



**UNODC**

United Nations Office on Drugs and Crime



Central Committee for  
Drug Abuse control

# **Evidence for enhancing resilience to opium poppy cultivation in Shan State, Myanmar**

**Implications for alternative  
development, peace, and stability**

**March 2017**

In Southeast Asia, UNODC supports Member States to develop and implement evidence based rule of law, drug control and related criminal justice responses through the Regional Programme 2014-2018 and aligned country programmes including the Myanmar Country Programme 2014-2018. This study is connected to the Mekong MOU on Drug Control which UNODC actively supports through the Regional Programme, including the commitment to develop data and evidence as the basis for countries of the Mekong region to respond to challenges of drug production, trafficking and use. UNODC's Research and Trend Analysis Branch promotes and supports the development and implementation of surveys globally.

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**Abbreviations**

CCDAC	Central Committee for Drug Abuse Control
GOUM	Government of the Republic of the Union on Myanmar
ICMP	UNODC Illicit Crop Monitoring Programme
RAB	Research and Analysis Branch
PDMU	Programme Management and Development Programme
SR	Special Region
UNODC	United Nations Office on Drugs and Crime

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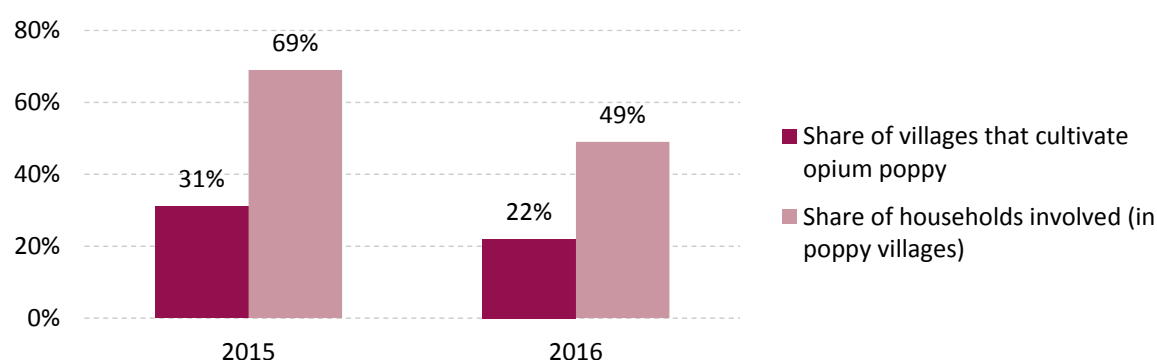
## Executive Summary

In 2016, the annual village survey was conducted in 591 villages in Shan state, the main opium poppy cultivating area in Myanmar. An independent area estimation was not part of the survey this year; however, UNODC expanded largely on the socio-economic analysis of opium cultivation in the context of the UN Guiding Principles on Alternative Development and achieving the Sustainable Development Goals.

### Opium poppy continues to be an important part of the Shan State economy

About 1 in 10 households in the villages surveyed in Shan State are directly involved in opium poppy cultivation. The share of villages that cultivate opium poppy and the share of households within these villages that participate have both decreased over the past year. However, opium poppy is still integral to the state's economy, and there are many households who depend on poppy cultivation for their livelihood.

**Figure 1: Change in the share of surveyed villages in Shan State that cultivate opium poppy, and the share of households in opium cultivating villages that are involved in cultivation, 2015-2016**

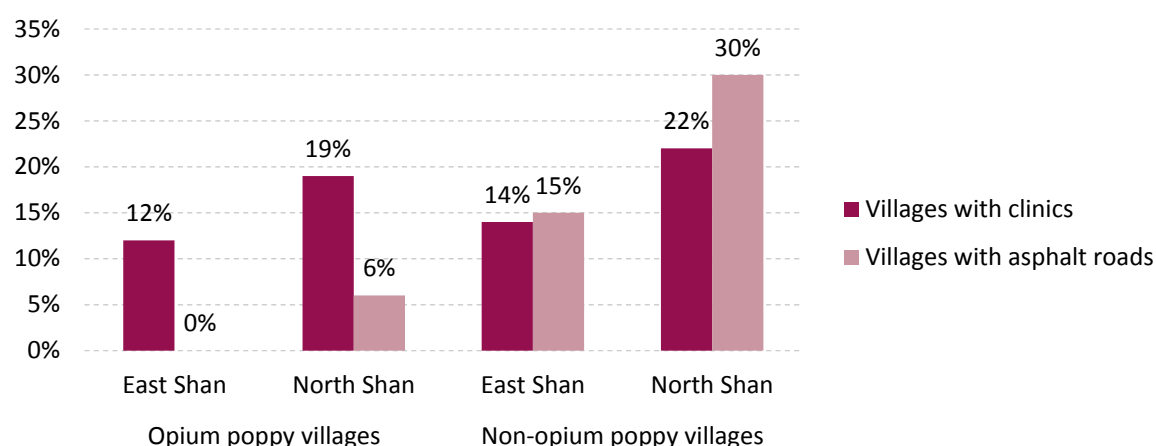


### Fewer villages and farmers are growing opium poppy

There has been a reduction in the number of villages and households involved in opium poppy cultivation; however, accompanied by an increase in the average area under cultivation per household. The average area under opium poppy cultivation increased from 0.4 hectares per household in 2015 to 0.6 hectares in 2016. This concentration of cultivation confirms earlier observations.

### The average income in opium poppy villages is higher, but the positive impact on household finances is largely offset by higher costs of living

The average annual household income is higher in villages where opium poppy is cultivated (US\$2,261) than in non-opium poppy villages (US\$1,839). Farmers in opium poppy villages, however, were primarily buying food with the income from poppy cultivation. Moreover, there are several indications that people living in villages where opium poppy is grown face higher living costs than their peers in non-opium poppy villages. Many opium poppy villages in East and North Shan are located in remote or highly inaccessible areas with low infrastructure coverage. For example, very few opium poppy villages have asphalt roads, and somewhat fewer of these villages have clinics than non-growing villages (although village clinics are rare throughout East and North Shan, with such facilities operating in less than one in five villages). The nearest outside clinic also took twice as long to reach from opium poppy villages. The lack of clinics and roads means that health and transportation costs are higher for farmers in opium poppy villages in East and North Shan.

**Figure 2: Shares of villages in East and North Shan with clinics and asphalt roads, by opium poppy cultivation status****Farmers in opium poppy villages face challenges in relying only on licit sources of income**

Across Shan State, cash crops – licit or illicit – are the main source of income for farmers. In non-opium poppy villages, cash crops, primarily rice, were cited as the primary source of income by nearly half of all surveyed village headmen. Before deciding to substitute opium poppy with licit crops, farmers would need to consider some challenges. Access to local markets for agricultural products is critical. None of the opium poppy cultivating villages had local markets, whereas 8 per cent of the non-opium poppy villages had them. Moreover, the nearest market took more than two hours to reach on foot from opium poppy villages, compared to just under an hour from non-opium poppy villages. Daily wages were also markedly lower in poppy-cultivating villages; the difference was greatest for male workers. These challenges make it more difficult to earn a living from licit activities in opium poppy villages than in villages where opium poppy is not grown.

**Distinct motivations for growing opium poppy in South Shan**

Several sustainable development indicators show a different situation in South Shan in comparison to East and North Shan. Villages which cultivate opium poppy in South Shan still have low levels of development but their characteristics are different from those in East and North Shan. In South Shan, the average income is higher and the infrastructure better than in East and North Shan, and more people are able to access salaried jobs, which are usually better remunerated and more stable. Moreover, according to the village headmen, the majority of households in South Shan, regardless of their opium poppy cultivation status, do not need to resort to drastic strategies to cope with food insecurity, such as reducing the number of meals per day, in contrast to East and North Shan. The higher incomes, better infrastructure and food security status in South Shan may indicate that opium poppy cultivation is primarily driven by capital accumulation, while in East and North Shan, cultivation seems to be more closely linked with subsistence needs. However, the relatively high income inequality among farmers in opium poppy villages in South Shan may suggest that there are a number of farmers who are not able to make ends meet also there.

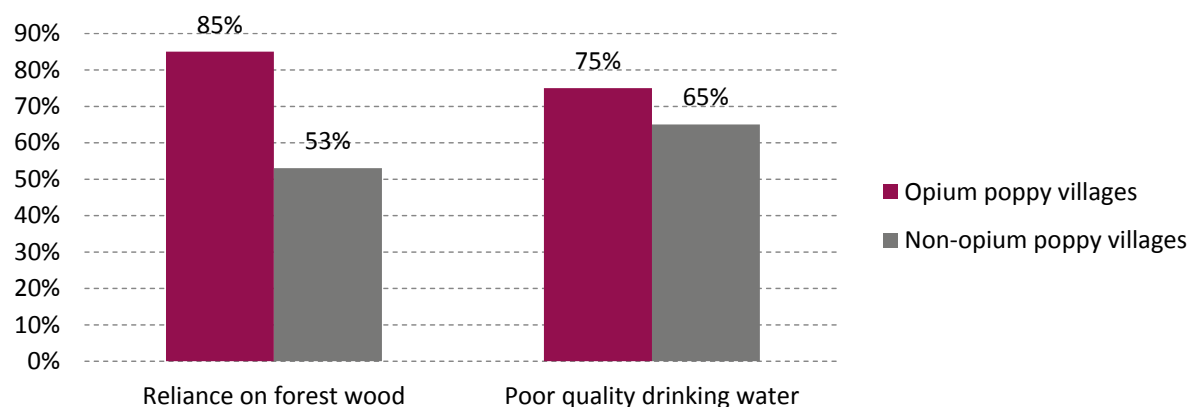
**People in opium poppy villages are more dependent on forest resources, and more prone to experiencing environmental and climate-related challenges**

Many households across Shan State depend on wood from local forests for cooking, particularly in villages where opium poppy is cultivated. More village headmen from opium poppy villages reported declining local forest quality in the last two years than their peers from non-opium poppy villages. The quality of the drinking water is another concern, and again, the problem is more pronounced in opium poppy villages. There are also indications that opium poppy villages seem to



be somewhat more affected by climate related shocks, like frost or drought, which could decrease crop yields and increase the price of food.

**Figure 3: Shares of villages in Shan State that rely on forest wood for cooking and report having poor quality drinking water, by opium poppy cultivation status**



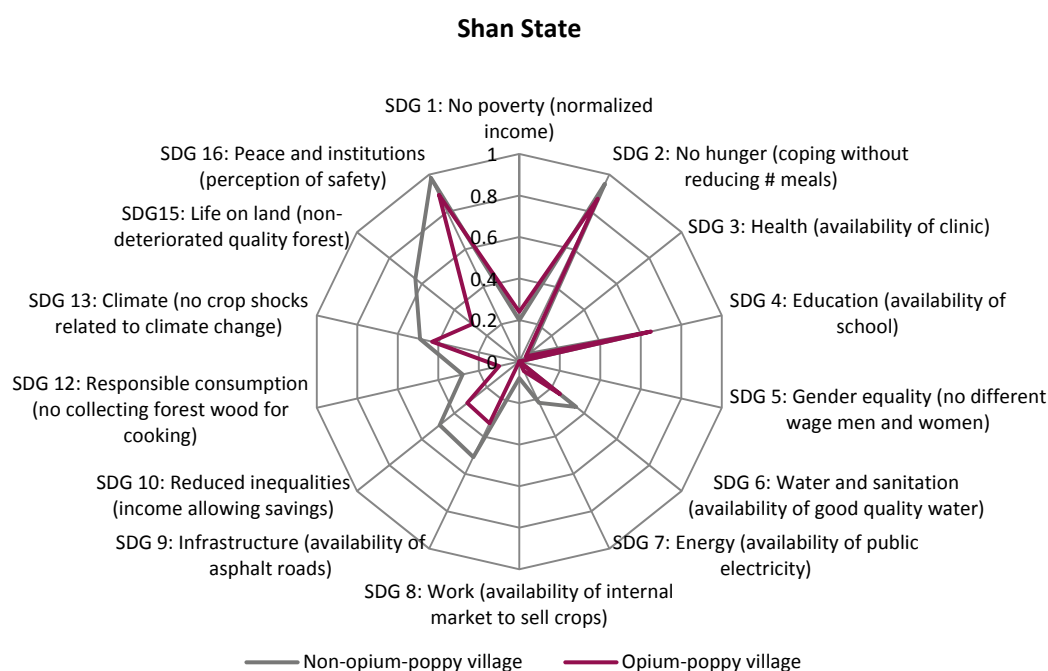
### Governance and security conditions seem to affect opium poppy cultivation levels

While many factors affect farmers' decisions regarding whether or not to cultivate opium poppy, governance and security considerations have a considerable impact. The UNODC survey results show that good security conditions and stable governance are associated with less opium poppy cultivation. This link has been observed in many areas where illicit crops are cultivated (for example, in Afghanistan or Colombia) which are isolated and plagued by ethnic and other conflicts or political instability. In this respect, the ongoing peace process in conflict areas may bring further improvements to governance and security which can have a tangible impact and reduce opium poppy cultivation.

At the same time, law enforcement played a significant role in farmers' decisions regarding opium poppy cultivation. When asked about the main reasons why farmers in their village stopped growing opium poppy, headmen in 29 per cent of the surveyed opium poppy villages cited fear of eradication by the Government. Moreover, headmen in nearly half of opium poppy villages reported that a government ban on opium poppy was one of the top three reasons why some farmers chose to revert from opium poppy to licit crops.

### Scope for development

There are also some remarkable differences in the development stage of opium growing and non-growing villages. As shown in the graph below, there is a development gap – measured as the distance between the attainment of the sustainable development goal indicators in the communities affected by opium cultivation compared to attainment in communities without poppy cultivation - particularly in areas related to security, environment, inequality, job opportunities and infrastructure.



### Implications for policy

The data collected through the village survey in Shan State confirms that, with some exceptions, villages where opium poppy is cultivated have lower levels of development and perceived safety levels than villages without cultivation. The survey has highlighted the diverse socioeconomic situations found within Shan State and the differences between and within regions. The diversity of conditions and factors associated with poverty and opium poppy cultivation need to be acknowledged and taken into account when designing and implementing alternative development interventions. For example, infrastructure-related needs seem to be most urgent in East and North Shan, whereas income inequality is of more concern in South Shan. In order to better understand the most pressing development needs, carrying out a targeted situation analysis, with a particular focus on the poorest in Shan State, would be helpful.

This report is building an evidence base and sharing lessons learned to better understand the needs of opium poppy and non-opium poppy villages across Shan State. Further monitoring and evaluation must not only continue, but also delve deeper into these complex interactions to better understand what is happening and why, and how progress towards the achievement of a sustainable development outside the illegal economy. The extensive historical databases from the annual village surveys conducted by UNODC can be used as guidance for these analyses.

The existence of direct and indirect linkages between conflict and illicit drug cultivation means that any intervention must also deal with conflict mitigation or resolution. Depending on the local context, this may mean that strategies and programmes that help households and communities cope with the causes and consequences of conflict should be developed. This is particularly relevant for the ongoing peace process and cease-fire commitment to stop drug production and trafficking in the conflict areas of Shan state where large parts of the opium cultivation takes place.

The survey results show that law enforcement and the fear for eradication by the Government is an important reason for farmers to abstain from opium cultivation, which suggest that law enforcement measures could enhance the resilience to opium poppy cultivation. However, evidence from other illicit crop cultivation areas shows that interventions focused on suppression only can have adverse consequences on stability and security, as well as on poverty alleviation. Based on more than 40 years of experience and lessons learned, the UN Guiding Principles on

Alternative Development recommend to “target illicit cultivation [...], and address related factors, by alleviating poverty, by strengthening the rule of law and institutional frameworks, as appropriate, and by promoting sustainable development aimed at enhancing the welfare of the population” and to implement alternative development in concert with broader drug control policies, including demand reduction, law enforcement, illicit crop elimination and awareness-raising.

UNODC is assisting the Government of Myanmar in implementing an alternative development strategy, and has been requested to increase support in this area. UNODC has therefore developed several projects to improve short- and medium-term access to food and income. The scale of these programmes requires significant large funds to become effective at a regional level, however.

Successful implementation of a national drug control strategy is also dependent on international efforts to control drug trafficking and organized crime in the region. A comprehensive approach is needed to tackle the challenges that may be posed by the possible links between drug trafficking, corruption and different forms of organized crime. Owing to the transnational nature of drug-related crimes, coordinated cross-border collaboration and alternative development activities are important, where appropriate and feasible, which requires support of the international community.



## 1. Introduction: implications for alternative development, peace, and stability

The majority of opium production in Southeast Asia is confined to parts of Myanmar, especially Shan State, which hosts a number of ethnic armed groups. While the opium producers and small traffickers are often coming from these groups and are usually poor, the main profits are made further along the trafficking routes by buyers and traders in Southeast Asia who are involved with the opium/heroin market and other illegal activities. Heroin and opium continue to be important sources of financing for organized crime groups and the success of the peace process in Myanmar will largely be dependent on successfully tackling the complex drugs and conflict situation.

The UN Guiding Principles on Alternative Development, adopted in 2013, reaffirm that the drug problem remains a common and shared responsibility that requires international cooperation, and an integrated and balanced approach to supply and demand reduction strategies. At the supply level, they recognize and position alternative development as an integral component of drug control policies. Under the Guiding Principles, alternative development comprises the policies specifically focused on tackling poverty and providing livelihood opportunities outside the illicit crop economy to local communities. The Guiding Principles also encourage Member States to apply a broad range of socio-economic and environmental indicators to monitor and ensure that current and future alternative development interventions are in line with national and international development objectives, including the Sustainable Development Goals.

The 17 Sustainable Development Goals (SDGs) were adopted by Member States in September 2015. The SDGs cover different topics related to development, including income poverty, health, education and forest quality. More specifically, the SDGs have 169 targets to be achieved by 2030, with an associated 230 global indicators<sup>1</sup>. Among the targets associated with Sustainable Development Goal 16, those related to the rule of law and access to justice and reducing violence, economic crime (corruption and bribery), organized crime and illicit financial flows all have significant links with the drug problem and with the response to it. The SDGs recognize the need to build peaceful, just and inclusive societies that provide equal access to justice and that are based on respect for human rights (including the right to development), effective rule of law and good governance at all levels, and transparent, effective and accountable institutions.

In 2016, the outcome document from the UN General Assembly on the World Drug Problem (UNGASS) recognizes that the efforts to achieve the SDGs and effectively address the world drug problem, through alternative development, are complementary and mutually reinforcing.<sup>2</sup> To support the implementation of alternative development initiatives and the SDG agenda, a better understanding of the links between poverty, illicit drug cultivation, production and trafficking is required<sup>3</sup>. Since 1999, UNODC has been monitoring illicit crop cultivation areas and socio-economic conditions in rural villages in different supply countries. In most countries, the results indicate that illicit crop cultivation and poverty are closely interlinked, coupled with other development issues, for example security and governance<sup>4</sup>. Examples from countries supplying illicit crops have shown that comprehensive alternative development programmes along with

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<sup>1</sup> UN Statistical Commission. Global Indicator Framework. Accessed in December 12, 2016:

<http://www.un.org/sustainabledevelopment/blog/2016/03/un-statistical-commission-endorses-global-indicator-framework/>

<sup>2</sup> UNGASS. 2016. Resolution A/ RES/S-30/1 containing outcome document entitled "Our joint commitment to effectively addressing and countering the world drug problem".

<sup>3</sup> UN Economic and Social Council. 2016. Progress towards the Sustainable Development Goals.

<sup>4</sup> UNODC. 2016. World Drug Report.

programmed law enforcement interventions can have positive sustainable development outcomes in affected villages and assist in restoring the rule of law.<sup>5</sup>

In Myanmar, some 55,500 hectares of opium poppy were cultivated in 2015, almost all (90 per cent) in Shan State<sup>6</sup>. In 2016, UNODC conducted a survey in a representative sample of 591 villages in the opium poppy cultivation risk area in Shan State<sup>7</sup> and gathered socio-economic and other relevant data to compare the situation between these two types of villages. The aims were to identify possible socio-economic differences between villages that may be generating incentives for opium-poppy cultivation; and to evaluate the current status of opium poppy villages in relation to alternative development needs, and their challenges ahead for achieving the SDGs. This report analyses this information, but it does not include estimates of opium poppy cultivation area and opium production. It also does not include socio-economic analyses from areas outside Shan State.

Since 2011, Myanmar has been undergoing a period of political transition and Myanmar's economy has been increasingly opened<sup>8</sup>. In a few years, almost every aspect of life has been affected by fundamental economic and political reforms aimed at improving the living conditions of the population<sup>9</sup>. This report aims to contribute to this process by providing evidence to assist in building resilience of rural communities to opium poppy cultivation, and to improve the understanding of the different challenges that the villages in Shan State are currently facing to achieve sustainable development within a legal economy. A mix of alternative development<sup>10</sup> and law enforcement interventions conceived and embedded as fully integrated components of comprehensive regional rural development policies can help to reduce opium poppy cultivation. Although this report provides an overview of the root causes of opium poppy cultivation and main considerations for designing alternative development strategies, their final outline requires careful adaptation to the evolving local contexts, including the identification and promotion of optimal rural household dynamics and livelihood strategies, which also strengthen the ecosystem and environmental conditions and social institutions of the villages.

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<sup>5</sup> UNODC. 2015. World Drug Report.

<sup>6</sup> UNODC. 2015. Southeast Asia Opium Survey. Lao People's Democratic Republic, Myanmar.

<sup>7</sup> The sampling frame excludes the Western parts of South and North Shan (see methodology).

<sup>8</sup> World Bank. 2014. Myanmar. Ending Poverty and Boosting shared Prosperity in a Time of Transition.

<sup>9</sup> World Food Programme. 2016. Special report from the crop and food security assessment mission to Myanmar.

