.

Food sufficiency and income levels were higher in Tualzaang, which adopted the semi-permanent farming system, than in Ngalzaang, where the traditional shifting cultivation system is still followed. Most households lacked in innovative ideas for utilising resources for livelihoods rather than technical and financial inputs. Practices that could help to make the farming systems more productive and sustainable include, for instance, weeding 4–6 months beforehand, which would help to conserve moisture, improve soil properties, and reduce weed infestation and labour requirement, thus ensuring higher crop yields.<sup>59</sup> With regard to forest products, villagers could use proper technologies, equipment, capital, and marketing skills and timely market information. Promoting entrepreneurial spirit and group behaviour among the villagers would also bring benefits. While these are areas that can be potentially improved, the fact that customary laws are not recognised by government laws may constrain prospective attempts at linking resources to livelihoods.

In order to effectively link resource use to rural livelihoods in a more productive and sustainable manner, the following broad and critical recommendations are suggested:

1. The values, norms, customs and traditions of local people should be taken into account when formulating policies and enacting legal instruments, and when implementing them. This should be realised through community consultations provided that the consultation processes are inclusive, transparent, participatory and accountable. On a more practical note, review of existing laws and amendments or insertions should be undertaken, as necessary, to support poor households.
2. Policies and legal instruments regulating access to resources should avoid spatial overlaps when granting concessions to poor individual farmers/communities and commercial businesses or organisations. This may be

---

<sup>58</sup> Nabangchang and Srisawalak, 'Good governance and natural resources tenure in South East Asia region', op. cit., 7–10; Toman, 'The roles of the environment and natural resources in economic growth analysis', op. cit., 10–13; Kuiper, Meijerink and Eaton, 'Rural livelihoods', op. cit., 77–82.

<sup>59</sup> Sandrine Vanepth and Jose Benites, 'From zero tillage to conservation agriculture: An unexpected success', *Low External Inputs and Sustainable Agriculture (LEISA)* 17, no. 3 (2001): 22.

ensured by enabling separate locality-specific concessions for different interest groups/individuals based on land classification.

3. Proper technical, financial and material support for more productive and sustainable use of resources should be made available to the local people. This may be made possible by offering incentives to private sector actors, including financial institutions, provided that incentives are made not by sacrificing the rights of local people.
4. Development actors should cultivate and mobilise among local people the spirit of entrepreneurship and group behaviour for linking resources to livelihoods. This might be best realised through the promotion of micro- and/or small enterprises and capacity-building support at the community level based on the resources already available. Capacity building measures must ensure the skills and knowledge necessary for formal and informal micro- and/or small enterprises.
5. Accountable and transparent administrative support at the community level should be made available to initiatives undertaken by the local people for linking resources to sustainable livelihoods. Local people should have proper access to information regarding the implementation of administrative support measures through a mechanism accepted by the communities concerned.

While the government of Myanmar intends to implement poverty alleviation and rural development by promoting microfinance and small-enterprise development, the livelihoods of rural people will likely continue to depend on natural resources. If these policies are really intended for the poor, then poor people should have access to natural resources within a certain framework that they are aware of. Access to resources and subsequent initiatives would become even more realistic when poor people also have access to the required capital, technology and market information necessary to make such efforts a success. Finally, and most importantly, poverty alleviation and rural development will need a pro-poor review and amendment of existing legal instruments so that access to and utilisation of resources can be properly regulated while ensuring increased productivity and improved sustainability in linking resources to livelihoods.

## APPENDICES

### *Appendix 1: Field photos.*

#### *1.1: Repeated maize fields in Tualzaang.*



#### *1.2: Maize of local variety grown in Ngalzaang.*



*1.3: Newly cultivated upland rice fields in Ngalzaang.*



*1.4: Groundnuts grown on repeated land in Tualzaang.*



*1.5: Systematically managed firewood land in Ngalzaang.*



*1.6: Firewood sufficient for one year's consumption for a household in Tualzaang.*



*1.7: Farm of elephant foot yam in Ngalzaang.*



*1.8: The phan kha tree and its fruits in Ngalzaang.*



1.9: Wild tuber species collected for sales in Ngalzaang.



Appendix 2: Crop calendar for major crops in Tualzaang and Ngalzaang)

S. No	Crop/Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>1.</b>	<b>Maize (Both villages)</b>												
	Tree felling/land clearing	→									→	→	→
	Burning		→										
	Twigs/residues clearing		→										
	Seed sowing			→	→								
	Bush clearing				→	→							
	Weeding					→		→					
	Harvesting								→	→			
<b>2.</b>	<b>Upland rice (Ngalzaang)</b>												
	Tree felling	→										→	→
	Burning		→										
	Twigs clearing		→										
	Seed sowing			→	→								
	Weeding					→		→					
	Harvesting										→	→	
<b>3.</b>	<b>Groundnut (Tualzaang)</b>												
	Land clearing	→	→								→	→	→
	Residues clearing		→	→									
	Seed sowing			→	→								
	Weeding				→	→							
	Earthing up						→	→					
	Harvesting							→	→				
	Pod plucking								→	→			

<b>4. Potato (Ngalzaang)</b>																				
Residues clearing				→																
Seed sowing			→	→																
Weeding					→	→														
Earthing up					→	→														
Harvesting							→	→	→	→										→
<b>5. Sunflower (Tualzaang)</b>																				
Land clearing	→	→																		
Residues clearing		→	→																	
Seed sowing/broadcasting			→	→						→	→									
Weeding					→	→					→	→								
Harvesting								→	→	→										→

Note: Developed in consultation with key farmers in Tualzaang and Ngalzaang.

#### Explanation of legends:

The purpose of presenting this crop calendar is to highlight the activities of major food/cash crops and their timeliness which is somewhat decisive to the success or failure of any crop. Followings are the legends employed in the crop calendar and their explanations:

- Indicates that activity for a particular crop starts from previous year.
- Represents the entire period of a farm activity or its continuation from the year before.

Land clearing on repeated land is similar in nature with tree felling on new lands, but is differentiated from weeding which takes place on both new and repeated lands since the latter is mainly done for newly grown weeds. A few households start land clearing soon after maize harvest while most others do it just before seed sowing.

Similarly, twigs clearing refers to the removal of unburnt twigs/branches while residues clearing stands for the clearing of farm residues that remain on-site after land clearing. In potato and groundnut, most farmers usually do weeding and earthing-up (also harvesting in potato) simultaneously. The second harvest of potato is mainly intended to collect seeds for the next cropping season.

Most farmers in Tualzaang grow two crops of sunflower as a minor cash crop: once in monsoon being intercropped with maize and another in winter. The time of land clearing, residues clearing and seed sowing for monsoon sunflower are the same as those for maize that no separate activities are required.

For winter sunflower crop, farmers broadcast sunflower seeds just before weeding (i.e. second land clearing) so that the seeds are covered by soil. After maize harvest, sunflower and legumes (cowpea and soya bean) are left in the field.

Activities for growing two varieties of cowpea and soya bean being intercropped with maize in Tualzaang are more or less the same for maize and no separate land/residues clearing or weeding is required. Seed sowing is normally done during

March-April and harvesting takes place in November-December. Though these legumes are regarded as minor crops, they play an important role for the success of major food/cash crops and their sustainable production.

While timeliness of farm activities are of significant importance, most farmers fail to meet the timelines designated for their crops that crop yields and sustainability of production are affected. It is supposed that little changes in the timeliness of farm activities with the same inputs might result in improved livelihoods.