<sup>10</sup> The specific purpose of alternative development in its present, broader meaning is to contribute to economic development (especially in rural areas) in order to target the underlying factors and root causes of illicit drug economies (UNODC. 2015. World Drug Report)

**Map 1: Location of surveyed villages by opium poppy cultivation status, Shan State 2016**







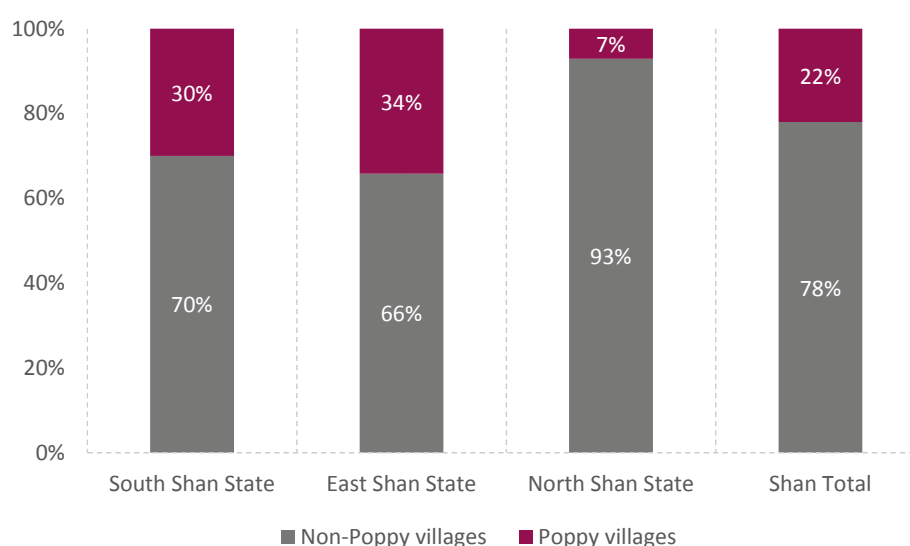
## 2. Analysis of the survey evidence

### 2.1 Prevalence of opium poppy cultivation in Shan State<sup>11</sup>

#### Opium poppy is cultivated in almost one quarter of the villages (22 per cent) in Shan State<sup>12</sup>

Most of the opium poppy villages in Shan State were in South and East Shan. In those regions, opium poppy cultivation took place in approximately one third of the villages, while in North Shan, in less than one in ten villages. These results of the 2016 village survey were in line with the findings of the 2015 UNODC opium poppy cultivation survey: the regions with the largest shares of opium poppy villages corresponded to the regions with the largest areas under opium poppy cultivation in Shan State. Compared to the results of the 2015 village survey<sup>6</sup>, the proportion of opium growing villages has decreased in Shan State (from 31 per cent in 2015 to 22 per cent in 2016). However, this reduction seems to be related to a gradual concentration of opium poppy growing in fewer villages which started several years ago, when the total opium poppy cultivation area in Myanmar showed an increase (2008-2015).<sup>13</sup>

**Figure 4: Type of village by opium cultivation status, by region, 2016**

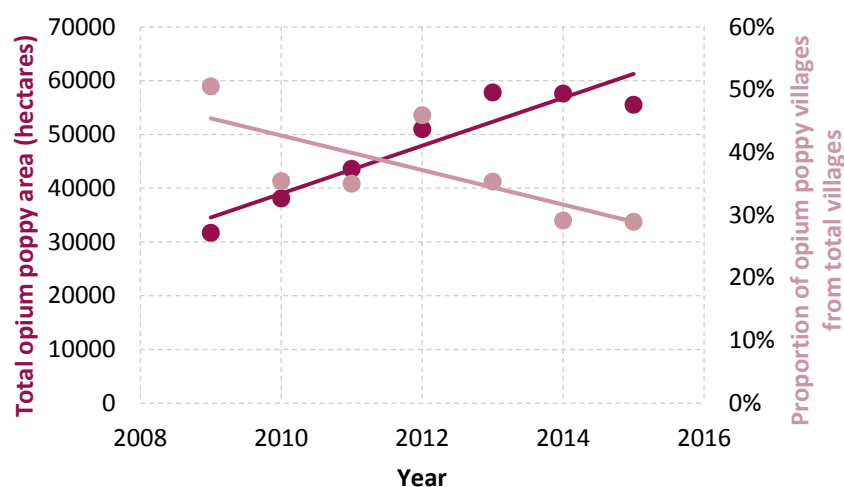


<sup>11</sup> The data in this section is reported according to the village headmen statements. Although survey design mechanisms were in place to minimize bias (see the methodology section), village headmen may have had incentives to provide biased answers. For example, they may have indicated that there was no opium poppy cultivation in the village or understated the number of opium poppy farmers if they were afraid of potential future eradication campaigns by the Government of the Union of Myanmar in their villages. Or some village headmen may have overstated the extent of opium poppy cultivation if they expected external assistance targeting opium poppy farmers only. Therefore, the estimates provided in this section should be used with caution as referential numbers, and may be updated as more evidence becomes available (for example, additional data from triangulation sources, such as key informants or remote sensing estimates of opium poppy cultivation areas).

<sup>12</sup> About 4 per cent (23) of the village headmen in the sample did not indicate whether there was opium poppy cultivation inside their village, and the data from those villages was not included in the analyses conducted for this report.

<sup>13</sup> These results were based on responses from annual socio-economic surveys and (time-series) remote sensing analyses.

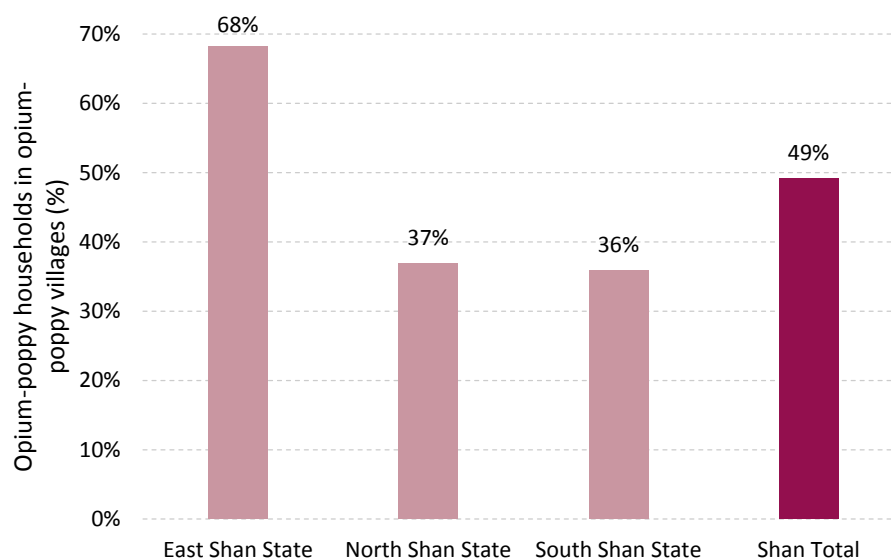
**Figure 5: Trends in opium poppy area and proportion of opium poppy villages as percentage of total villages, Myanmar, 2009-2015**



**About half of the households in opium-growing villages are directly involved in cultivation, equivalent to 1 in 10 households in Shan State**

Not all farmers located in opium poppy villages cultivate opium poppy. The incentives, personal preferences, capabilities and assets could be very dissimilar between farmers within the same village. The responses from the village headmen suggest that, on average, almost half of the households (49 per cent) were involved in opium poppy cultivation in opium poppy villages in 2016, while the same figure last year was 69 per cent. Nevertheless, this may not directly translate into a reduction of the total opium poppy cultivation area, as individual opium poppy areas vary (significantly) year-on-year. Considering all the villages surveyed (regardless of opium poppy cultivation status), roughly 1 in 10 households (11 per cent) were directly involved in opium poppy cultivation.

**Figure 6: Percentage of opium poppy households in opium poppy villages, total and by region, 2016**

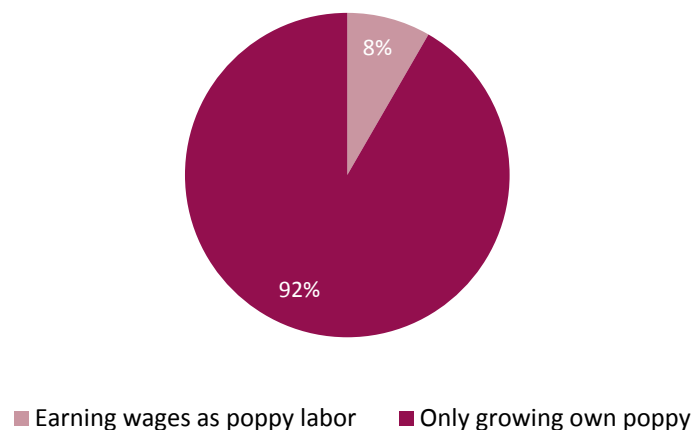


### Most of the households' direct involvement in opium poppy consists of growing opium poppy on their own land (non-legal customary property)

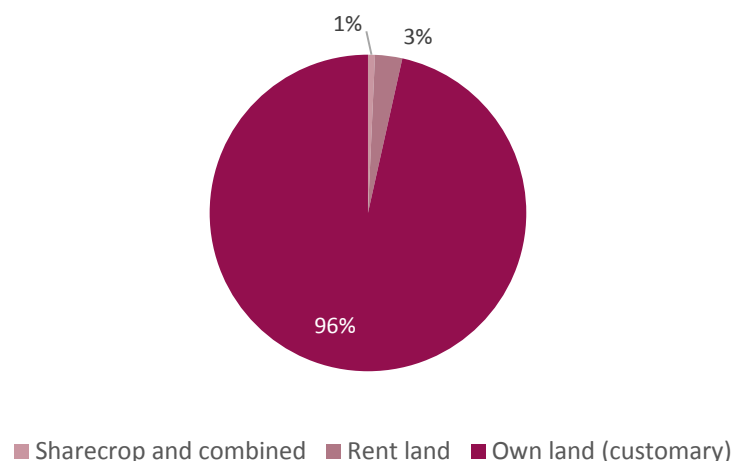
In contrast to Afghanistan, the other major opium poppy supply country, most of the households' involvement in opium poppy in Shan State entails growing opium poppy on their own land. A few farmers earn wages as opium poppy labourers (8 per cent). Land rental for growing opium poppy or sharecropping (where the tenant uses the land and returns a share of the crops produced to the landowner as payment) are practically non-existent in Shan State. Almost all farmers grow opium poppy on their own land (96 per cent), for which they have customary use rights but not legal property rights. No major differences in types of involvement and land tenure modalities were found among the different regions.

These results reflect the recent land reform in the country. Until 2012, all land in Myanmar belonged to the state. Under the policy of state ownership, farmers were given the right to cultivate the land but they could not sell, divide or mortgage it. This policy was abandoned when the Farm Land Law was passed in March 2012. Under this law, existing farmers are for the first time allowed to mortgage, rent, and exchange or sell their land<sup>9</sup>. Administrative procedures are now in place and the changes are gradually put into effect. Future changes in legal land ownership may have an effect on farmers' decisions to cultivate opium poppy. Increases in the number of farmers with legal land ownership have been associated with less illicit crop cultivation<sup>5</sup>.

**Figure 7: Percentage of opium poppy households by type of involvement in opium poppy cultivation, 2016**



**Figure 8: Percentage of opium poppy households by land tenure modality, 2016**



### On average, an opium poppy household cultivates 0.6 hectares of opium poppy in Shan State

A household in North Shan cultivates, on average, a smaller area of opium poppy (0.4 ha) than a household in East and South Shan (0.6-0.7 ha). North Shan is the region with the lowest level of opium poppy cultivation in Shan State, and therefore, a smaller average opium poppy area per household could be expected.<sup>14</sup> In comparison to last year's village survey findings, the average opium poppy area per household has increased by 18 per cent, which may be partially associated with the lower level of eradication by the Government, compared to 2015 (see section 3 for details on eradicated opium poppy areas in 2016). Nevertheless, the evidence suggests that there are currently fewer opium poppy farmers, but they are growing larger fields than in 2015.

**Figure 9: Average area of cultivation per opium poppy household (hectares), total and by region, 2016**



## 2.2 Economic indicators of opium poppy cultivation

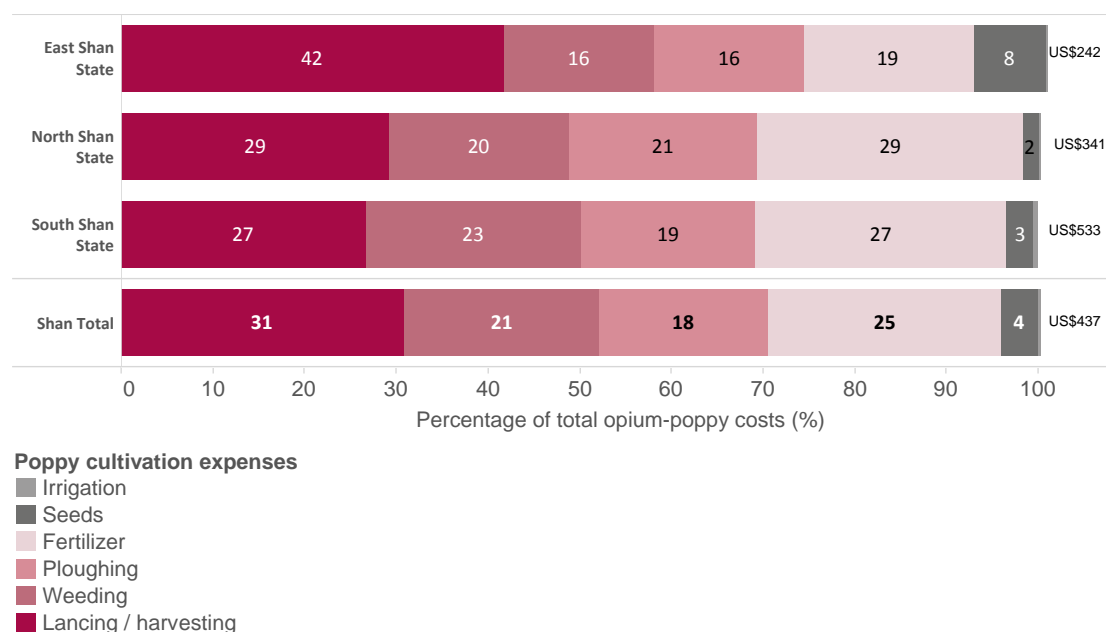
### The average production costs of opium poppy was US\$437 per hectare in 2016

The Shan State production cost (US\$437 per hectare) is about half of the production costs for Afghanistan in 2015 (US\$931). Half of the costs in both Shan State and Afghanistan are related to opium poppy weeding and lancing (opium harvesting) for which labour needs to be hired. However, opium poppy farmers in Shan State do not invest in irrigation, while irrigation in Afghanistan comprises up to 22 per cent of the total costs. At the same time, the average yield in Shan State is typically between 12-15 kg/ha, 30-60 per cent lower than the average yield in Afghanistan (18-29 kg/ha), but farm-gate prices of fresh opium poppy are usually higher in Myanmar (US\$224 per kg in 2016) than in Afghanistan (US\$129 per kg in 2015). This makes the net profit per hectare higher in Myanmar (US\$2,587) than in Afghanistan (US\$2,100).<sup>15 16</sup>

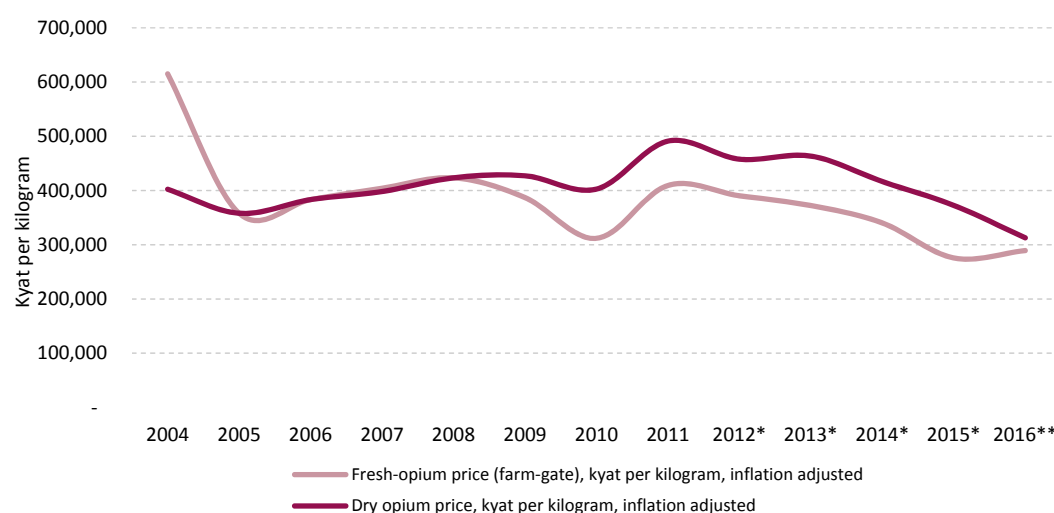
<sup>14</sup> Nevertheless, some areas in the north of North Shan were in conflict and inaccessible. Those villages were not possible to cover in the survey. Therefore, opium poppy patterns may be different, influenced by conditions imposed by non-state armed groups.

<sup>15</sup> See UNODC's Afghanistan Opium Survey: Cultivation and Production (from 2012 to 2015), Afghanistan Opium Survey: Socio-Economic Survey. Socio-Economic Analysis (2015), and Southeast Asia Opium Survey (from 2012 to 2015)

<sup>16</sup> Estimates for Afghanistan using data from 2015, as 2016 cost figures are yet available. Yields used in the net profit estimation for Myanmar and Afghanistan are based on the average for the period 2012-2015. Also, this straightforward comparison does not consider differences in cost of living between the two countries.

**Figure 10: Distribution of opium poppy cultivation expenses (for one hectare, in US\$), total and by region, 2016****The average (farm-gate) price of fresh opium has slightly increased (+5 per cent)**

The average (farm-gate) price of fresh opium corrected for inflation in 2015 was 275,439 Kyat per kilogram (or US\$224 per kg at the November 2016 – exchange rate). In 2016, it was 5 per cent higher (289,138 Kyat per kg or US\$235). The historical trends for opium poppy areas and fresh opium poppy prices suggest that when cultivation areas decrease, prices increase. However, the price increase was marginal from 2015 to 2016. This suggests that there was slight reduction, but not a large change in total opium poppy areas over this period. This needs to be confirmed by other means, such as opium poppy area estimates from remote sensing analysis.

**Figure 11: Trends in opium poppy prices, Myanmar, 2004-2016**

\*For 2012-2015, prices reflect data from East, North, and South Shan only, weighted by cultivation (regions with larger opium poppy areas contributed more to the final mean). In 2016, no weights were applied as no data on cultivation is available. The consumer price index for 2016 was based on a projection of the historical consumer price index (2010=100) (World Bank, <http://data.worldbank.org/indicator/FP.CPI.TOTL>).

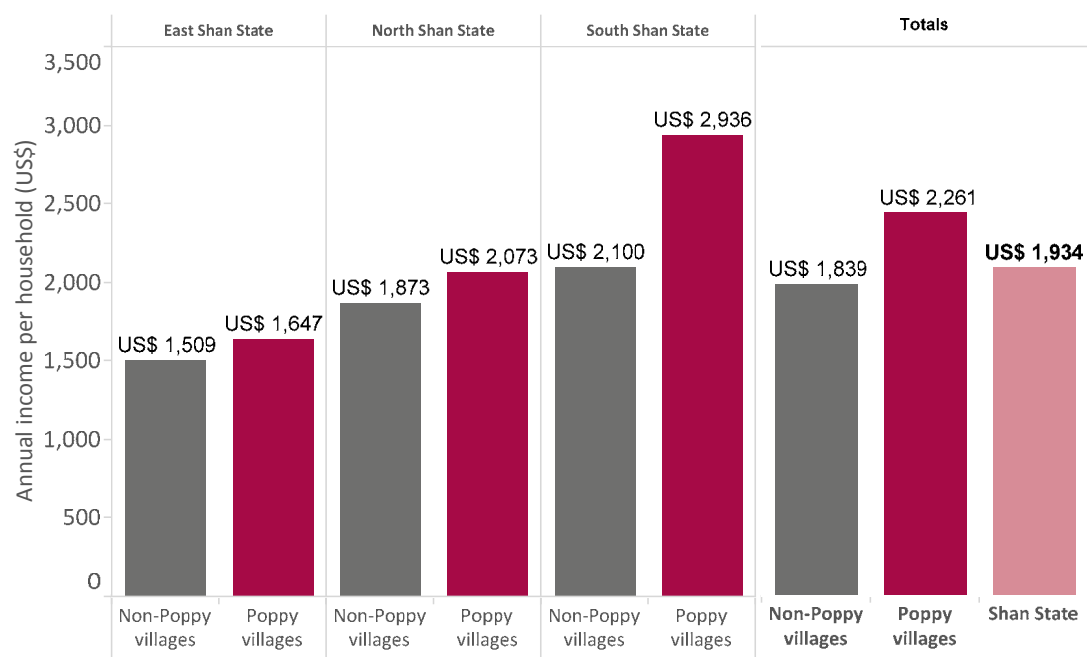
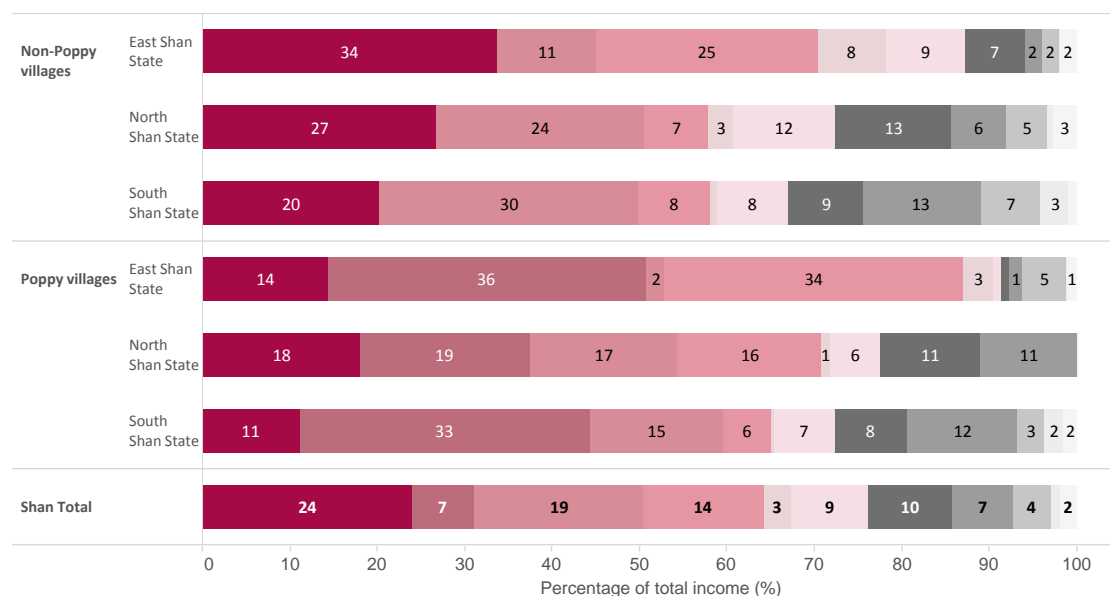
**Figure 12: The relation between increases in the total area under opium poppy cultivation and decreases in fresh opium prices, Myanmar, 2006-2015**



**The household income in opium poppy villages was larger than in non-opium poppy villages, but on average remained below the poverty line**

In 2016, the household income in opium poppy villages was higher (US\$2,261), on average, than the income among households in non-opium poppy villages (US\$1,839). In opium poppy villages, the largest share of the income was derived from opium poppy (32 per cent), while in non-opium poppy villages the largest share came from daily wages (50 per cent). Such wages are usually low and temporal, and other research<sup>17</sup> has indicated that households which main source of income is daily wages are among the poorest in Myanmar. There were also important differences in how the income was derived at the regional level. For example, in East Shan, the region with the lowest annual income, the second largest share of the income was derived from livestock sales and by-products, and not from cash crops (rice and other licit crops) as in the other two regions. As cash crops reached relatively good prices this year, the average income in North and South Shan were also higher than in East Shan. Additionally, in South Shan, the region with the highest annual income in 2016, households derived between 12 and 13 per cent of their total income from salaried jobs, which usually require qualifications and are well remunerated.

<sup>17</sup> FAO. 2015. Report of the Workshops to Present the Initial Research Findings from a Nation-Wide Survey and Analysis on Social Protection and Poverty Dimensions in Support of Rural Development and Poverty Reduction on Myanmar.

**Figure 13: Average annual income per household (US\$), total, by region and cultivation status, 2016****Figure 14: Percentage of total income by source, total, by region and cultivation status, 2016****Sources of income**

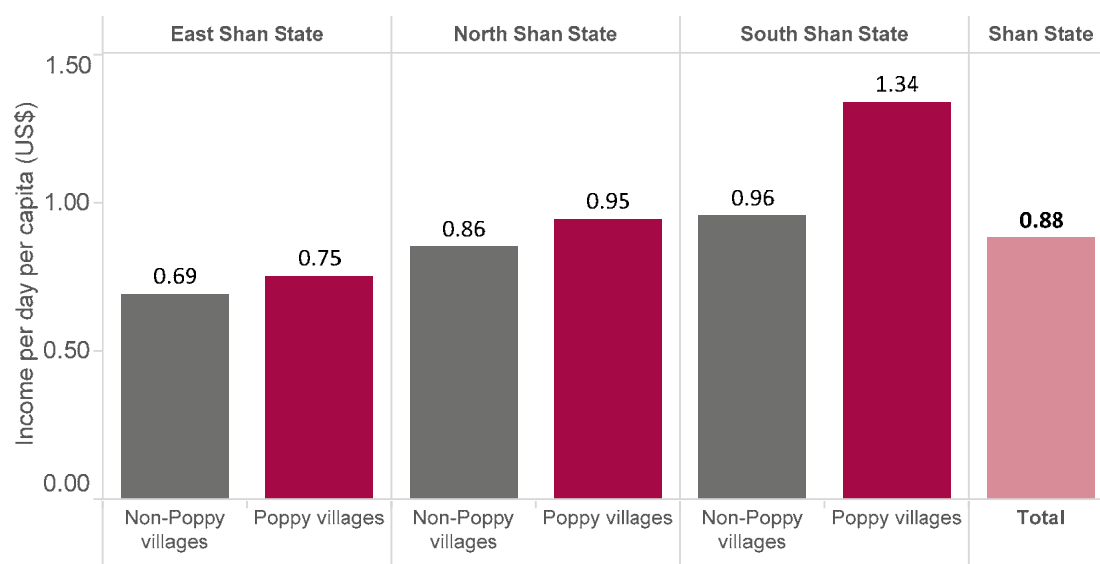
- Other income
- Rental (property or similar)
- Petty trade in market
- Salaried job
- Daily wage - non agriculture
- Daily wage - agriculture
- Sales forest products
- Sales of livestock and by-products
- Sales other cash crops
- Sales Opium Poppy
- Sales of paddy



Selling a forest product (honey) in North Shan, 2016

On a daily basis, a person in a non-opium poppy village earned less than a person in an opium poppy village in 2016. However, a direct comparison of poverty in Myanmar to that in other countries, using the global poverty line of US\$1.25 per day, calculated as purchasing power parity (PPP), is not possible because currently there are no reliable survey-based price estimates to calculate the PPP conversion factors<sup>8</sup>.

**Figure 15: Income per person per day in US\$ (calculated with exchange rate only), total, by region and cultivation status, 2016**





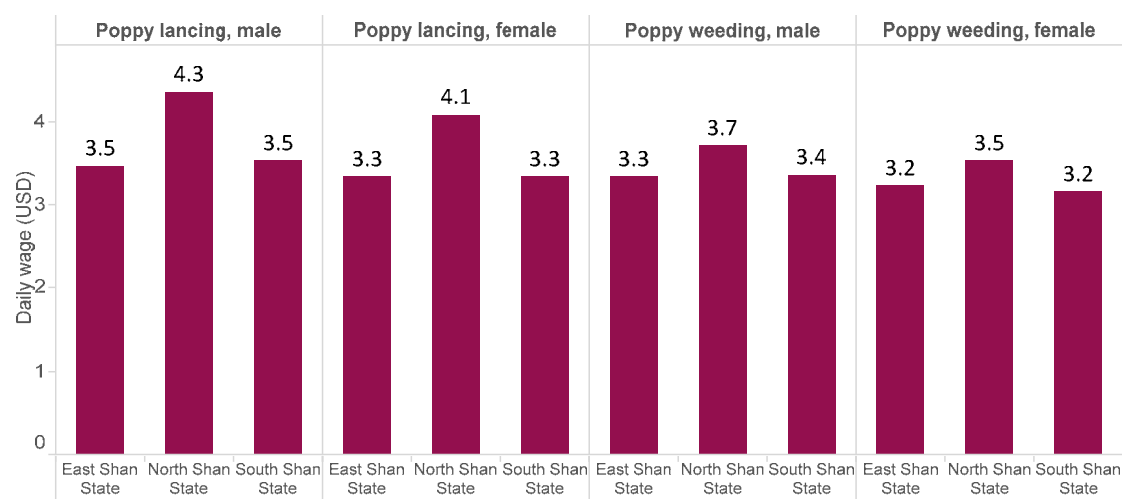
### The daily wages for opium poppy weeding and harvesting decreased by 10 per cent in 2016

There has been a decline of about 10 per cent in the average daily wages paid for opium poppy weeding (for males: US\$3.4; females: US\$3.2) and harvesting/lancing (males: US\$3.6; females: US\$3.4) in Shan State in 2016, in comparison to 2015. Opium poppy lancing requires intensive physical effort and experience, and wages are usually higher for lancing than for weeding.

The female labour force participation rate in Myanmar is among the highest in South-East Asia<sup>18</sup>, but typically, women earn less than their male counterparts. In all the villages in the three regions (East, North and South Shan), female daily labourers (opium poppy and non-opium poppy related; farm and non-farm labour) earned less than their male counterparts in 2016. In the case of opium poppy-related labour and agricultural labour in opium poppy villages, the difference between male and female daily wages was between 3 and 6 per cent; while for farm labour in non-poppy villages as well as for non-agricultural labour, the difference in daily wages was higher, between 13 and 16 per cent.

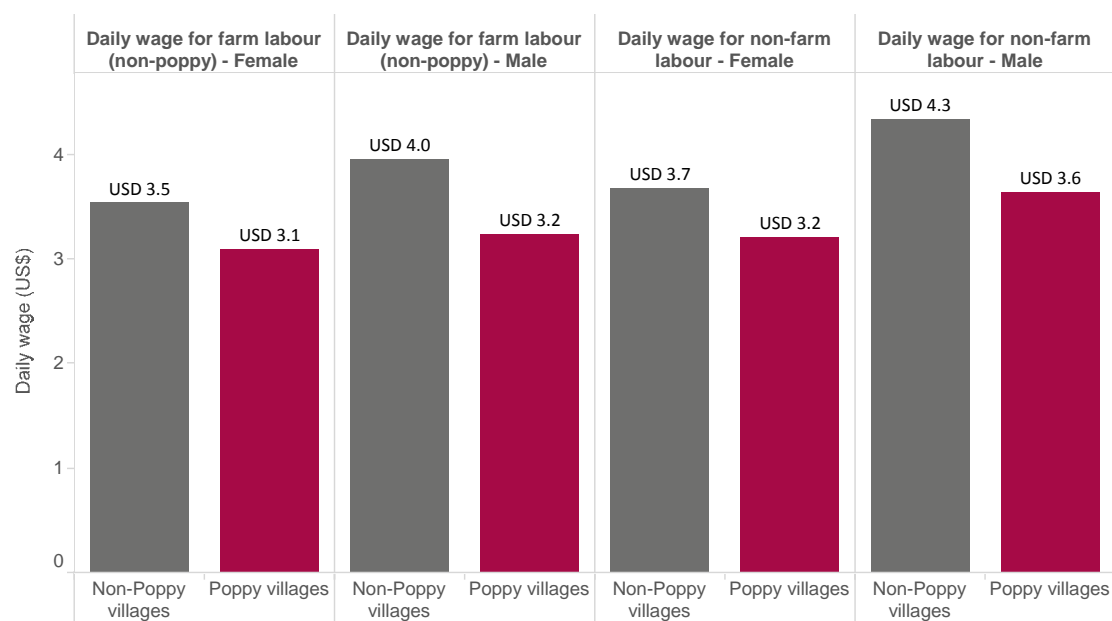
Additionally, daily wages for similar labour for males and females (non-opium poppy-related agricultural and non-agricultural activities) were between 10 and 20 per cent higher in non-opium poppy villages than in opium poppy villages, regardless of region. This may have helped to create better opportunities for households in non-opium poppy villages for generating sufficient income from licit activities. One of the most acute problems in remote areas is the lack of stable and reasonably well remunerated employment opportunities. Casual labour is still an important source of income in rural areas worldwide, and it is the main source of income for a third of the rural population in Myanmar<sup>17</sup>. Adequate availability of off-season employment can help to improve material conditions in Shan State. It can be assumed that poor people would supply more labour to make ends meet if more paid opportunities would be available<sup>18</sup>.

**Figure 16: Daily wages for opium poppy labour, in US\$, by gender and region, 2016**



<sup>18</sup> UNDP. 2013. A regional perspective on poverty in Myanmar.

**Figure 17: Daily wages for non-poppy related labour, as indicated by village headmen, in US\$, by gender, region and cultivation status, Shan State, 2016**



## 2.3 Major causes of opium poppy cultivation: Remoteness and limitations in infrastructure and services

Poverty and opium poppy cultivation are interlinked. In this regard, the UN Guiding Principles on Alternative Development define alternative development as a process to prevent and eliminate illicit crop cultivation through locally designed rural development measures, within a framework of a comprehensive and permanent solution to the drug problem. Therefore, the underlying reasoning is that illicit crop cultivation is less prone to take place in rural communities with high levels of development, as it remains a risky activity. This section seeks to understand the major local challenges for achieving sustainable development outside the illicit crop economy, mainly by comparing the circumstances in opium poppy and non-opium poppy villages in Shan State. This comparative analysis helps to clarify why some communities grow opium poppy while others not only decide to cease growing but are also able to remain poppy free. In this regard, other things being equal, the differences between opium poppy and non-opium poppy communities can be viewed as causes or consequences of illicit crop cultivation.

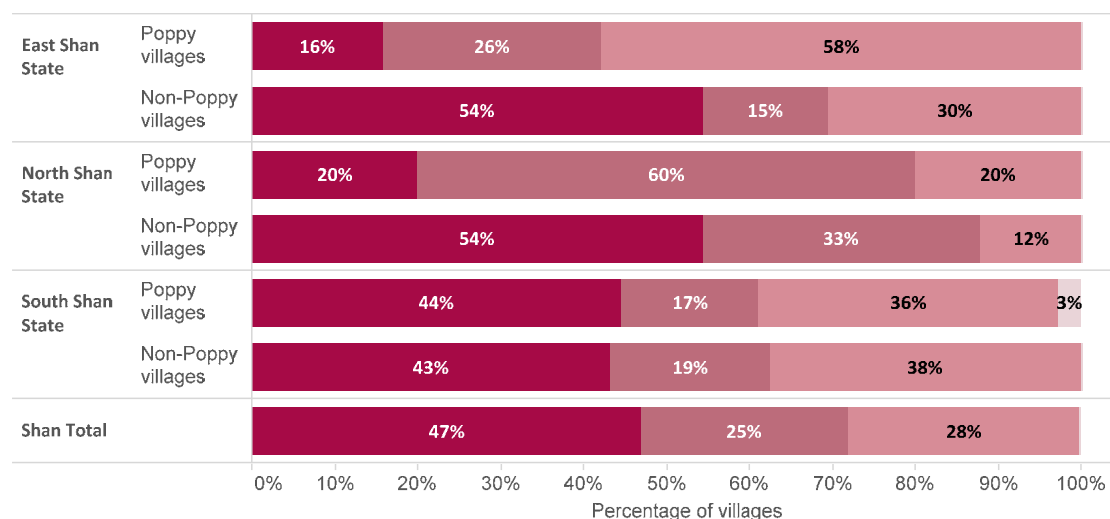
The major differences between these two types of villages were related to infrastructure and services, which are essential to the operation of a society. For example, road networks help to keep transportation costs low, and minimize crop losses. The availability and quality of infrastructure and services in opium poppy villages were lower than non-opium poppy villages, which constitute major obstacles to the integration of opium poppy villages into the mainstream economy while also increasing their cost of living. Future alternative development strategies need to consider reducing such sustainable development gaps, as part of a comprehensive policy that includes, among other factors, the enhancement of the rule of law and carefully planned sequence of law enforcement mechanisms.

### *Availability of roads*

Road density in Myanmar is the lowest in Asia, with 40 km of roads per 1,000 km<sup>2</sup>. This is 50 per cent lower than in the Lao People's Democratic Republic, which has the second-lowest road density in the region. Road conditions are often poor as well. The availability of roads and good

transport services are fundamental for economic development in rural areas, as physical isolation is one of the core features of the poverty trap. On average, about half of the non-opium poppy villages had asphalt roads in their proximity, in contrast to one third of the opium poppy villages. Moreover, a higher percentage (26 per cent) of non-opium poppy villages had in 2016 access to buses inside the village compared to opium poppy villages (15 per cent). South Shan showed a different pattern than the two other regions. In South Shan, the availability of asphalt roads in opium poppy and non-opium poppy villages was similar (43-44 per cent of villages) whereas opium villages in the North and East Shan had significantly less asphalted roads.

**Figure 18: Percentage of villages by main type of roads, as indicated by village headmen, total, by region and cultivation status, 2016**



**Type of roads**

- Other types of road
- Dirt road
- Gravel-surfaced road
- Asphalt road

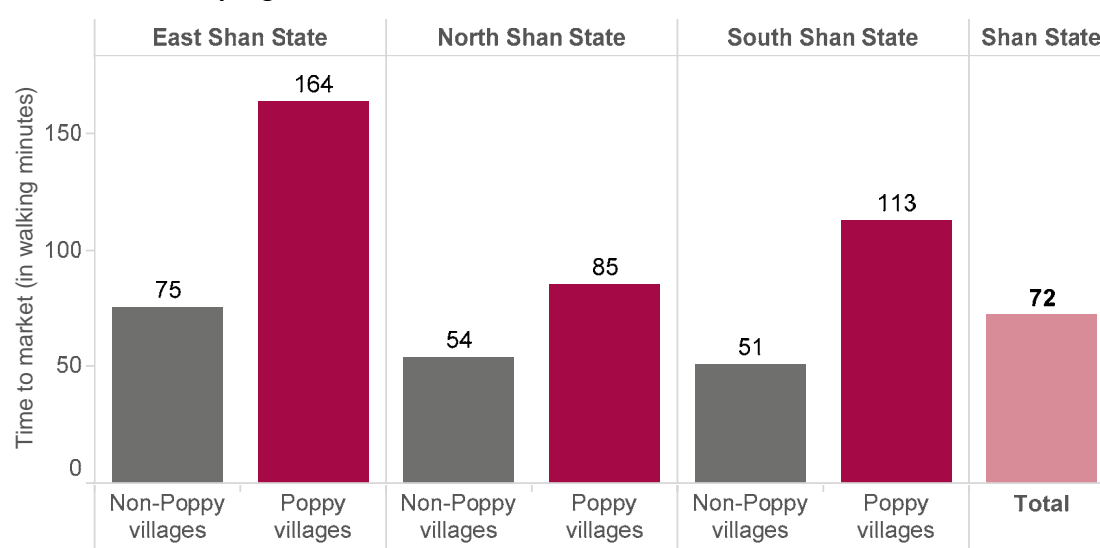


Dirt road in East Shan, 2016

### Access to markets

As the rural population in Myanmar derives most of its income from agriculture<sup>17</sup>, good access to markets – a place where to sell and buy agricultural and other products – is imperative for obtaining sufficient household income. Rural populations worldwide have indicated that one of the reasons they cannot improve their standards of living is that they face difficulties in accessing markets. This restricts farmers' opportunities for income generation, as large distances increase uncertainty and transportation costs, and this means limited sales opportunities, reduced farm-gate profits and increased farm costs. It also exacerbates the problem of post-harvest losses<sup>19</sup>. In Shan State, opium poppy cultivation is associated with access to markets. All the markets for opium poppy villages were located outside the villages (external markets), and took an average of 2 hours and 8 minutes to reach by walking, while 8 per cent of non-opium poppy villages had local markets, with external markets taking 58 minutes to reach on foot in 2016.

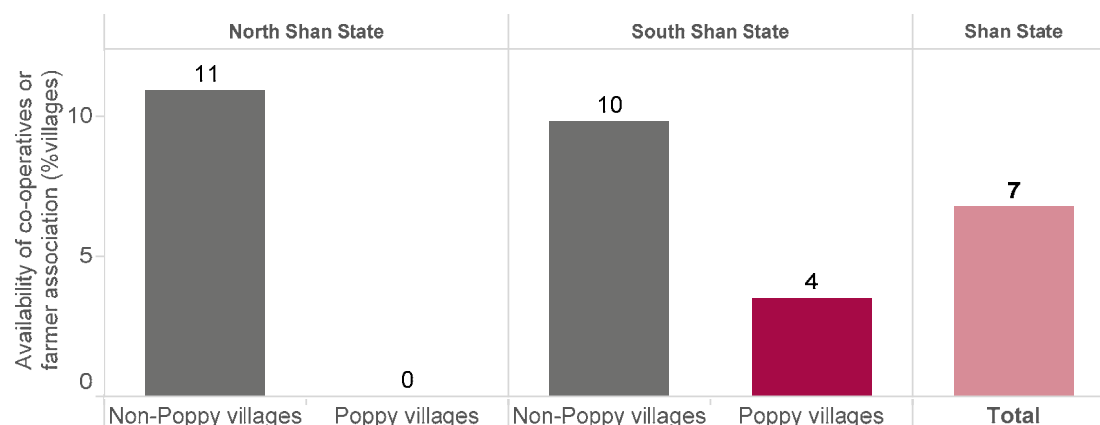
**Figure 19: Walking time to external market (outside the village), as indicated by the village headmen, total, by region and cultivation status, 2016**



Access to markets does not only relate to physical access, but also to the risk of being disempowered because farmers are unable to negotiate fair terms with buyers. Farmer organizations facilitate more direct integration of farmers into value chains and increase their negotiation power. In this regard, the UN Guiding Principles on Alternative Development encourage efforts allowing the promotion and enhancement of farmer associations in illicit crop communities, as the lack of or weak farmer associations has been identified as one of the potential drivers of illicit crop cultivation. Opium poppy villages had fewer formal farmers' organizations, such as co-operatives (2 per cent) than non-opium poppy villages (8 per cent) in 2016.

<sup>19</sup> IFAD. 2003. Promoting market access for the rural poor.

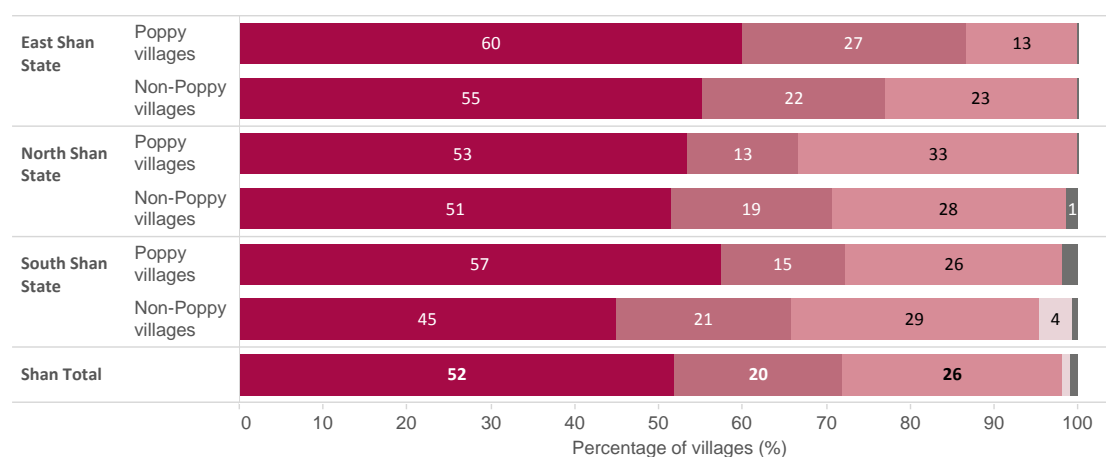
**Figure 20: Percentage of villages with availability of cooperatives inside the villages, as indicated by the village headmen, total, by region and cultivation status, 2016\***



\* Village headmen did not indicate the availability of co-operatives in East Shan.

Building long-term relationships and trust between buyers and sellers also minimizes transaction costs (such as negotiation costs) and assists farmers in reaching fairer sale prices. On average, more non-opium poppy villages sold agricultural products to the same buyer (27 per cent) than opium poppy villages (22 per cent) in 2016, which may denote some degree of trust between buyers and sellers.

**Figure 21: Percentage of villages by main criteria for choosing buyer in the market, as indicated by village headmen, total, by region and cultivation status, 2016**



**Criteria for choosing buyer**

- (Pre-) contract
- Other criteria
- Always same buyer
- Closest buyer
- Best price

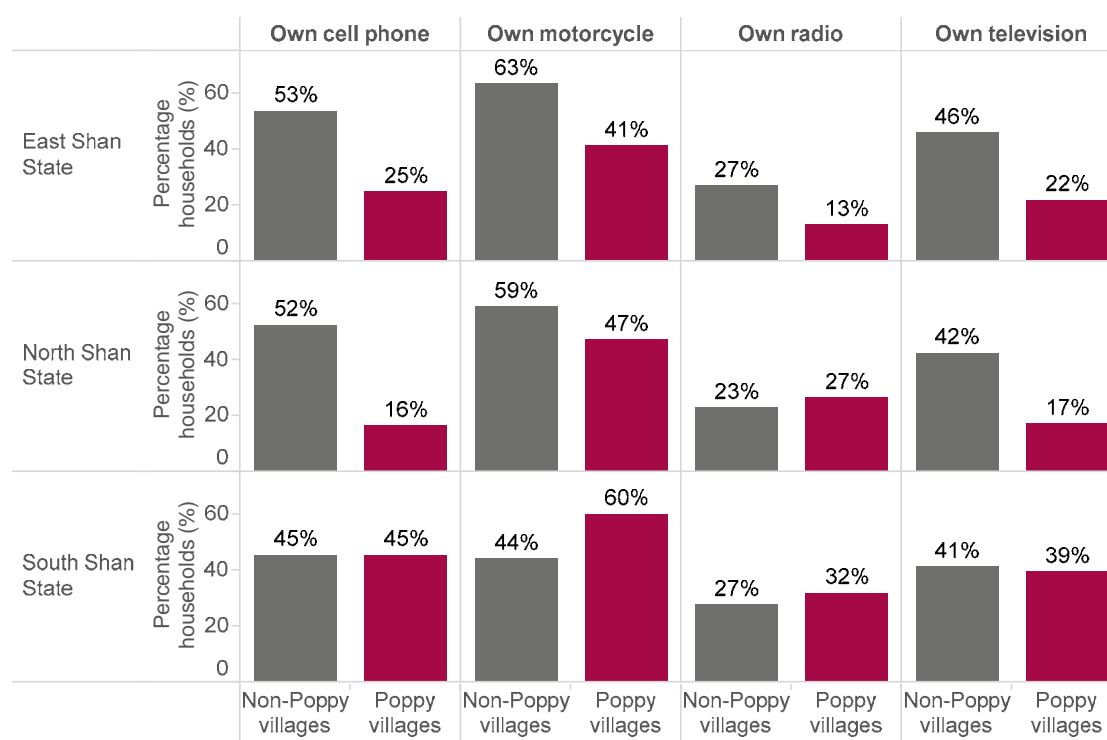


Cash crop transportation to markets in North Shan, 2016

#### *Access to information and communication technology*

In Myanmar, the links between farmers and markets are weak. The majority of farmers are not aware of the crop prices at the nearest market before arriving there to sell their products. Similarly, most farmers are not aware of the latest market opportunities concerning consumer preferences and price competitiveness<sup>9</sup>. The ownership of assets to enable farmers to communicate could facilitate their access to information and potential integration into broader rural economic systems. In Shan State, opium poppy cultivation is associated with low access to technology. More households in non-opium poppy villages owned assets such as mobile phone (+17 per cent), motorcycle (+5 per cent), radio (+2 per cent) or television (+14 per cent) than in opium poppy villages. However, once again, opium poppy villages in South Shan were better off in relation to access to such assets, where up to 60 per cent of households owned motorcycles, in contrast to 44 per cent of households in non-opium poppy villages in the same region.



**Figure 22: Percentage of households owning assets enabling communication and access to information, as indicated by village headmen, by region and cultivation status, 2016**

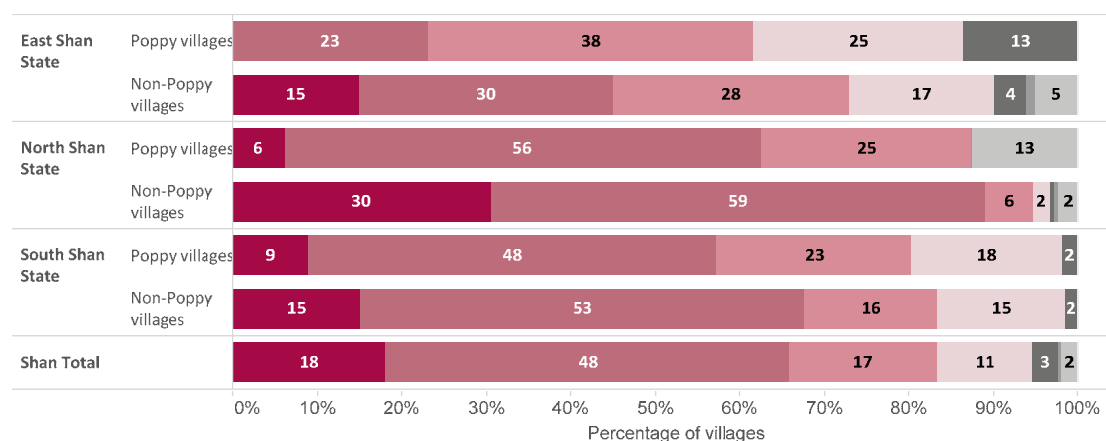
Motorcycles in East Shan, 2016



Television inside a household in East Shan, 2016

*Availability of public electricity*

The availability of continuous electricity, as provided by the public grid, is a prerequisite for development. A lower percentage of opium poppy villages had access to public grid electricity as the main source of energy (5 per cent) compared to the share of non-opium poppy villages with similar access (22 per cent). The situation was particularly critical in East Shan where none of the opium poppy villages had access to public grid energy in 2016. Significant progress has been made in relation to access to solar panel energy, especially in non-opium poppy villages. However, on average about one third of opium poppy villages still relied on candles as the main source for household lighting.

**Figure 23: Percentage of villages by main type of energy for lighting, as indicated by village headmen, total, by region and cultivation status, 2016**

**Energy for lighting**

- Lighting: Gas
- Lighting: Batteries
- Lighting: Generator
- Lighting: Kerosene lamp
- Lighting: Hydroelectric
- Lighting: Candles
- Lighting: Solar panel
- Lighting: Public electricity



Solar panel for lighting in South Shan, 2016



Public grid electricity in South Shan, 2016

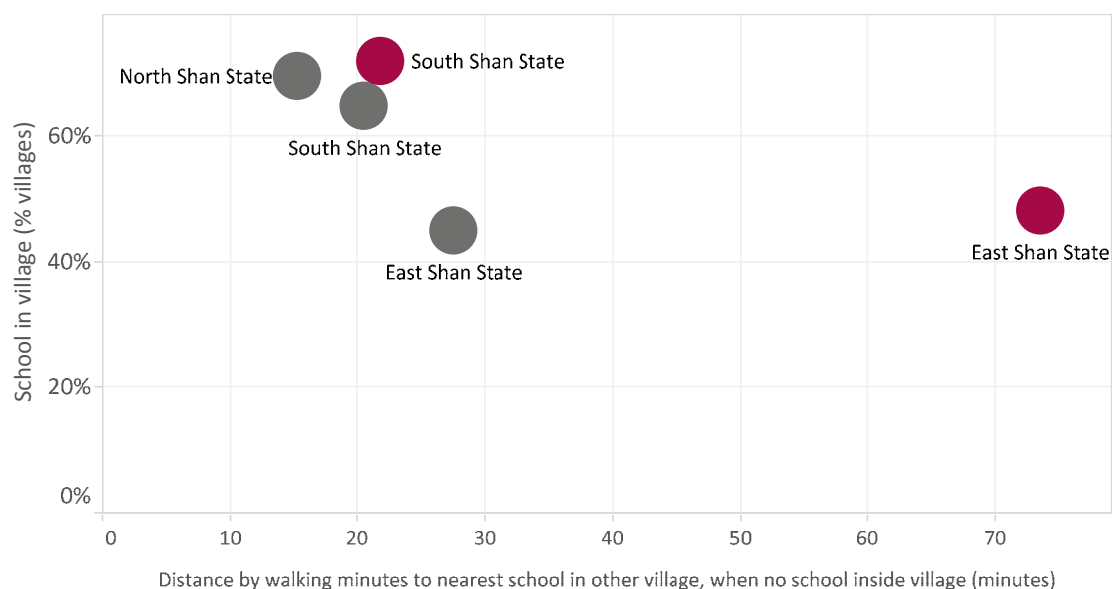
### Availability of educational services

Education is fundamental for development and growth, and also plays a key role in overcoming intergenerational poverty traps<sup>20</sup>. Less educated parents tend to invest less in children's education, and may also be more likely to cut education spending or remove children from school as a coping mechanism in response to economic shocks<sup>17</sup>. In general, access to education in Shan State is limited, and 37 per cent of villages did not have schools within the village in 2016. Generally opium poppy villages without schools are very remote, and it takes more than twice the time (52 minutes) to reach the closest school outside the village on foot in comparison to non-opium poppy villages without schools (21 minutes).

<sup>20</sup> Poverty trap is a self-reinforcing mechanism that makes it difficult to escape poverty and forces people to remain poor.



**Figure 24: Walking time to nearest school outside the village, as indicated by village headmen, by region and cultivation status, 2016\***



#### Availability of clinics

- Poppy villages,
- Non-Poppy village:

\*94 per cent of opium poppy villages in North Shan had access to local schools in 2016, and the remaining 6 per cent without access indicated that the closest schools in other villages were unreachable (these are not shown in the graph).



Inside the classroom of a primary school, South Shan, 2016

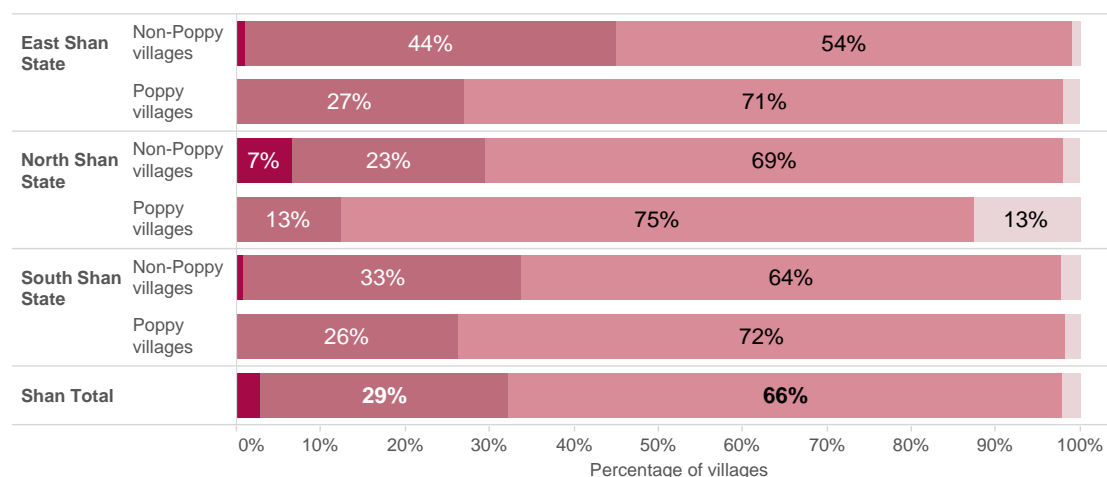
### Availability of clean water and sanitation

In relation to the quality of the available drinking water, on average, 75 per cent of headmen in opium poppy villages did not perceive that their villages had access to good or very good quality drinking water, in contrast to 65 per cent of non-opium poppy village headmen. This situation was worse in North Shan, where 88 per cent of village headmen reported a lack of access to good or very good quality drinking water in 2016.



Communal standpipe in a village in South Shan, 2016

**Figure 25: Percentage of villages by quality of drinking water, as perceived by village headmen, total, by region and cultivation status, 2016**



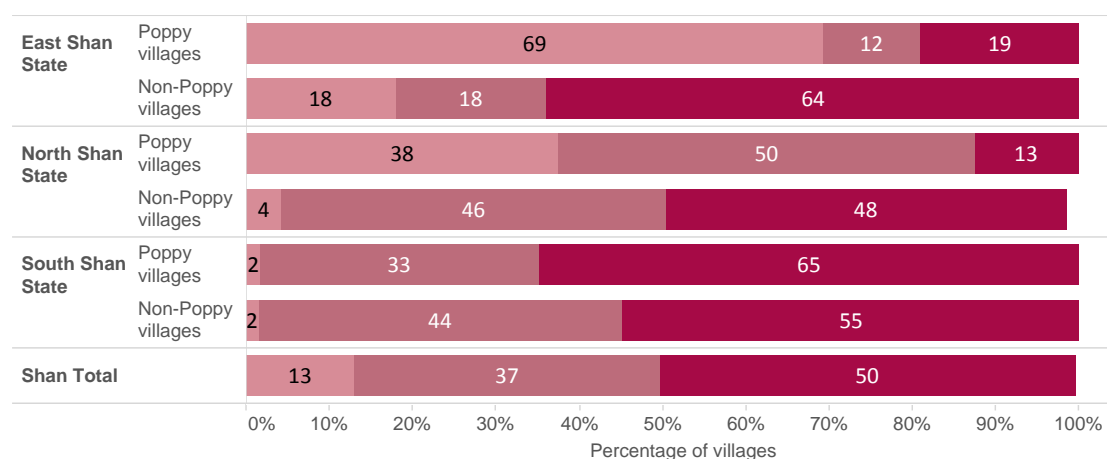
#### Quality of the drinking water

- Bad quality
- Regular quality
- Good quality
- Very good quality

Illness caused by inadequate sanitation can generate significant health costs. Previous studies conducted in Myanmar have suggested that rural households without access to sanitation lost more days to ill health and spent more money on health than households which had toilets<sup>17</sup>. About one third of opium poppy villages did not have access to sanitation services and households

practiced open defecation, in comparison to less than one in ten non-opium poppy villages. However, there were important regional differences, and in South Shan, open defecation was uncommon in both opium poppy and non-opium poppy villages (practiced in only 1-2 per cent of villages). In East Shan, in contrast, open defecation occurred in 69 per cent of opium poppy villages.

**Figure 26: Percentage of villages by main type of sewage, as indicated by village headmen, total, by region and cultivation status, 2016**



Type of sewage  
 Flush toilet  
 Latrine  
 Open air



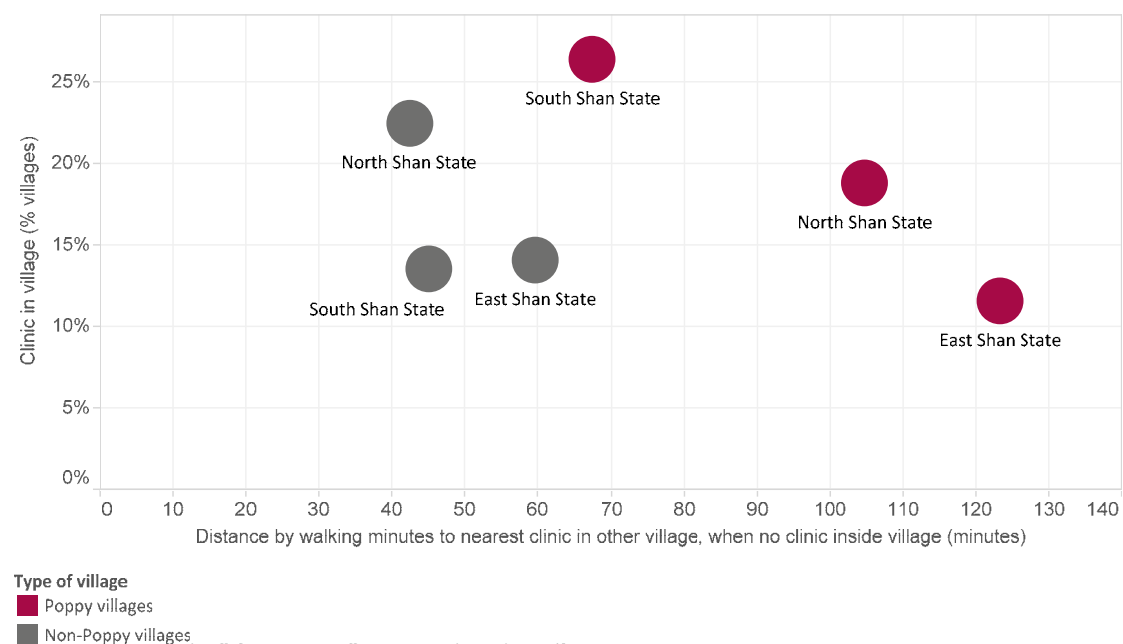
Latrine in East Shan, 2016



### Availability of health services

On average, the shares of non-opium poppy and opium poppy villages with available local health services (“clinics”) were similar but relatively low (19 per cent). There were large regional differences, with the highest percentage of villages with clinics found among the opium poppy villages in South Shan (26 per cent), and the lowest among the opium poppy villages in East Shan (12 per cent). The average time to reach a clinic when not available within the village was more than double for opium poppy villages (1 hour 40 minutes) than non-opium villages (47 minutes) in 2016.

**Figure 27: Percentage of villages with clinics and distance in walking time to closest clinic (if no clinic in village), as indicated by the village headmen, by region and cultivation status, 2016**

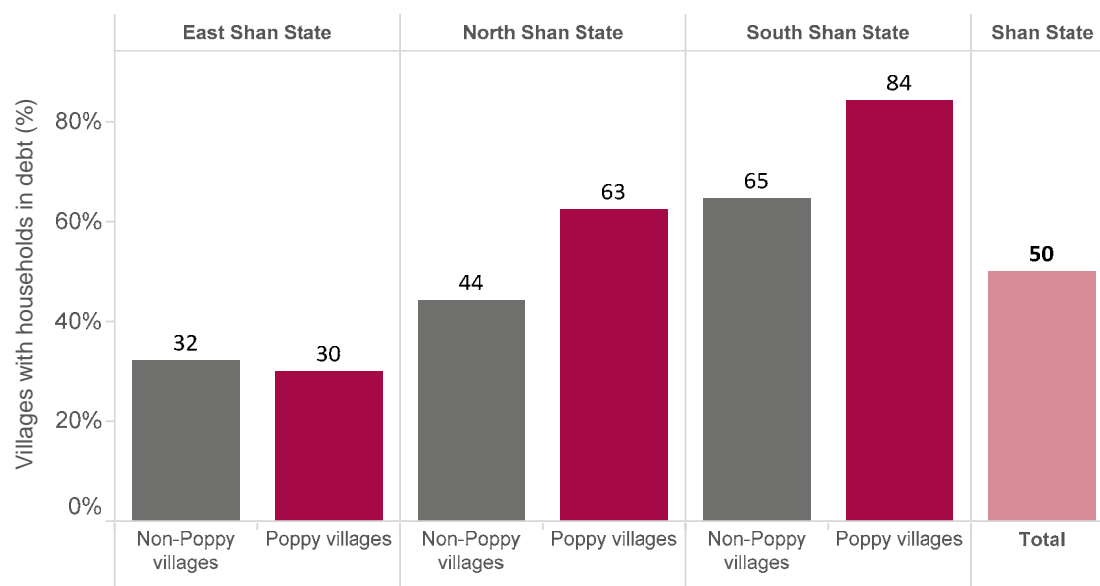


Village clinic in East Shan, 2016

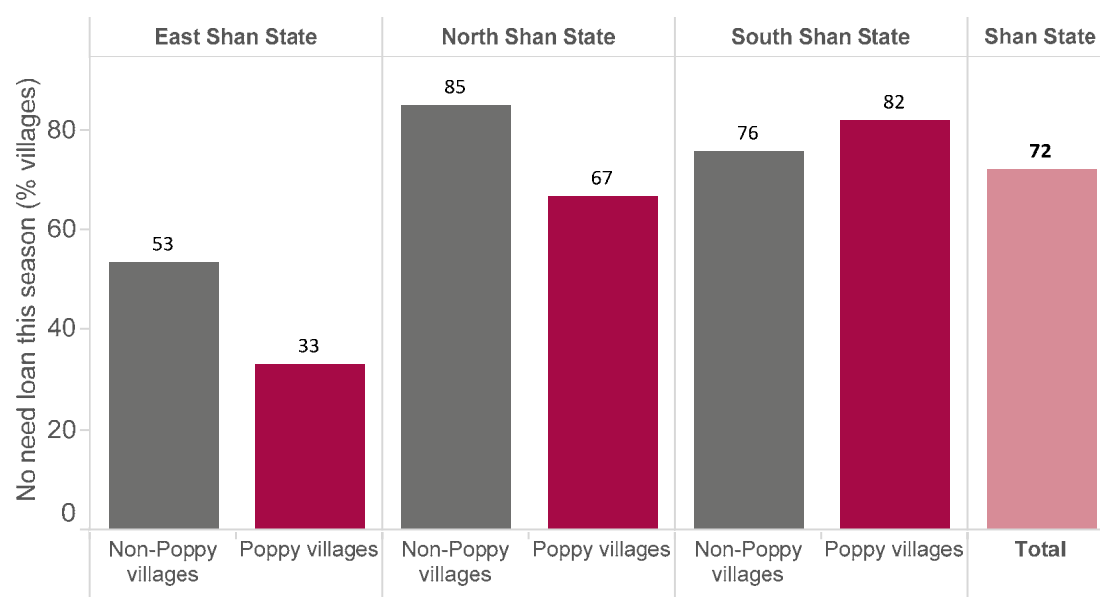
### Access to financial services

A larger share of opium poppy villages (59 per cent) than non-opium poppy villages (48 per cent) had household debt in 2016. However, farmers in opium poppy villages seemed to be less likely or able to obtain loans. The main reasons for not obtaining loans in opium poppy villages were diverse and included failure to pay previous loans, lack of collateral, or the high interest rate (40 per cent of villages), while “no need for credit” was indicated as reason in the remaining 60 per cent of villages. In comparison 24 per cent of non-opium poppy reasons stated similar diverse reasons, and a larger share indicated “no need” as a main reason for not accessing credit (76 per cent).

**Figure 28: Percentage of villages with households in debt, total, by region and cultivation status, 2016**



**Figure 29: Percentage of village headmen who indicated ‘no need’ as the main reason why farmers do not access credit, total, by region and cultivation status, 2016**



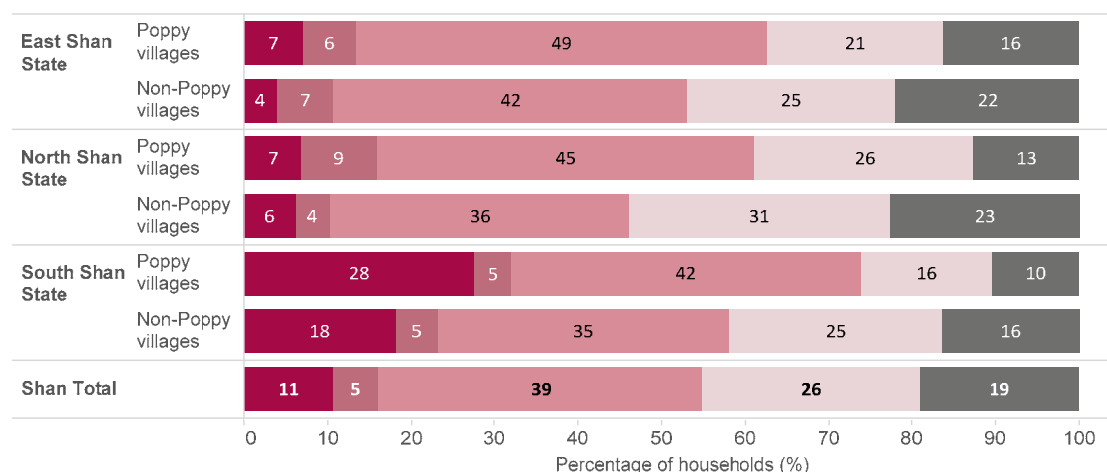
## 2.4. Causes and consequences of opium poppy cultivation: the dual roles of income inequality, food insecurity and weak governance

While the availability of infrastructure and services are mainly determinants of illicit crop cultivation; other factors, such as income inequality, food insecurity and weak governance are both causes and consequences of illicit crop cultivation. Further analyses need to be conducted to clarify their most prominent function, and elaborate alternative development policies that address the underlying causes of opium poppy cultivation in a balanced manner, and minimize the negative effects of illicit crop cultivation in the affected communities in Shan State.

### Income inequality

In Myanmar, the rural poverty rate is around 70 per cent<sup>9</sup>. However, Myanmar's inequality is considered low; a characteristic of traditional or agrarian societies<sup>Error! Bookmark not defined.</sup>. The villages in Shan State where opium poppy is cultivated had higher levels of inequality. A larger share of households in opium poppy villages than in non-opium poppy villages failed to obtain sufficient income to sustain their household in 2016. On average, about half of the households in non-opium poppy villages could accumulate some savings, in comparison to approximately one third of the households in opium poppy villages. This could indicate that a higher percentage of the poorest (households who spend all their income on subsistence without any possibility of accumulating savings) lived in opium poppy villages in 2016. Opium poppy villages in South Shan, which were the most affluent in terms of average income, had the largest comparative share of the poorest households (almost one third), denoting higher levels of inequality than in the other regions. However, it remains unclear whether income inequality provides incentives for illicit crop cultivation, or it is a consequence, or both. Detailed evaluations are needed to elucidate income inequality effects. This is particularly important in countries which have been subject to conflict, as inequality exacerbates violence and impedes stability.

**Figure 30: Percentage of households by income level, as indicated by village headmen, total, by region and cultivation status, 2016**



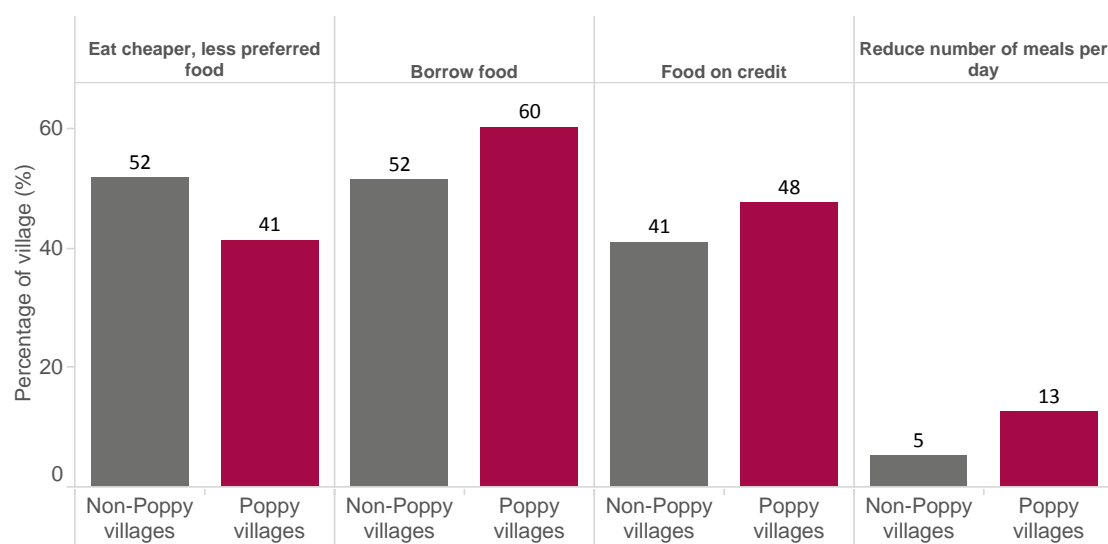
**Sufficient income**

- For building savings
- For saving a little
- For meeting expenses
- Not enough: need to sell assets
- Not enough: need to borrow

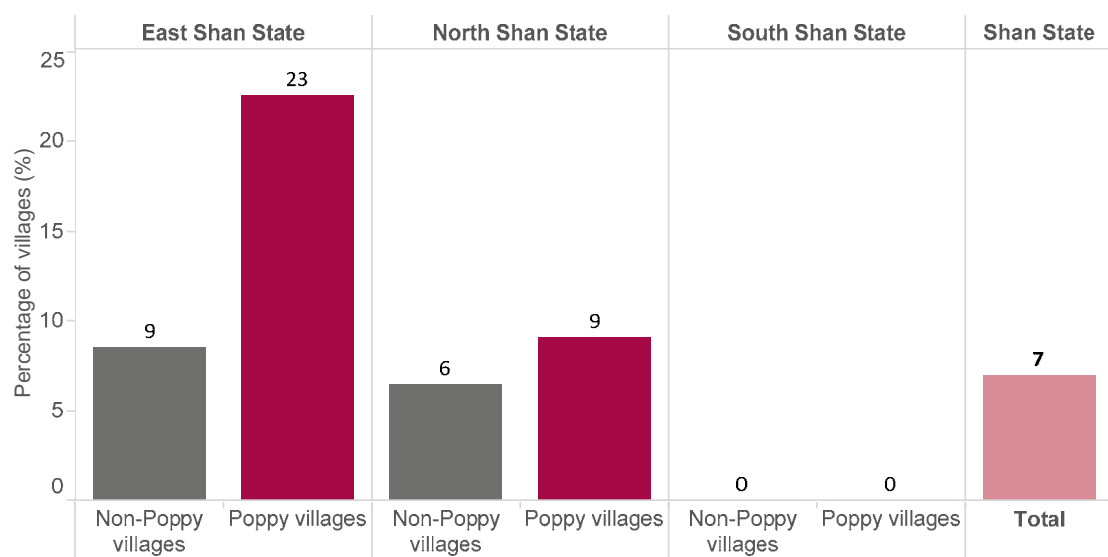
### Food security and coping strategies

One of the top three coping strategies when facing food insecurity in non-opium poppy villages entailed eating less expensive food, while in opium poppy villages, measures were in general more drastic, including reducing the number of daily meals. This may suggest that on average non-opium poppy villages enjoy better food security and living conditions than opium poppy villages, even though incomes were lower in non-opium poppy villages. This is also closely related to the higher levels of income inequality found in opium poppy villages, as indicated before.

**Figure 31: Strategies indicated by the village headmen as one of the three main strategies for coping with food deficiency, by cultivation status, 2016**



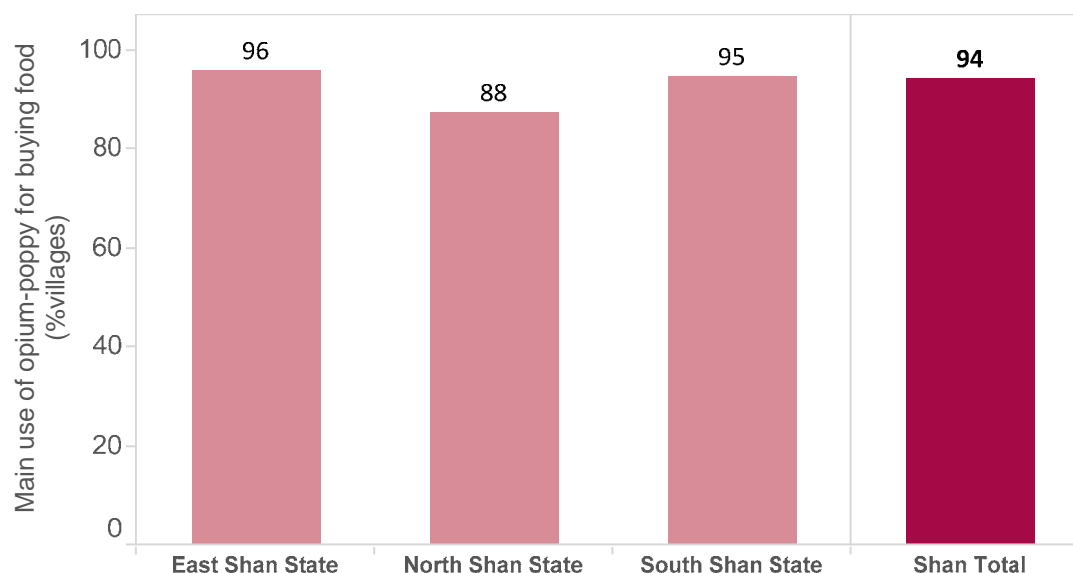
**Figure 32: Percentage of village headmen who indicated reducing the number of meals as one of the three main strategies for coping with food insecurity, by region and cultivation status, 2016**



Buying food was indicated as one of the top three uses of poppy income in 94 per cent of the opium poppy villages. This may imply that opium poppy farmers are not exclusively accumulating capital, but require opium poppy income for basic needs. Detailed analyses are needed to fully understand the role of opium poppy income in how households are coping with food insecurity, including the collection of survey data at farm level. In particular, potential higher farm incomes

from opium poppy may increase local food prices within opium poppy communities. This could leave non poppy growers more prone to food insecurity, which would, in turn, create incentives for them to start cultivating opium poppy. As such, food insecurity may be a cause as well as a consequence of opium poppy cultivation.

**Figure 33: Percentage of village headmen who indicated buying food as one of the three main uses of poppy income, total and by region, 2016**



Furthermore, recent floods have significantly affected the rural population in Myanmar<sup>17</sup>. Rice prices reached record high levels in the country in 2015/2016, reflecting the strong depreciation of the local currency (Kyat). This increased rice exports to China and decreased the availability of the crop in the internal market. Rice is an important staple in Myanmar. Overall, over 90 per cent of the rural population reported consuming rice more than once per day<sup>18</sup>. The sharp increase in the price of rice affected both opium poppy and non-opium poppy villages, although a somewhat higher percentage of opium poppy villages (67 per cent) were affected by high prices than non-opium poppy villages (63 per cent) (see section 2.8 for a graph detailing the type of shocks faced inside the villages). This could suggest that prices may have peaked in the most remote markets where opium poppy villages are mainly located, making opium poppy villages more vulnerable to food insecurity.



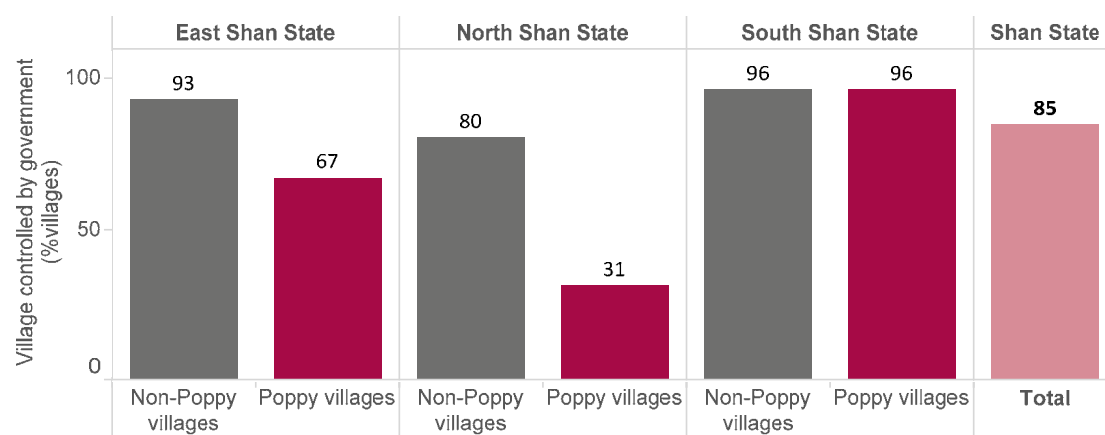
Rice pounding for rice polishing in East Shan, 2016



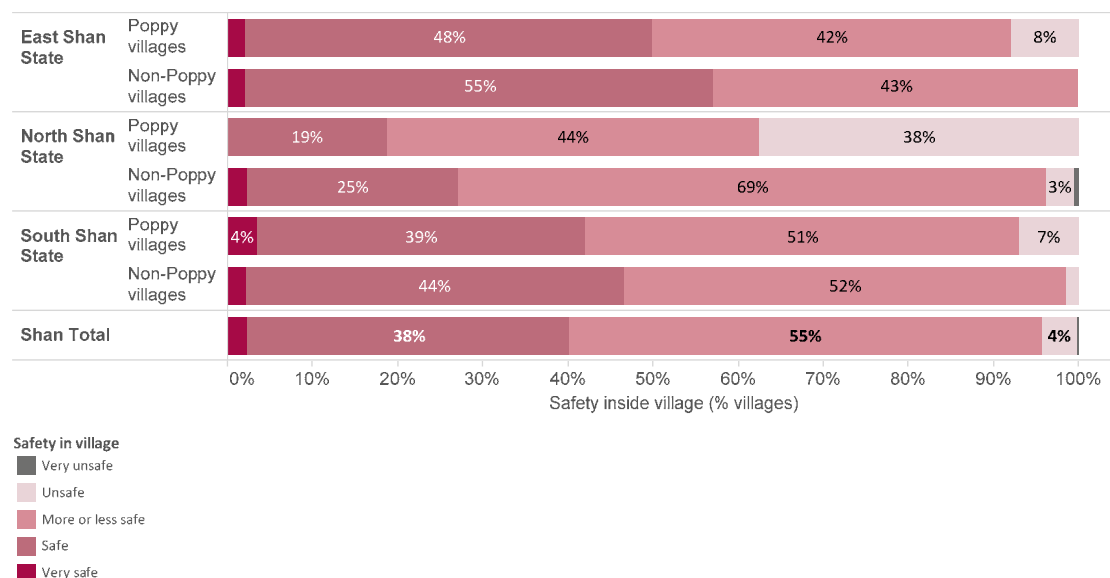
## Governance and security

Peace, justice and effective, accountable and inclusive institutions are at the core of sustainable development. On average, a smaller share of opium poppy villages were under the control of the government (76 per cent) than non-opium poppy villages (88 per cent). The perception of feeling “unsafe” or “very unsafe” inside the village was higher among opium poppy villages (11 per cent) than non-opium poppy villages (2 per cent). Restoring governance and security might help reduce opium poppy cultivation, as it will make it more difficult for drug traffickers to conduct their business with impunity. Nevertheless, as drug traffickers can move their operations with relative ease, this makes villages with weak governance and security structures more prone to be targeted by new or increasing opium poppy cultivation.

**Figure 34: Percentage of villages controlled by the government, as indicated by village headmen, total, by region and cultivation status, 2016**



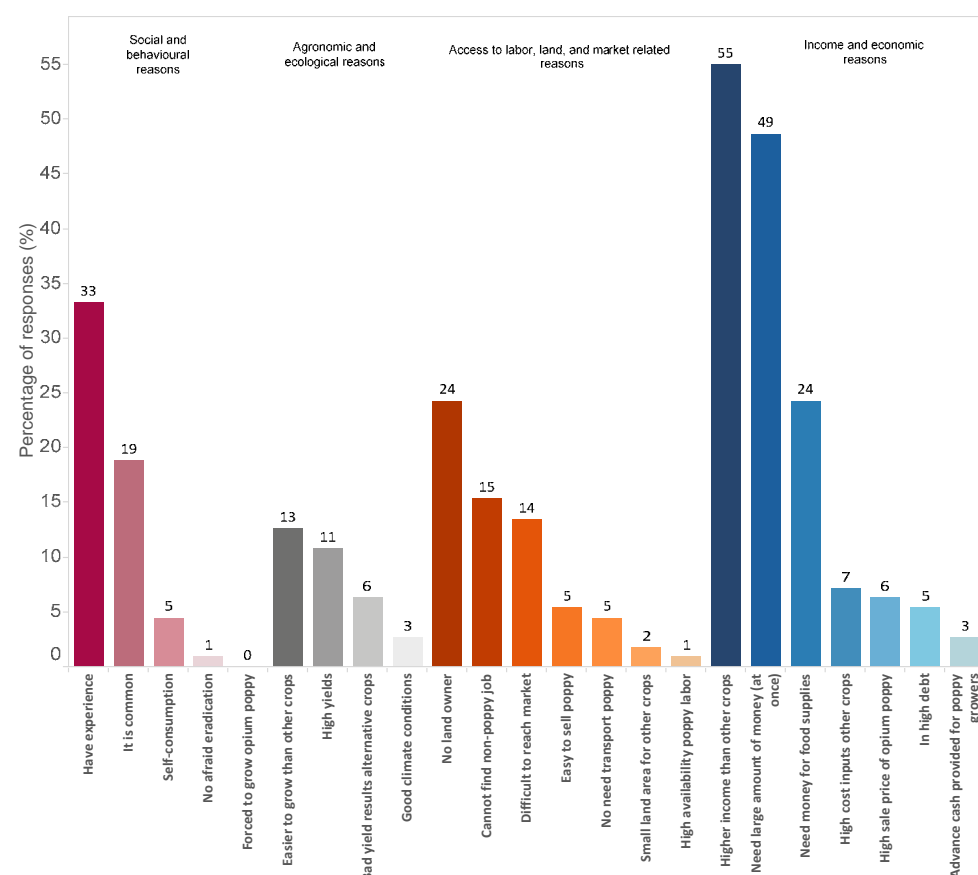
**Figure 35: Percentage of villages by degree of safety inside villages, as perceived by the village headmen, total, by region and cultivation status, 2016**



## 2.5. Village headmen's perceived reasons for why farmers decide to grow opium poppy in Shan State

Village headmen were requested to indicate the top three reasons why farmers cultivate opium poppy<sup>21</sup>. Their perceptions can be considered as expert opinions of the situation at the local level. The responses were consistent regardless of the location: obtaining higher income from opium poppy than other crops was perceived as the major motivation for cultivating opium poppy (55 per cent of the responses), followed by being able to obtain a large amount of cash at once (49 per cent). Having experience with opium poppy cultivation was indicated as a main reason by one third of the headmen, which can denote a degree of risk aversion by the opium poppy farmers in changing to non-poppy activities. About one quarter of the opium poppy village headmen indicated that lack of legal land ownership - which is, in turn, associated with a lack of interest in long-term investments in land productivity - was one of the top three reasons why farmers cultivate opium poppy. Formalising individual land rights may lead to increased investment, credit and efficiency<sup>22</sup>, and as such it is an integral part of the UN Guiding Principles on Alternative Development. This type of alternative development strategy has been implemented in Peru and Colombia, and could be contemplated for Shan State as well. Agronomic and ecological reasons for growing opium poppy were of minor importance, implying that there is no comparative advantage in relation to other crops.

**Figure 36: Top three reasons for cultivating opium poppy, as stated by the village headmen, Shan State**



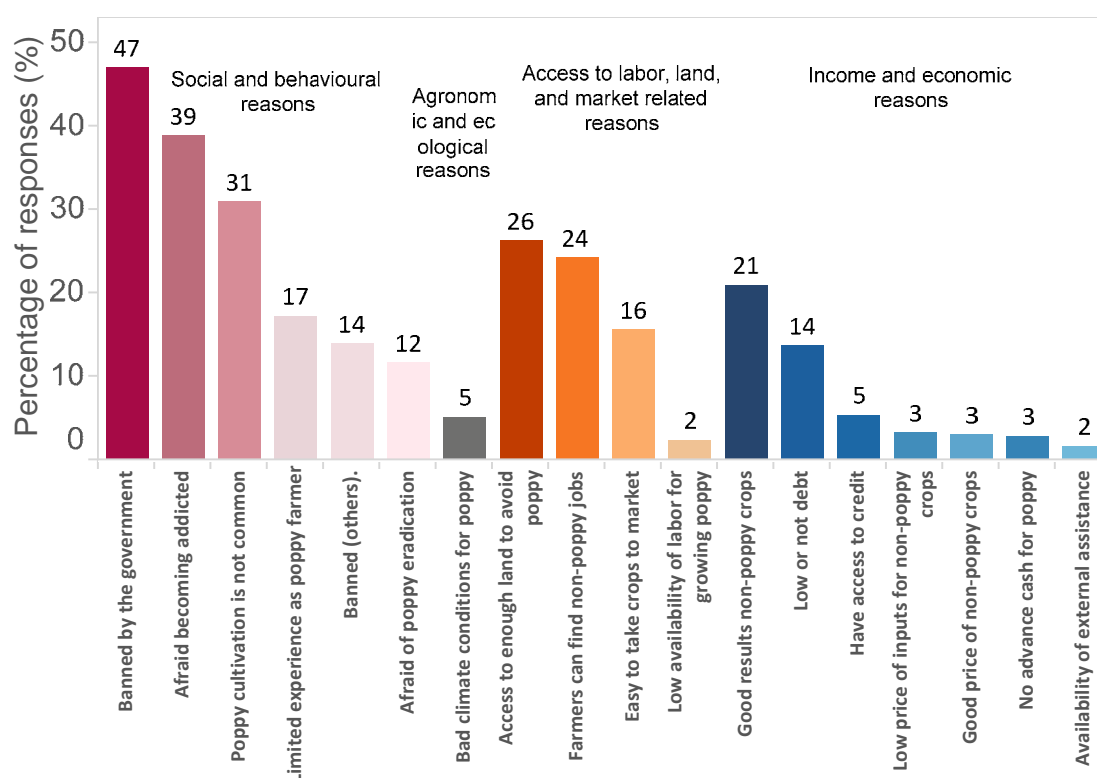
<sup>21</sup> Only village headmen in opium poppy village were requested to indicate the reasons why farmers cultivate opium poppy, as other village headmen may not be fully aware of potential farmers' motivations.

<sup>22</sup> ODI. 2013.

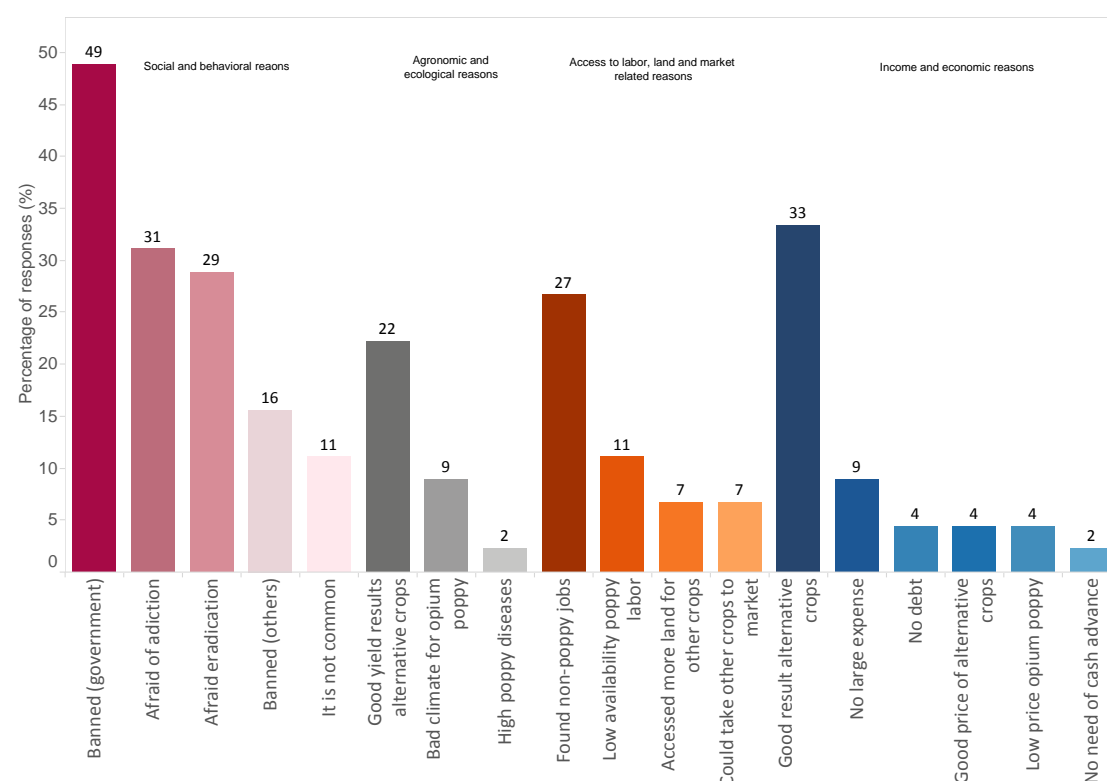
## 2.6 Village headmen's perceived reasons for why farmers have never grown opium poppy or why they stop cultivation

About half of the headmen in villages where farmers have never grown opium poppy indicated that the major motivations for the absence of opium poppy cultivation were related to the governmental ban. Other important reasons that restrained farmers from cultivating opium poppy was the fear that they or one of their family members could become addicted to opiates (39 per cent of village headmen). In general, for about a quarter of the headmen, the villages where opium poppy cultivation has never taken place provide better conditions for making a living outside the illicit economy, such as access to enough land (26 per cent of village headmen), access to non-poppy jobs (24 per cent), and sufficient revenues from non-opium poppy crops (21 percent).

**Figure 37: Top three reasons for having never grown opium poppy, as stated by the village headmen, Shan State**

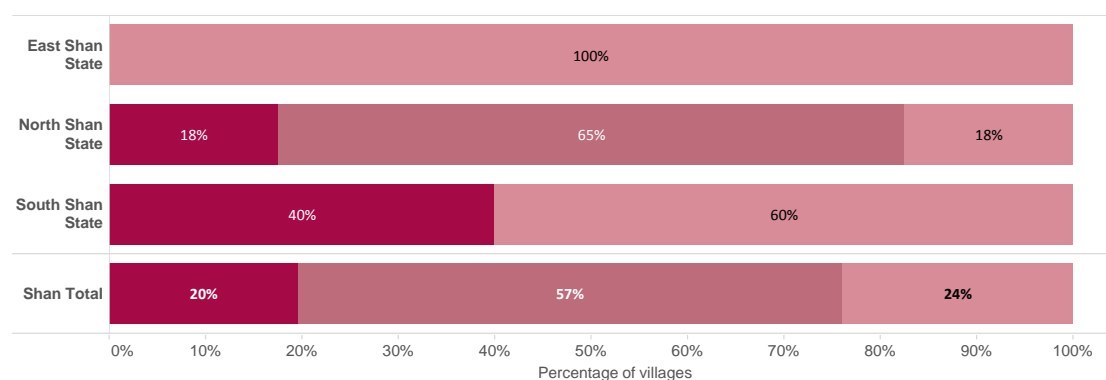


According to the village headmen, one in ten villages that did not cultivate opium poppy in 2016 did so in the past. In these types of villages, the presence of the rule of law and law enforcement were conducive to decreases in opium poppy cultivation. As such, being banned by the government was indicated as one of the top three reasons for stopping opium poppy cultivation in almost half of the villages that did so, while fear of eradication was cited as a key reason in almost one third of the villages. Good economic and yield results with alternative crops were indicated as main reasons for stopping opium poppy cultivation by one third and almost one quarter of the village headmen, respectively. Conversely to reasons for stopping opium poppy cultivation, such as lack of opium poppy labor (stated by one in ten of the village headmen), good results with alternative crops suggest that there might be sustainable motivations for completely ceasing illicit crop growing over time in Shan State.

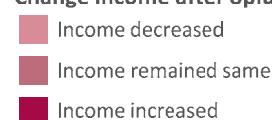
**Figure 38: Top three reasons for stopping opium poppy cultivation, as stated by the village headmen, Shan State**

## 2.7 Alternatives to opium poppy income after stopping cultivation

On average, after stopping opium poppy cultivation, the income of the previous opium poppy households remained the same in more than half of the villages. Nevertheless, there were differences among regions, and the village headmen in East Shan indicated a decrease in income after stopping poppy cultivation. This result was related to the reasons for stopping opium poppy cultivation. In North and South Shan, the reasons focused primarily on finding alternative sources of income, denoting a purposive decision to stop this activity. In East Shan, however, the main reason indicated by the respondents was lack of labour to sustain opium poppy cultivation.

**Figure 39: Percentage of villages by change in household income after stopping opium poppy cultivation, as perceived by village headmen, total and by region, 2016**

### Change income after opium



In general, the three main activities that households performed to replace opium poppy cultivation were cultivating licit crops, earning daily wages, and raising livestock (any combination of the three). Alternative activities such as petty trade, relying on remittances or rental of land or equipment were only indicated as a replacement in North Shan, while a small share of households opened small businesses in South Shan (7 per cent).

Previous opium poppy growers in South Shan had the highest percentage of villages indicating an increase in household income after stopping opium poppy cultivation. This is probably due to the opportunities to invest in sufficiently profitable small businesses there. Households in this region have higher average incomes and therefore more purchasing power compared to households in East and North Shan. Nevertheless, it may not be feasible to promote small business as a general substitute for opium poppy as (retail) businesses require a certain volume of clients to become profitable, which might be unrealistic in rural areas. The promotion of new retail businesses in regions without enough purchasing power could reduce the margins of existing businesses, and reinforce poverty.



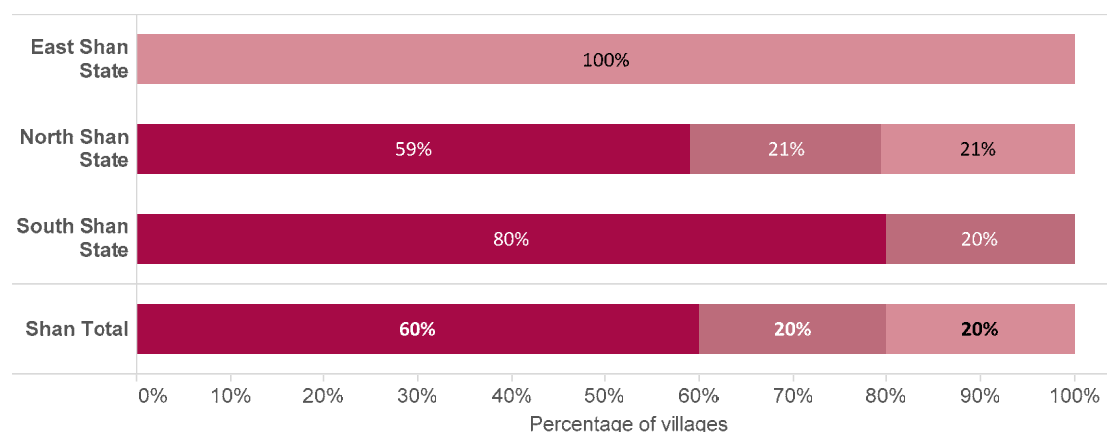
Livestock breeding in South Shan, 2016



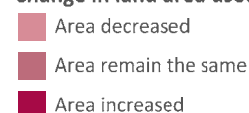
Thriving markets in South Shan, 2016

In 60 per cent of the villages in which farmers stopped opium poppy cultivation, alternative crops were cultivated on larger plots than those used for opium poppy. This may be indicative of a higher pressure on land resources. A clear exception was East Shan, where there was a decrease in cultivated areas after the cessation of opium poppy growing. In the case of East Shan, as indicated before, farmers stopped opium poppy cultivation due to the lack of opium poppy labour. Therefore, these farmers probably also lacked the resources needed for cultivating licit crops.

**Figure 40: Percentage of villages by change in land area used for licit crops after stopping opium poppy cultivation, as perceived by village headmen, total and by region, 2016**



Change in land area used for licit crops after opium



Slash and burn for extending cultivation areas in North Shan, 2016

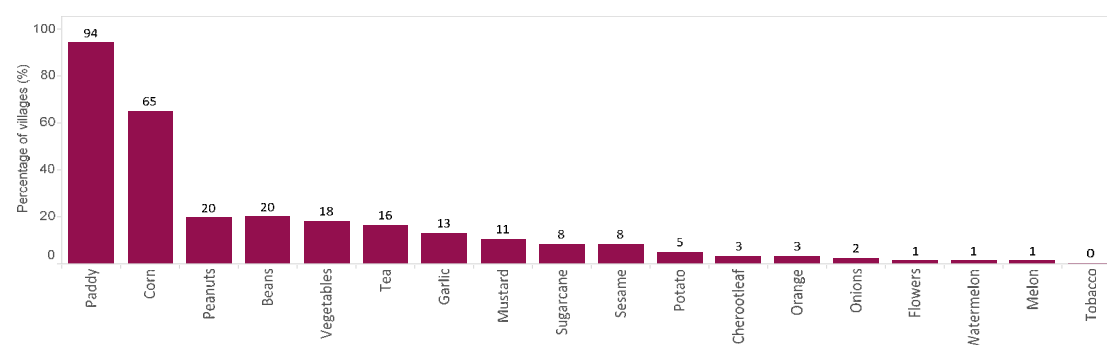
Livelihood diversity has been strongly linked to higher economic status, lower poverty rates, and higher levels of social capital<sup>17</sup>. Diversification of livelihoods has long been promoted as a key element of increasing resilience to opium poppy cultivation and reducing vulnerability to poverty in rural households. In addition, increases in rural incomes cannot be substantial if farmers exclusively focus on a couple of mainly subsistence food crops (rice/paddy and corn). On the one



hand, additional high value crops need to be identified and promoted, connections with markets need to be established, and beneficial trade conditions for farmers need to be obtained. On the other, production costs of currently commercialized cash crops may need to be lowered, whenever possible.

In the particular case of rice (paddy), the major cash crop in Myanmar, there were differences in the contribution of different activities to the total production costs for opium poppy cultivating and non-cultivating villages in 2016. For example, farmers in opium poppy villages in East Shan spent proportionally more on buying rice seeds than farmers in non-opium poppy villages, and less on rice harvesting. A further study at farm level would be needed to identify the specific reasons for these differences.

**Figure 41: Percentage of villages by type of cash crops cultivated, as indicated by village headmen, Shan State, 2016**

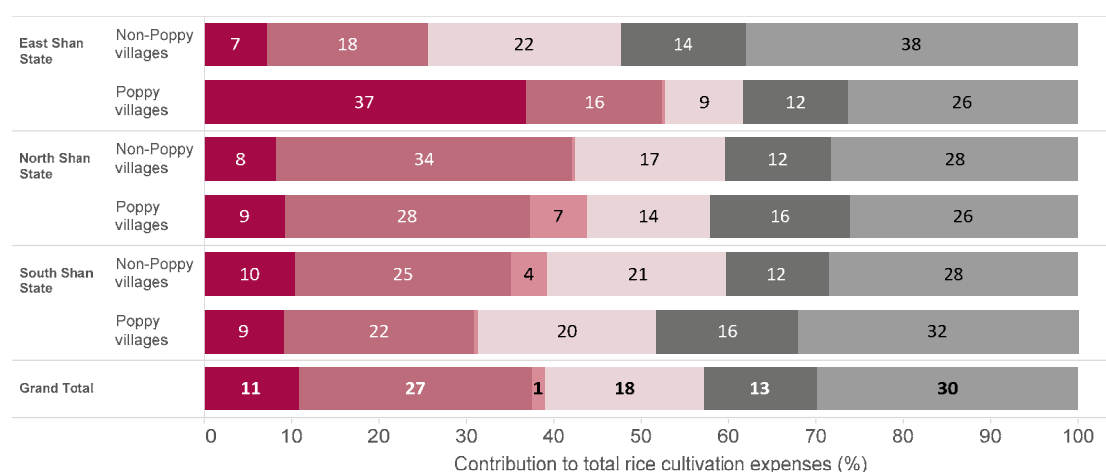


Corn fields in North Shan, 2016



Pre-processing sugarcane in South Shan, 2016

**Figure 42: Contribution to the total rice cultivation expenses by activity, as indicated by village headmen, total, by region and cultivation status, 2016**



#### Rice cultivation expenses

- Cost of rice harvesting
- Cost or rice weeding
- Cost of rice ploughing
- Cost of rice irrigation
- Cost of rice fertilizer
- Cost of rice seeds



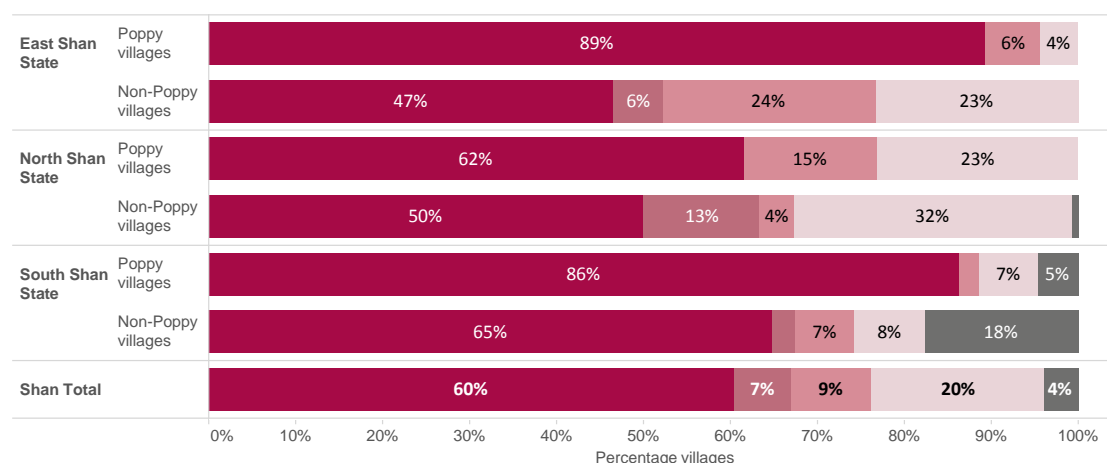


Monsoon paddy cultivation in South Shan, 2016

## 2.8 Dependency and conservation status of forest resources and implications of climate change in opium poppy and non-poppy villages

Sustainable growth and development require minimizing the use of natural resources throughout the production and consumption processes. Despite clear linkages between poverty reduction and natural resource management, knowledge and skills relating to the latter are still lacking in rural Myanmar<sup>17</sup>. Opium poppy communities were more dependent on forest resources - for example, wood for cooking - compared to non-opium poppy communities. On average, 85 per cent of opium-poppy village headmen indicated that households in their villages “always” collected wood for cooking, whereas 53 per cent of non-opium poppy villages did so in 2016.

**Figure 43: Percentage of villages by frequency of collection of wood for cooking, as indicated by village headmen, total, by region and cultivation status, 2016**



Collect wood for cooking

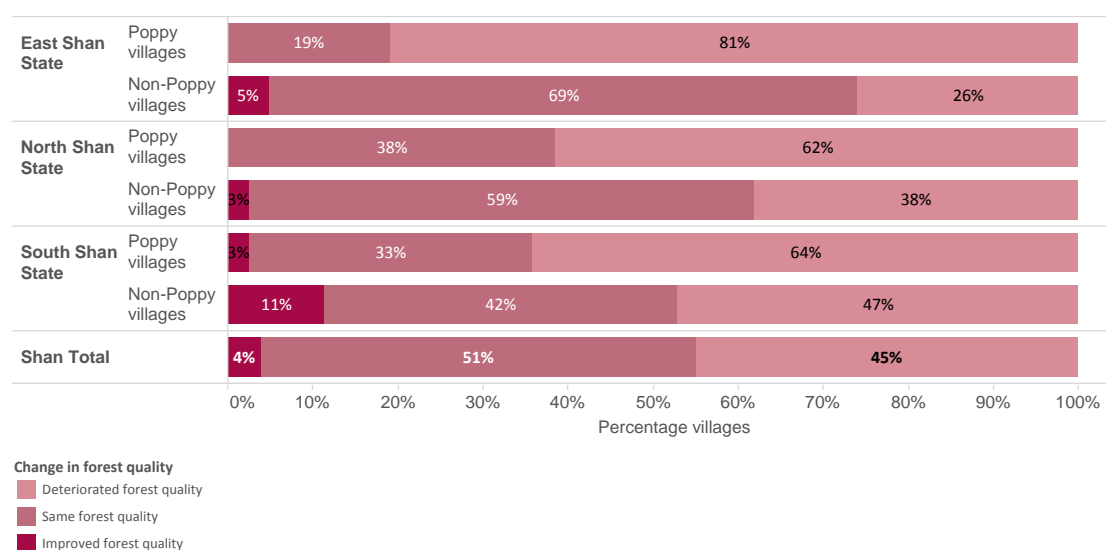
- Never
- Seldom
- Sometimes
- Often
- Always



Firewood collection for cooking in North Shan, 2016

Forest resources were deteriorating more rapidly in opium poppy villages than in non-opium poppy villages. On average, 77 per cent of the opium poppy villages indicated that forest resources had deteriorated over the last two years, in comparison to 53 per cent of non-opium poppy villages in 2016. This may be related to the more intensive use of forest resources in opium poppy villages, and attest to the need for developing forest management plans and working with opium poppy communities in identifying the reasons for the higher level of forest deterioration and to preserve their common resources.

**Figure 44: Percentage of villages by change in forest quality over the last two years as perceived by the village headmen, total, by region and cultivation status, 2016**

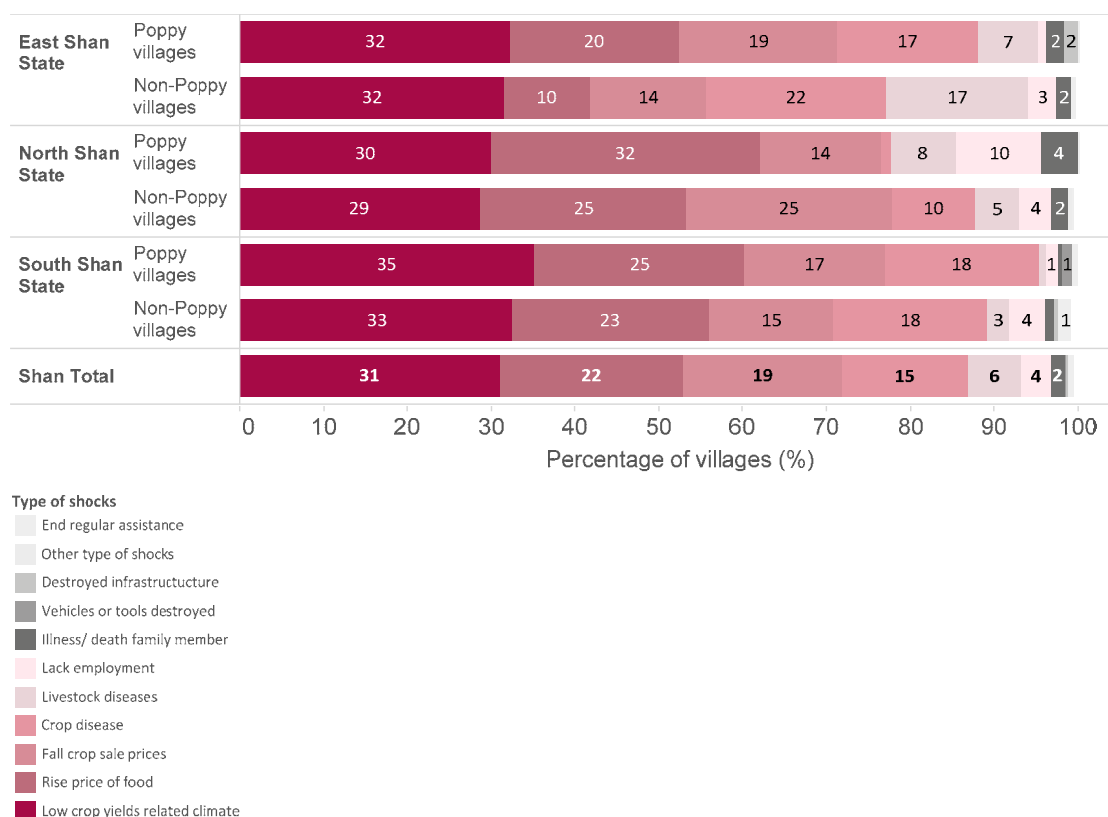




Forest surrounding a village in East Shan, 2016

Climate change presents one of the biggest threats to development, and its widespread impacts disproportionately burden the poorest and most vulnerable<sup>18</sup>. Poverty is typically shallow in Myanmar, meaning that most of the households are conglomerated just above and below the poverty line. Small improvements can thus bring a large number of people out of poverty, but conversely, even small shocks (meaning sudden events with economic consequences) can bring many people into poverty<sup>18</sup>. The most important shocks were environment-related, and were mainly associated with increases in the price of food due to the flood in 2015-2016, and low crop yields attributed to adverse weather conditions in 2016. In addition to forest management plans, broad climate action plans for Shan State could help to alleviate the risk of and mitigate the impact of such shocks in the future.

**Figure 45: Percentage of villages by type of shocks faced, as indicated by village headmen, total, by region and cultivation status, 2016**





### 3. Government-reported opium poppy eradication and seizures

The Government of the Republic of the Union of Myanmar (GOUM) provided data on the eradication of opium poppy and seizures of opium. According to this data, 7,561 hectares of opium poppy were eradicated during the 2015/2016 season, which is a decrease of 44 per cent from the 2014/2015 figure. As in previous years, most eradication took place in South Shan (65 per cent). This year, areas in conflict were mostly avoided (compare Maps 2 and 3). UNODC did not monitor or validate the results of the eradication campaign or seizures carried out by GOUM.

**Table 1: Eradication of opium poppy by the Government of the Union of Myanmar from 2007 to 2016, by state, Myanmar (hectares)**

Region/ State	2006- 2007	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016
East Shan	1,101	1,249	702	868	1,230	1,257	537	356	378	482
North Shan	916	932	546	1,309	1,315	977	532	337	532	69
South Shan	1,316	1,748	1,466	3,138	3,579	21,157	10,869	13,696	10,715	4,947
<b>Shan state Total</b>	<b>3,333</b>	<b>3,929</b>	<b>2,714</b>	<b>5,315</b>	<b>6,124</b>	<b>23,391</b>	<b>11,939</b>	<b>14,389</b>	<b>11,625</b>	<b>5,498</b>
Kachin	189	790	1,350	2,936	847	83	250	395	1,495	1,504
Kayah	12	12	14	13	38	84	59	67	54	16
Magway	45		1	1		4	7	60	8	9
Chin	10	86	5	2	10	110	32	277	267	534
Mandalay		3	2		39	45				
Sagaing	9		1				2	1		
Other states	64									
<b>National total</b>	<b>3,662</b>	<b>4,820</b>	<b>4,087</b>	<b>8,267</b>	<b>7,058</b>	<b>23,718</b>	<b>12,288</b>	<b>15,188</b>	<b>13,450</b>	<b>7,561</b>

Source: GOUM/CCDAC.

**Table 2: Seizures of drugs (opiates) from 1988 to 2016 (kilograms)**

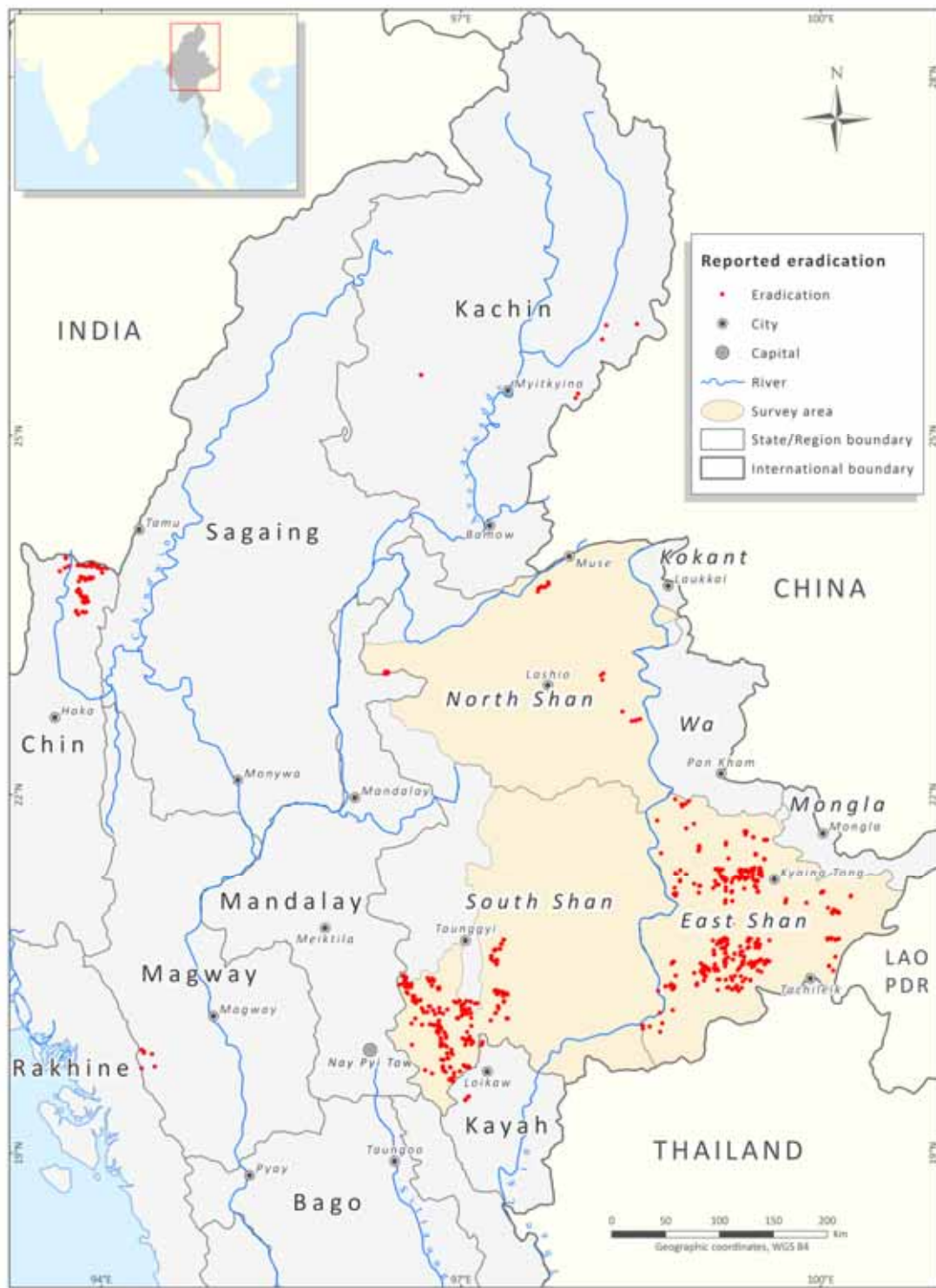
Year	Raw Opium	Heroin	Brown opium	Liquid opium	Low-grade opium
<b>1988-1997</b>	22,992.26	3,721.51	185.73	117.57	305.79
<b>1998</b>	5,393.63	403.80	95.87	206.07	312.25
<b>1999</b>	1,473.03	245.35	24.10	332.50	314.35
<b>2000</b>	1,528.39	158.92	22.70	16.09	245.26
<b>2001</b>	1,629.07	96.74	6.52	18.68	141.70
<b>2002</b>	1,863.28	333.89	314.40	18.25	125.95
<b>2003</b>	1,481.70	568.08	156.25	51.74	203.87
<b>2004</b>	606.89	973.52	58.90	39.12	395.75
<b>2005</b>	772.72	811.69	43.77	20.55	127.74
<b>2006</b>	2,320.90	92.33	1,370.84	28.96	6,153.56
<b>2007</b>	1,273.97	68.38	1,120.97	56.36	10,972.20
<b>2008</b>	1,463.39	88.13	206.08	80.14	2,452.79
<b>2009</b>	752.04	1,076.13	325.70	27.48	465.43
<b>2010</b>	764.78	88.54	98.20	35.47	147.07

<b>2011</b>	828.27	42.44	36.88	60.04	281.65
<b>2012</b>	1,470.35	335.79	45.76	29.32	80.79
<b>2013</b>	2,356.98	238.93	71.55	115.25	65.98
<b>2014</b>	1,828.41	435.46	1,108.76	102.11	134.10
<b>2015</b>	888.84	186.04	538.91	38.08	34.92
<b>2016 (until Aug)</b>	481.84	161.88	197.80	43.09	18.34

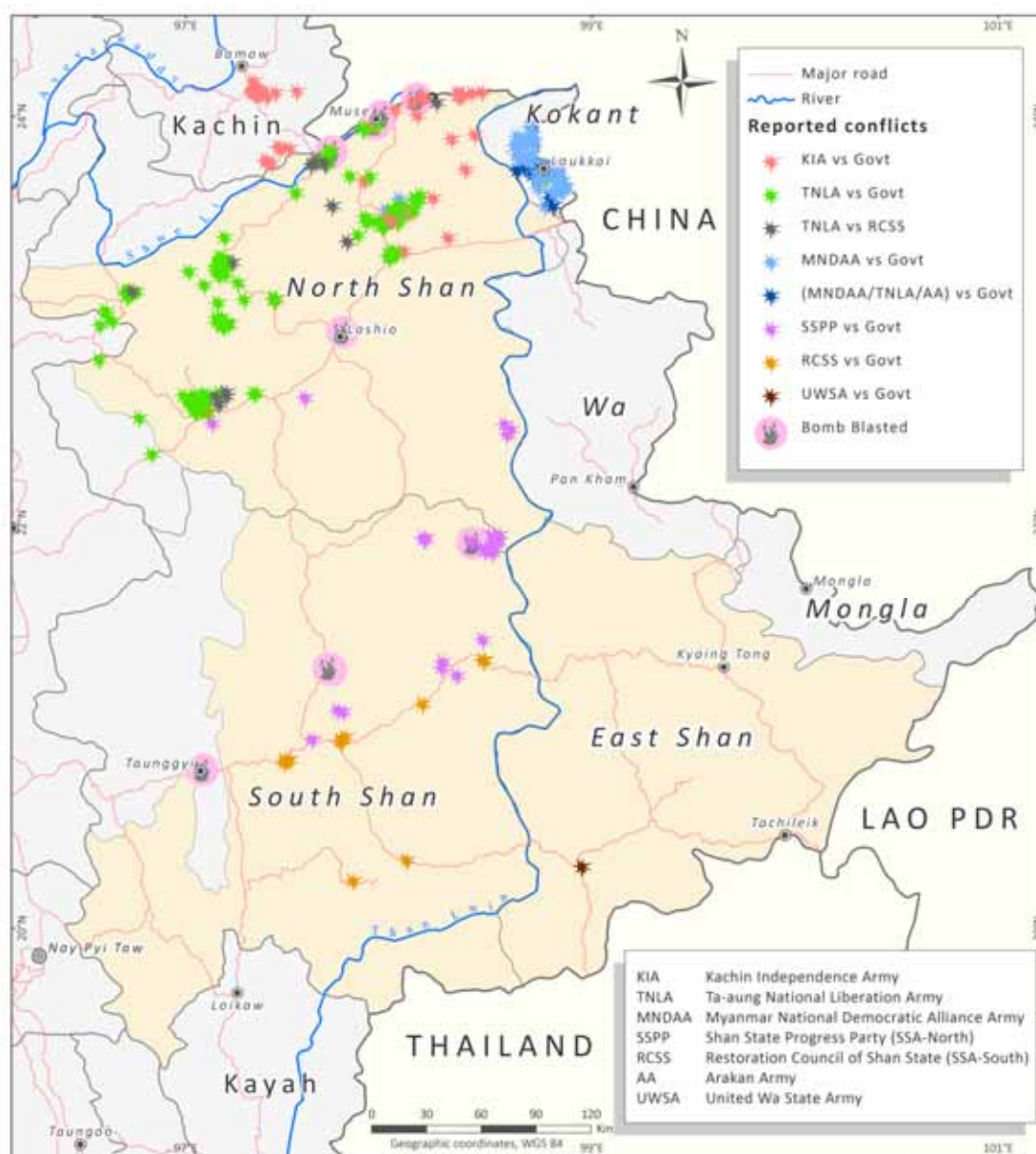
Source: GOUM/CCDAC.



**Map 2: Location of reported opium poppy eradication by the Government of the Union of Myanmar, 2016**

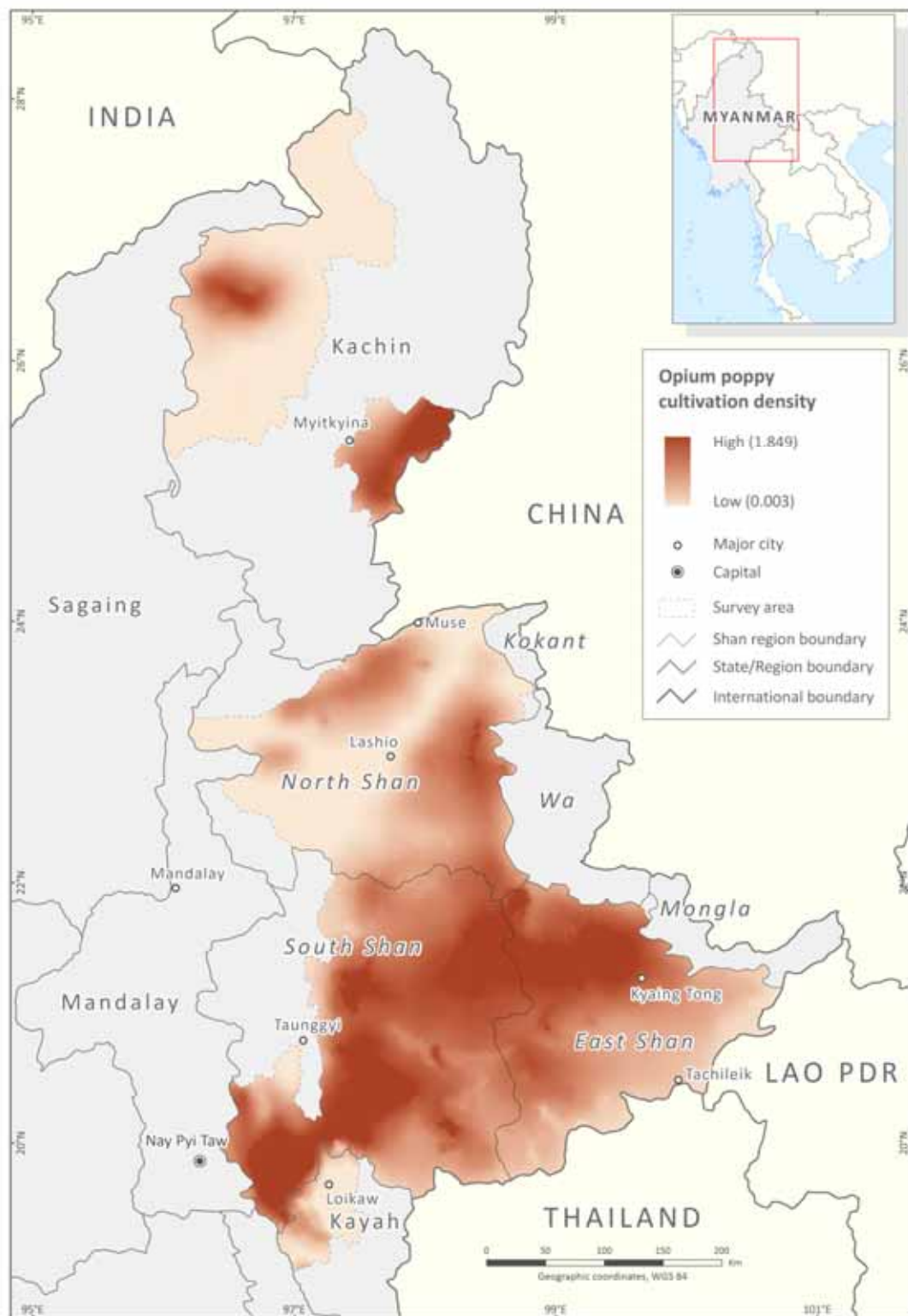


**Map 3: Location of reported conflicts, 2016**





**Map 4: Density of opium poppy cultivation in Shan and Kachin states, based on 2015 survey**





## 4. Recommendations and conclusions

By disaggregating a range of socio-economic village-level data by opium poppy cultivation status and region, this report has highlighted some major differences between opium and non-opium poppy villages in Shan State. In 2016, East and North Shan faced larger challenges in terms of income poverty than South Shan. The major reasons were related to the available sources of income, where inhabitants of South Shan had better access to relatively stable and predictable salaried jobs. Also, although households in opium poppy villages in East and North Shan earned, on average, a higher income than households in non-opium poppy villages, they seemed to face higher costs of living. For example, the percentage of villages with clinics was lower in opium poppy villages, as was the availability of asphalt roads. The situation was different for South Shan, where a larger share of opium poppy villages had clinics than non-opium poppy villages, and the same percentage of opium poppy and non-opium poppy villages had access to asphalt roads.

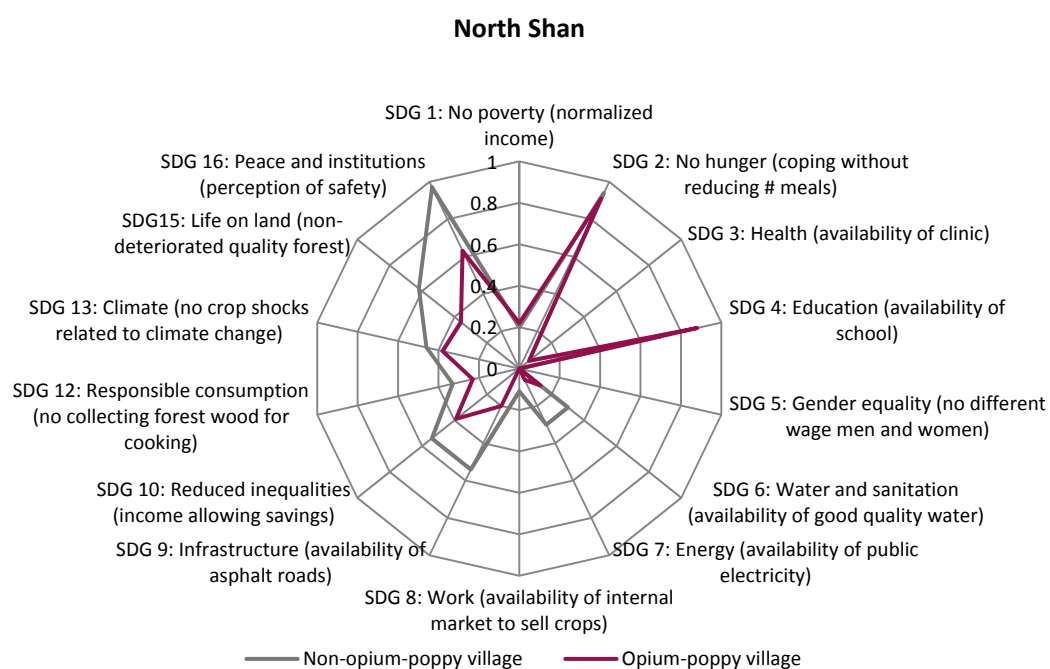
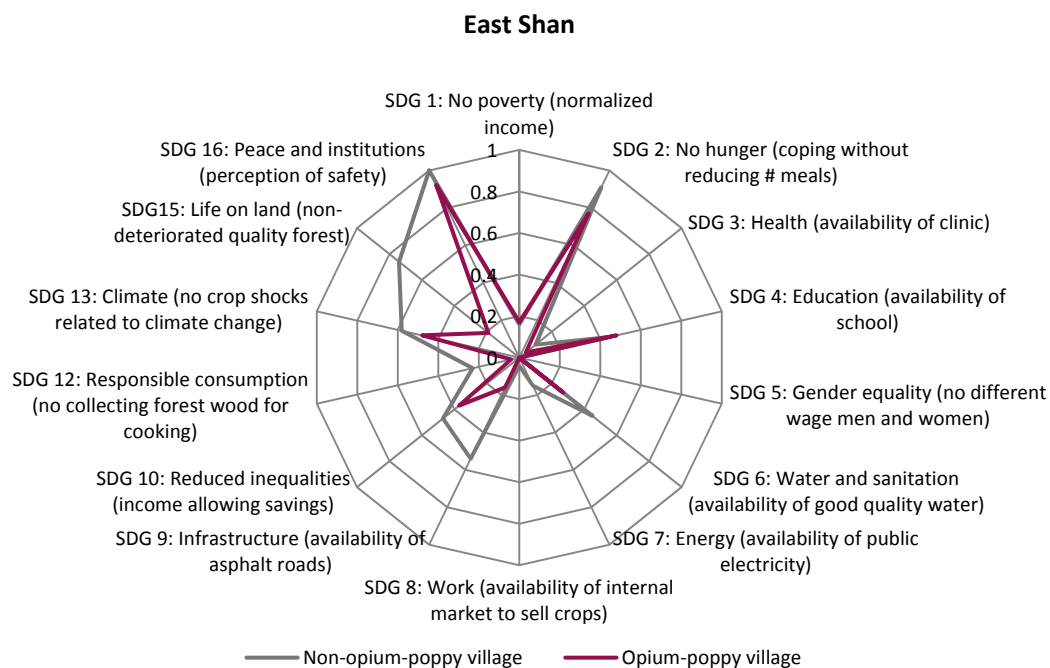
Some conditions were unfavourable in opium poppy villages in contrast to non-opium poppy villages, regardless of region. For example, a smaller share of opium poppy villages had access to public grid electricity and local markets for selling their produce. Daily wages were lower as well. These conditions make it more difficult to make a living from licit activities in opium poppy villages than in non-opium poppy villages. Conversely, a higher percentage of opium poppy villages had access to schools, but education alone does not seem to be able to generate licit sources of income. In both opium poppy and non-opium poppy villages in all regions, female daily wages were lower than male daily wages for similar work, denoting gender inequalities in all types of villages.

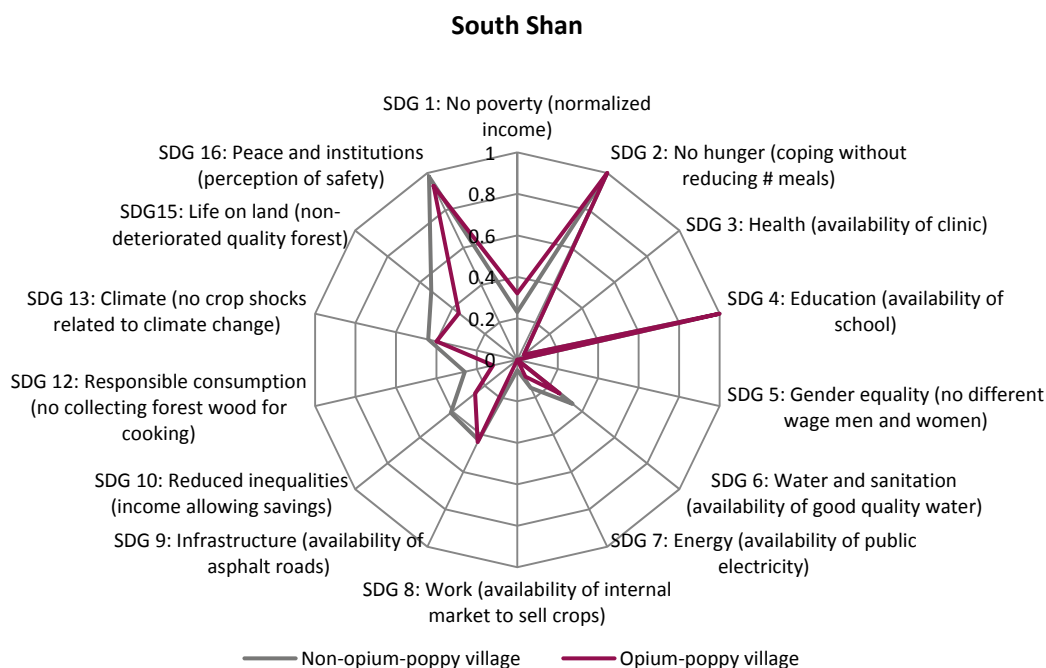
Opium poppy households seem to be primarily buying food from opium poppy income regardless of their location, indicating that some degree of food insecurity could be expected if opium poppy cultivation were eliminated without alternatives in place. The more difficult situation of households in some of the opium poppy villages is reflected by their coping mechanisms to face food insecurity, with households in East and North Shan more likely to reduce their number of meals. Households in the comparatively better off South Shan do not cut meals, but may, for example, eat less preferred food. That said, the higher income inequality among opium poppy villages in South Shan suggests that there is a group of farmers there who may not have access to licit sources of income, which would allow them to improve their living conditions. In East and North Shan, the drivers of opium poppy cultivation seem to be more associated with subsistence needs.

Opium poppy villages depend more directly on natural resources (such as collection of forest wood for cooking) than non-opium poppy villages, regardless of their location. Opium poppy villages also have lower-quality natural resources such as drinking water, and report faster degradation of forest quality. This suggests that there is a need to implement natural resource awareness and management plans, especially in opium poppy villages. Governance and security were found to be inversely associated with opium poppy growing, as non-opium poppy villages had better governance and enhanced security levels. However, these low levels seem to be cause and consequence of opium poppy cultivation. Opium poppy starts in villages with relatively low levels of governance and security, and once there opium poppy cultivation decreases furthermore the governance and security of the villages. Sustainable development without opium poppy cultivation requires good governance and security, which are also linked to developments in the ongoing peace process.

The picture that emerges from the analysis shows that South Shan has higher levels of development than other regions. In this region, although opium poppy villages have a lower level of development than non-opium poppy villages, the “sustainable development gap” is smaller. The graphs disaggregated by region included below show the “sustainable development gap” associated with illicit crop cultivation, corresponding to the difference in attainment of many of

the SDG indicators between opium poppy villages (red line) and non-opium poppy villages (blue line). (See appendix 1 for the description of the SDG indicators).





The diversity of conditions and factors associated with the different levels of development and opium poppy cultivation need to be acknowledged and taken into account in the elaboration of local alternative development policies, as indicated in the UN Guiding Principles on Alternative Development. The evidence suggests that improvement in infrastructure and services can help to reduce the costs of living in opium poppy villages, and therefore decrease the dependency of those communities on opium poppy income. This holds particularly true in East and North Shan, while in South Shan, further analysis of the reasons driving income inequality would help to explain opium poppy cultivation in this region, where opium poppy villages are not particularly affected by weak infrastructure and service delivery. These improvements need to be accompanied by income diversification opportunities, and only then followed by law enforcement to avoid generating poverty and food insecurity. In addition, the strengthening of institutions and governance can help to reduce opium poppy cultivation, as well as promoting the support to the rule of law. In this regard, the village headmen indicated that the ban on opium poppy cultivation was a major contributing factor for stopping cultivation in 2016. Another factor worth exploring as an alternative development strategy is the provision of land property rights to farmers, while continued support to alternative crops will also help to curb opium poppy cultivation.

This report is building an evidence base and sharing lessons learned to further our understanding of the motivations for opium poppy cultivation, based on the needs of opium poppy and non-opium poppy villages across Shan State. Further monitoring and evaluations must continue with these efforts and delve deeper into the complex interactions between poverty and opium poppy cultivation, as well as focus on complementing the analysis with disaggregated data at household level, to better understand what is happening and why, and how progress towards a sustainable development outside the illicit crop economy can be fully attained and maintained in Shan State.



## **Appendix 1: Description of SDG indicators included in the “spider” graphs of the Executive Summary and Recommendations**

The indicators used in the graphs are briefly described below:

- SDG 1 No Poverty: household income per year (normalized or adjusted to the scale 0-1 for comparative purposes).
- SDG 2 Zero Hunger: percentage of villages where one of the three most important household mechanisms to cope with food insecurity does not involve reducing the number of meals per day.
- SDG 3 Good Health and Well-Being: percentage of villages with a clinic inside the village.
- SDG 4 Quality of Education: percentage of villages with a school inside the village.
- SDG 5 Gender Equality: percentage of villages with equal daily wage rates for men and women.
- SDG 6 Clean Water and Sanitation: percentage of villages with good or very good quality of drinking water.
- SDG 7 Affordable and Clean Energy: percentage of villages with public grid electricity.
- SDG 8 Decent Work and Economic Growth: percentage of villages with a local market to sell cash crops.
- SDG 9 Industry, Innovation, and Infrastructure: percentage of villages with access to an asphalt road.
- SDG 10 Reduced Inequalities (including sustainable economic growth for the poorest): percentage of households inside the village earning enough income to allow savings.
- SDG 12 Responsible Consumption and Production: percentage of villages where the main source of energy for cooking is not forest wood.
- SDG 13 Climate Action: percentage of village headmen not reporting climate-related shocks among the three major shocks faced by the inhabitants in the village.
- SDG 15 Life on Land: percentage of village headmen indicating no changes or improvements in forest quality in the last two years.
- SDG 16 Peace, Justice, and Strong Institutions: percentage of villages perceived as safe by the village headmen.
- SDG 11: “Sustainable Cities”, SDG 14: “Life below Water”, and SDG 17: “Partnerships for the goals” were considered not applicable for this report.

## Appendix 2: Survey methodology

### Sampling procedure

The sampling frame is composed of an updated village listing provided by the Central Committee for Drug Abuse Control (CCDAC) in Myanmar; however, it excludes the Western sections of South and North Shan where opium-poppy cultivation is ineligible (see Maps 1-4). The village listing includes names of villages, village tracts, townships, regions and their codes. The listing also includes the opium poppy growing history and the GPS latitude and longitude for the former surveyed villages. This listing or baseline data is regularly updated with information obtained through previous surveys to reflect changes in village locations or names, village mergers and relocations, and to delete double entries. For many village entries, GPS positions facilitate the unique identification of each village.

The sample size is influenced by a number of requirements and constraints. The main requirement was the level of accuracy considered acceptable for the estimates, whereas the constraints were either economical or logistical. For the 2016 socio-economic survey, a total of 600 villages were randomly selected throughout Shan State, which was approximately 6.3% of the 9,501 villages from the sampling frame. About 230 villages in North Shan, 210 villages in South Shan and 160 villages in East Shan were selected.

**Table 3: Sample selection and survey dates of the socio-economic survey, 2016**

	South Shan	East Shan	North Shan	Total
<b>Start date</b>	1-May-2016	6-May-2016	15-May-2016	1-May-2016
<b>End date</b>	15-Jun-2016	20-Jun-2016	30-Jun-2016	30-Jun-2016
<b>Number of survey teams</b>	16	10	17	43
<b>Targeted villages</b>	210	160	230	600
<b>Surveyed villages</b>	202	160	229	591
<b>% of Villages achieved</b>	96%	100%	100%	99%
<b>Households covered</b>	16,195	6,922	19,189	42,306
<b>Rural Population covered</b>	80,972	36,059	97,651	214,682

### Survey organization

As in previous surveys, the components of the socio-economic survey were coordinated by the UNODC Myanmar country office and operationally implemented in close collaboration with the Myanmar Government counterpart. Field operation of the survey was implemented by the CCDAC, while UNODC provided technical support, coordination and supervision with national and international staff throughout the survey.



Based on the number of survey townships and the number of sample villages per township, UNODC proposed the number of required surveyors for field data collection to CCDAC. This number was estimated based on experiences in previous surveys. The surveyor team was composed by members of CCDAC in collaboration with the State Committee for Drug Abuse Control (SCDAC) and local authorities. A total of 129 surveyors were selected, organized into 43 teams (17 teams for North Shan, 16 teams for South Shan and 10 teams for East Shan). Each team was composed of three surveyors. Each team leader was from the Myanmar Police Force (MPF) with one team member from the General Administration Department (GAD) and one from the Settlement and Land Record Department (SLRD). All surveyors were from township-level offices based in each township.

All the team leaders were graduated police lieutenant level officers from Myanmar Police Force. They are familiar with local geography and the general situation with regard to ethnic traditions, social characteristics and the security situation within their respective township. The team members from GAD were office clerks and some were township-level deputy section heads. A majority were university graduates and only a few were current college students. The GAD team members are familiar with village tract-level authorities and village headmen. They know key demographic information of their respective township. The members from SLRD are land-record clerks and are familiar with information on land classification, land ownership and crop cultivation within their respective township. A majority of SLRD team members were also university graduates, and some were current college students.

UNODC provided survey materials to the survey teams which were necessary in field operations. The items listed in the table below were provided to each survey team at the time of training. The materials were returned to UNODC when the field operations were accomplished.

GPS device	to collect village location latitude/longitude
Digital camera	for collecting field pictures
Digital calculator	to use in data input with numerical calculation

Moreover, UNODC provided a few additional items to each survey team in order to facilitate their field work. Those items were for field use and there was no need to return to UNODC afterwards.

Survey bag with UN logo	to put material together in field work
Cap with UN logo to each surveyors	for safety purpose in some security risk areas
Field note book/envelopes	to put questionnaires when send back to UNODC
Pencil/eraser/marker pen	to mark village codes in envelopes/form filling
Some medicines	to use in field operation

### Socio-economic questionnaire design

The Myanmar socio-economic survey was a village-level interview survey. The questionnaire was developed by a research expert from UNODC headquarters, including inputs from the national technical team at the UNODC Myanmar office. The questionnaire contained a total of 91 questions which were categorised by relevant topics. A draft version of the questionnaire was sent to CCDAC for comments, based on which the final questionnaire was elaborated at UNODC headquarters.

The questionnaire was translated to a Myanmar version by the technical team at the UNODC Myanmar office. The survey questionnaire in both English and Myanmar version was shared with CCDAC before survey trainings.

### Surveyor training

Some selected surveyors were trained by UNODC. The technical team from the UNODC Myanmar office gave trainings to the respective surveyors in each survey region. A research expert from UNODC headquarters accompanied the national technical team in the training at Taunggyi, South Shan. Not only 129 surveyors but also 9 area supervisors (3 persons per region) participated in trainings. An in-charge officer from the CCDAC head office supervised each training. During the training, each survey question was discussed with surveyors based on their field experiences, and this improved some unclear and confusing terms in the questions. Interview questions were practised by asking questions and giving answers between the teams. Training materials such as powerpoint slides, terms definitions, guidelines, list of targeted samples, baseline villages list per respective township et cetera were provided to surveyors. The training also included practical sessions for handling GPS devices and collecting GPS latitude/longitude. It also included debriefing sessions on experiences encountered in past surveys. About 25% of the surveyors had field data collection experiences in past annual opium surveys.

**Table 4: Training village surveyors, 2016**

Region	From	To	Trainees	Venue
South Shan	25-Apr-2016	26-Apr-2016	48	Taunggyi
East Shan	1-May-2016	2-May-2016	30	Kyaing Tong
North Shan	8-May-2016	9-May-2016	51	Lashio
<b>Total</b>			<b>129</b>	

**Map 5: Location of the surveyors' training sessions, Shan State, 2016**



Source: Government of Myanmar - National Monitoring System supported by UNODC.  
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.



Training of surveyors in South Shan, 2016



Training of surveyors in East Shan, 2016

### Conducting the survey

Field operation was started within one week after the training in each region. The operation period was set to about six weeks in each survey region. The time frame of field data collection in the whole survey area was set from 1 May 2016 to 30 June 2016. The surveyors of 37 townships out of the targeted 39 townships completed their fieldwork on time, but the surveyors of two townships delayed two weeks in data collection work because of security and transportation difficulties. The operation achieved field data collection in 591 villages out of the targeted 600. The surveyors could not conduct interviews in 9 villages (7 villages in South Shan and 2 villages in North Shan) because of security issues.

The number of survey teams was justified according to the number of survey townships. Normally one survey team was assigned to each township and two teams were assigned to each of those townships with either a particularly heavy work load or difficulties related to accessibility (townships with more than 40 selected villages). The townships that were assigned two teams were three townships in North Shan (Tang Yang, Kutkai, and Lashio townships) and one township in East Shan (Kyaing Tong township). The number of questionnaires filled out by a survey team depended on the number of selected villages in its respective township. The number of questionnaires filled out by a team ranged from minimum 5 villages (Moemit, Namtu townships in North Shan and Linhkay, Mong Pan townships in South Shan) to maximum 25 (Thibaw township in North Shan).



Survey conduction in South Shan, 2016



Survey conduction in North Shan, 2016





Survey conduction in East Shan, 2016

### **Introducing the surveyors to headmen**

The surveyors were trained and instructed to establish a basis of trust before conducting the interview with the village headmen. When the survey team arrived the village, they first met the village headmen to introduce the survey; that it is a collaboration between the government and the UN in order to get attention by the headmen. The team explained to the headmen the purposes of data collection, how important the field data is for making planning regarding development concerns and the kinds of questions which would be made in the interview. The team leader, a police officer, explained and pledged that the answers would be protected and used only for analytical purpose to reflect the real situation. The surveyors were trained to prepare answers corresponding with any possible questions by the headmen and villagers. In order to ease the interviewing, and base on cultural norms in Myanmar, the surveyor team urged village headmen to form a group of villagers including women who were interested and willing to attend the interview. The size and formation of the group was not definitely specified. After establishing a basis of trust between surveyors and the group, the interview was started. A majority of the survey interviews took place at the house of village headmen or at the village monastery. One of the survey team members asked questions and another wrote down the answers on the questionnaire form. Another member recorded the village location - latitude/longitude and field pictures - and also crosschecked villagers' answers with available information. The surveyors were instructed to write down the answers to the questionnaire form in front of the villagers. Annual opium surveys were conducted for the last 10 years, and most of the village headmen in survey regions had more or less already heard about this survey interview and they knew it did not cause distress to villagers.

### **Data handling and collection**

During the survey field operation time, the area supervisors monitored and checked survey teams' field work in their respective area. There were three area supervisors per survey region. When the

field data collection was completed, each team put the questionnaires in one A4 envelope per village tract and sealed it. All sealed A4 envelopes were put together into an A3 envelope and sealed again. Each survey team sent the sealed A3 envelope/envelopes to the respective regional supervisors who are heads of Drug Enforcement Units (former Anti-Narcotic Task Forces) at Taunggyi in South Shan, Lashio in North Shan and Kyaing Tong in East Shan. The survey materials were packaged and sent along with the questionnaire envelopes to the region supervisors. The regional supervisors collected the sealed envelopes and material packages sent by each survey team. Each regional supervisor prepared a large package including the questionnaire envelopes and materials from his region and sent it to the UNODC Myanmar office at Yangon. The surveyed questionnaires from 37 townships were received on time but the questionnaires from two townships (Manton in North Shan and Mong Kaing in South Shan) were received two weeks later than targeted date because of security and transportation difficulties.

### **Data entry, data cleaning and quality control**

During the field operation time, a MS Access database was developed by the UNODC technical team. Data entry was conducted by this team at the UNODC Myanmar office. Data entry was carried out from 13 June to 22 July 2016. The technical team successively carried out data verification and data cleaning. Whenever any confusing or unclear answer was observed, the technical team connected the respective survey teams and asked their clarification. After the data cleaning, the technical team prepared a data tabulation as instructed by the research expert from UNODC headquarters. The full dataset, an MS Excel table, contained 624 columns and 591 rows without blank cells. The full dataset was shared with the CCDAC head office before data analysis.

### **Limitations of the village survey**

The main limitations in the data collection and analysis were:

- The socio-economic interviews were conducted in groups that consisted of village headmen and villagers. It is unclear exactly how these groups were formed, and thus, whether the information obtained would be the same if individual households were chosen randomly.
- The data obtained were aggregated at the village level. The data collected cannot be used to draw conclusions about why individual people grow opium poppy or work in the poppy trade.
- The interviewers were trained and instructed to establish a basis of trust before conducting the interview. However, since law enforcement was part of the group, a certain effect on the interview answers cannot be excluded (“social desirability” or reluctance to talk freely about illicit activities).

## Appendix 3: Socio-economic questionnaire 2016



# Myanmar Opium Survey 2016 Socio-economic Survey

Central Committee for  
Drug Abuse Control**Key Guidelines**

- Guideline-1: The survey upon arrival to a village will meet with the village headman and/or key informants and explain the purpose of survey.  
 Guideline-2: After gaining their confidence and/or willingness to collaborate, the survey team will start the interview.  
 Guideline-3: The surveyor must fill up the forms in the presence of the interviewed.  
 Guideline-4: The surveyors have to conduct interviews in all sample villages.

**VILLAGE IDENTIFICATION**

Name of Team Leader:		Survey Team No:	
Name: Code:	Township	Village Tract	Village
			Date of Survey dd/mm/yy
Village GPS position:	Latitude (N)	Longitude (E)	Elevation (Meter)
Number of people participating in the survey in the village		Number of women:	Number of men:

**I. DEMOGRAPHIC INFORMATION**

- 1 What is the total population (number of inhabitants) in the village?  People  
 1a How many are men above or equal to 15 years old?  People  
 1b How many are women above or equal to 15 years old?  People  
 1c How many are children younger than 15 years old?  People  
*Check that sum of 1a+1b+1c = total population (Question 1)*
- 2 What is the total number of households in the village?  Households  
*(group who normally live under the same dwelling and share a common income)*
- 3 How many children have been born inside the village in the last 12 months?  People  
 4 How many children younger than 1 year old have passed away in the last 12 months?  People  
 5 How many adults between 15 and 60 years old have passed away in the last 12 months?  People

**II. PUBLIC SERVICES AND INFRASTRUCTURE****A. Health service**

- 6 Do the villagers have access to health care or medical clinic?  Yes  No  
 7 If yes -  
 7a How many health employees work in the health center or clinic?  People  
 7b Are female medical doctors (or similar) working in the health center or clinic?  Yes  No

**B. Educational services**

- 8 Does the village have -  
 8a Primary school?  Yes  
 8b Middle school?  Yes  
 8c High school?  Yes  
 8d No school but have access to school in other village  Yes  
 8f No school in the village, also not have access to school in other village  Yes  
 How far is it in walking minutes?

**C. Water and sanitation**

- 9 What is the main source of drinking water inside the village? *(cross only one option)*  
 9a  Water piped into dwelling  
 9b  Water piped outside dwelling for personal use  
 9c  Communal standpipe  
 9d  Personal hand-pump  
 9e  Communal hand-pump  
 9f  Water collected in buckets from river/spring/lake  
 9g  Personal open well  
 9h  Communal open well  
 9i  Others. Specify -----
- 10 If the source of drinking water is communal or from river/spring/lake -  
 What is the average distance from the population houses to that source?  Mile
- 11 How is the quality of the drinking water (cleanness and taste)?  
 Very good  Good  Regular  Bad  Very bad
- 12 What is the type of toilet facilities inside the village? *(cross only one option)*  
 Flush toilet (a sitting or squat toilet that uses water for flushing)  
 Latrine (generally consisting on hole in the ground, floor with a small hole, and a shelter)  
 Composting toilet (specially designed for composting residues for agricultural use)  
 Open air (not toilet facilities)  
 Others. Specify -----



**D. Energy**

13 What type of energy the majority of population use -

13a for cooking? (cross only one option)

<input type="checkbox"/>	Public electricity	<input type="checkbox"/>	Crop residues or animal waste
<input type="checkbox"/>	Gas	<input type="checkbox"/>	Solar panel
<input type="checkbox"/>	Charcoal	<input type="checkbox"/>	Others. Specify -----
<input type="checkbox"/>	Firewood		

13b for lighting? (cross only one option)

<input type="checkbox"/>	Public electricity	<input type="checkbox"/>	Batteries (e.g., dry cell)
<input type="checkbox"/>	Candles	<input type="checkbox"/>	Solar panel
<input type="checkbox"/>	Lamp from kerosene or paraffin oil	<input type="checkbox"/>	Generators
<input type="checkbox"/>	Gas	<input type="checkbox"/>	Others. Specify -----

**E. Transportation and roads**14 Does the village have access to roads that connects the village with other villages? ☐ Yes ☐ No

15 If yes, are they mainly - (cross only one option)

<input type="checkbox"/>	Asphalt roads?	<input type="checkbox"/>	Gravel-surfaced roads?
<input type="checkbox"/>	Dirt (sandy/muddy) roads?	<input type="checkbox"/>	Others. Specify -----

16 What is the quality of the roads?

16a During rainy season -

<input type="checkbox"/>	Very good	<input type="checkbox"/>	Good	<input type="checkbox"/>	Regular	<input type="checkbox"/>	Bad	<input type="checkbox"/>	Very bad
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16b During dry season -

<input type="checkbox"/>	Very good	<input type="checkbox"/>	Good	<input type="checkbox"/>	Regular	<input type="checkbox"/>	Bad	<input type="checkbox"/>	Very bad
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17 Do the villagers live close to these roads (30 walking minutes or less from their house)?

<input type="checkbox"/>	Less than 1/4 of the villagers	<input type="checkbox"/>	More than half to 3/4
<input type="checkbox"/>	Between 1/4 and half	<input type="checkbox"/>	More than 3/4

18 Does some sort of vehicle pass these roads on which you can pay a fare for a ride? ☐ Yes ☐ No

(e.g. bus, motorcycles, and similar)?

18a If yes, how often do these vehicles(e.g. buses) arrive/leave the village?

<input type="checkbox"/>	Once per day	<input type="checkbox"/>	Twice per week	<input type="checkbox"/>	Others. Specify -----
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18b How far in traveling time (minutes) is the next village where most of the transportation  Minute18c How much the does the fare cost to the next village?  Kyats**III. CROPS CULTIVATED INSIDE THE VILLAGE****A. Area per agricultural crop**19 What is the total agricultural area of the villagers of the total agricultural area?  Acres

(including communal agricultural land, but excluding forest land in acre)

19a What area corresponds to private households' land?  Acres19b What area corresponds to communal land, including common land cultivated by organized group of people? Check that sum of 19a + 19b = total agricultural land (Question 19)  Acres

20 Which crops, including cereals, fruit trees and flowers, have been cultivated or harvested this season, as cash crops or for self-consumption in private households' land (Cross the corresponding crops and indicate the irrigated and rain-fed area )

Irrigated (Acres)	Rain-fed (Acres)		Irrigated (Acres)	Rain-fed (Acres)	
<input type="checkbox"/>	<input type="checkbox"/>	Beans	<input type="checkbox"/>	<input type="checkbox"/>	Opium poppy
<input type="checkbox"/>	<input type="checkbox"/>	Orange	<input type="checkbox"/>	<input type="checkbox"/>	Paddy (rice)
<input type="checkbox"/>	<input type="checkbox"/>	Cannabis	<input type="checkbox"/>	<input type="checkbox"/>	Peanuts
<input type="checkbox"/>	<input type="checkbox"/>	Corn/maize	<input type="checkbox"/>	<input type="checkbox"/>	Cheroot leaf
<input type="checkbox"/>	<input type="checkbox"/>	Flowers	<input type="checkbox"/>	<input type="checkbox"/>	Potato
<input type="checkbox"/>	<input type="checkbox"/>	Leaf vegetables	<input type="checkbox"/>	<input type="checkbox"/>	Sesame
<input type="checkbox"/>	<input type="checkbox"/>	Melon	<input type="checkbox"/>	<input type="checkbox"/>	Sugar cane
<input type="checkbox"/>	<input type="checkbox"/>	Mustard	<input type="checkbox"/>	<input type="checkbox"/>	Tea
<input type="checkbox"/>	<input type="checkbox"/>	Garlic	<input type="checkbox"/>	<input type="checkbox"/>	Tomato
<input type="checkbox"/>	<input type="checkbox"/>	Onions	<input type="checkbox"/>	<input type="checkbox"/>	Watermelon
<input type="checkbox"/>	<input type="checkbox"/>	Tobacco	<input type="checkbox"/>	<input type="checkbox"/>	Wheat
<input type="checkbox"/>	<input type="checkbox"/>	Others. Specify -----	<input type="checkbox"/>	<input type="checkbox"/>	Others. Specify -----

Check that sum of (Question 20) = total hectares of private farmers' land (Question 19a)

Note: in the case of intercropping provide an estimate of the area per individual crop

21 How many geographically independent agricultural plots have on average each household?  Acres

- 22 Which crops, including cereals, fruit trees and flowers, have been cultivated or harvested this season, as cash crops or for self-consumption in communal or common land?

Irrigated (Acres)	Rain-fed (Acres)	
		Crop name -----
		Crop name -----
		Crop name -----
		Opium poppy
		Cannabis

Check that sum of 22a+...+22e = total hectares of communal land (Question 19b)

### B. Current and previous poppy and cannabis cultivation

- 23 If there is opium poppy cultivation in the village this season -

(Only for villages with opium poppy cultivation this season)

- 23a how many households have grown poppy this season?  Households
- 23b how many grow poppy exclusively in their own agricultural land?  Households
- 23c how many exclusively rent agricultural land to grow poppy?  Households
- 23d how many exclusively use a share crop modality to grow poppy?  Households
- 23e how many use more than one modality (of the indicated above) to grow poppy?  Households
- Check that sum of 23b+23c+23d+23e = total number of poppy households (Question 23a)
- 23f do farmers in the village grow opium poppy twice per year (in the same plot area)?  Yes  No
- 23g do farmers in the village stagger opium poppy planting?  Yes  No
- 23h in which month(s) the opium poppy cultivation started?  Month
- 23i do poppy fields were affected by diseases this year?  Yes  No
- 23j do poppy fields were affected by drought, frost, heavy rain this year?  Yes  No
- 23k in comparison to last year, the total opium poppy area under cultivation have  Increased  Decreased  Remained the same  Not applicable (no poppy last year)
- 23l if poppy areas have increased, what are three most important reasons for this?

(select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option)

#### Access to credit and debt

- Advance cash for poppy cultivation has been provided this year
- Need money for a large expense (e.g. wedding).
- difficult to be covered otherwise Higher debt this year than last year and need to repay it

#### Access to labor and jobs

- Cannot find non-poppy related jobs / high unemployment this year
- There is higher availability of labor for poppy cultivation this year than last year

#### Access to land, water and land ownership

- Land area is small, or not suitable for other crops, or lack water
- No land owner and I am trying to make money fast

#### Agronomic and environmental conditions

- Better climate conditions this year (e.g., not drought) for poppy cultivation than last year
- Reduction on or no poppy pests or diseases this year
- Failure with alternative crops, poor yield results in previous years
- Have more experience cultivating poppy

#### Addiction

- Self-consumption (addicted to opium poppy)

#### Eradication and forced activities

- Forced to cultivate poppy
- Less afraid of eradication this year than last year

#### External or internal assistance

- External or government assistance has decreased this year

#### Income and market conditions

- Higher demand for opium poppy this year than last year
- Higher sale price for opium poppy this year than last year
- There has been a reduction in the sale prices of alternative crops this year
- Higher prices of agricultural (non-poppy related) inputs this year
- The demand for non-poppy crops in the market has decreased this year

#### Social and religious issues

- It is common. Almost everybody does it.

#### Transportation

- Difficult to take non-poppy crops to the market due to bad roads or controls

<b>Others</b>	
- Others. Specify -----	<input type="text"/>
23m if poppy areas have decreased, what are the three most important reasons for this? (select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option)	
<b>Access to credit and debt</b>	
- Advance cash for poppy cultivation has not been provided this year	<input type="text"/>
- No large expense (e.g. wedding) that need to be paid this year	<input type="text"/>
- Lower debt this year than last year	<input type="text"/>
<b>Access to labor and jobs</b>	
- Can find non-poppy related jobs / high unemployment this year	<input type="text"/>
- There is low availability of labor for poppy cultivation this year than last year	<input type="text"/>
<b>Access to land, water and land ownership</b>	
- Bought or accessed more land, better access to water	<input type="text"/>
<b>Agronomic and environmental conditions</b>	
- Worse climate conditions this year (e.g., drought) for poppy cultivation than last year	<input type="text"/>
- Increase on poppy pests or diseases this year	<input type="text"/>
- Good results with alternative crops, good yields last year	<input type="text"/>
- Have limited experience growing poppy (only short time, do not want to risk a lot)	<input type="text"/>
<b>Addiction</b>	
- Afraid of family members become addict to opium	<input type="text"/>
<b>Eradication and forced activities</b>	
- Not forced to cultivate poppy this year	<input type="text"/>
- Afraid of eradication this year	<input type="text"/>
<b>External or internal assistance</b>	
- External or government assistance has increased this year	<input type="text"/>
<b>Income and market conditions</b>	
- Good results with alternative crops, enough income from them	<input type="text"/>
- There has been an increase in the sale prices of alternative crops this year	<input type="text"/>
- Lower prices of agricultural (non-poppy related) inputs this year	<input type="text"/>
- Lower sale price for opium poppy this year than last year	<input type="text"/>
- Lower demand for opium poppy this year than last year	<input type="text"/>
<b>Social and religious issues</b>	
- Poppy cultivation is not common. Almost anybody does it	<input type="text"/>
- Opium poppy cultivation has been banned by the government	<input type="text"/>
- Community associations have banned poppy cultivation	<input type="text"/>
<b>Transportation</b>	
- Easier to take non-poppy crops to the market due to improved roads or no controls	<input type="text"/>
<b>Others</b>	
- Others. Specify -----	<input type="text"/>
23n Why farmers grow poppy inside the village? (select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option)	
<b>Access to credit and debt</b>	
- Advance cash for poppy cultivation has been provided this year	<input type="text"/>
- Need money for a large expense (e.g. wedding), difficult to be covered otherwise	<input type="text"/>
- Higher debt this year than last year and need to repay it	<input type="text"/>
<b>Access to labor and jobs</b>	
- Cannot find non-poppy related jobs / high unemployment this year	<input type="text"/>
- There is higher availability of labor for poppy cultivation this year than last year	<input type="text"/>
<b>Access to land, water and land ownership</b>	
- Land area is small, or not suitable for other crops, or lack water	<input type="text"/>
- No land owner and I am trying to make money fast	<input type="text"/>
<b>Agronomic and environmental conditions</b>	
- Poppy is easier to cultivate and harvest than other crops	<input type="text"/>
- Driven by yields, and opium poppy has high yield	<input type="text"/>
- Good climate conditions for poppy growing	<input type="text"/>
- Bad results with alternative crops, bad yields	<input type="text"/>
- Have experience cultivating opium poppy	<input type="text"/>

**Addiction**

- Self-consumption (addicted to opium poppy)

**Eradication and forced activities**

- Forced to cultivate poppy
- Not afraid of eradication

**Income and market conditions**

- Poppy is convenient. It provides higher net income than other crops or activities
- I am poor. Need money for buying food and basic shelter
- High costs of inputs for cultivating non-poppy crops
- Poppy is easy to sell, high demand for opium poppy
- Driven by prices, and opium poppy has high sale price

**Social and religious issues**

- It is common. Almost everybody does it.

**Transportation**

- Difficult to take non-poppy crops to the market due to bad roads or controls
- Do not need to transport the opium poppy to the market (no transportation costs)

**Others**

- Others. Specify -----

24 If there is cannabis cultivation in the village this season, how many households have grown cannabis?  Households

(Only for villages with cannabis cultivation this season)

25 Regardless if there are opium poppy or cannabis cultivation this year, was there opium poppy or cannabis cultivation inside the village during the previous years -

	Poppy			Cannabis	
25a In 2015	<input type="text"/> Yes	<input type="text"/> No	<input type="text"/> Yes	<input type="text"/> No	
25b In 2014	<input type="text"/> Yes	<input type="text"/> No	<input type="text"/> Yes	<input type="text"/> No	
25c In 2013	<input type="text"/> Yes	<input type="text"/> No	<input type="text"/> Yes	<input type="text"/> No	
25d In 2012	<input type="text"/> Yes	<input type="text"/> No	<input type="text"/> Yes	<input type="text"/> No	
25e In 2011	<input type="text"/> Yes	<input type="text"/> No	<input type="text"/> Yes	<input type="text"/> No	
25f Others - - -	<input type="text"/> Yes	<input type="text"/> No	<input type="text"/> Yes	<input type="text"/> No	

26 If the villagers have not grown poppy this year but did it in the past -  Year

(e.g. stopped poppy cultivation some years ago),

26a what do these households do instead of poppy cultivation?

(select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option).

- Cultivation of land with other crops. Which ones - - - - -
- Livestock raising
- Daily wages
- External or government assistance
- Rental of land, cars or agricultural tools
- Petty trade (Which products do they trade?)
- Rely on remittance
- Others. Specify -----


26b If farmers decided to cultivate land with other crops instead of opium poppy, do the total area cultivated with other crops is larger than the previous area where they used to cultivate poppy?

Increased  Equal  Smaller

26c how have their household income changed without poppy income?

Increased  Equal  Smaller

26d why did the villagers stopped poppy cultivation?

(select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option)

**Access to credit and debt**

- Advance cash for poppy cultivation has not been provided
- No large expense (e.g. wedding) that need to be paid this year
- Have low or not debt that need to be repaid

**Access to labor and jobs**

- Can find non-poppy related jobs
- There is low availability of labor for poppy fields

**Access to land, water and land ownership**

- Bought or accessed more land, better access to water

<b>Agronomic and environmental conditions</b>	
- Bad climate conditions for poppy growing (e.g., drought)	<input type="text"/>
- High poppy pests or diseases	<input type="text"/>
- Good results with alternative crops, good yields	<input type="text"/>
- Have not or have limited experience growing poppy	<input type="text"/>
<b>Addiction</b>	
- Afraid of family members become addict to opium	<input type="text"/>
<b>Eradication and forced activities</b>	
- Not forced to cultivate poppy any longer	<input type="text"/>
- Afraid of eradication	<input type="text"/>
<b>External or internal assistance</b>	
- External or government assistance has increased	<input type="text"/>
<b>Income and market conditions</b>	
- Good results with alternative crops, enough income from them	<input type="text"/>
- There has been an increase in the sale prices of alternative crops	<input type="text"/>
- Low prices of agricultural (non-poppy related) inputs this year	<input type="text"/>
- Low demand for opium poppy	<input type="text"/>
- Low sale price for opium poppy	<input type="text"/>
<b>Social and religious issues</b>	
- Poppy cultivation is not common. Almost anybody does it.	<input type="text"/>
- Opium poppy cultivation has been banned by the government	<input type="text"/>
- Communal associations have banned poppy cultivation	<input type="text"/>
<b>Transportation</b>	
- Easier to take non-poppy crops to the market due to improved roads or no controls	<input type="text"/>
<b>Others</b>	
- Others. Specify -----	<input type="text"/>
27 If the villagers have not grown poppy this year, and have never done it, why do the villagers do not grow poppy?	
(select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option)	
<b>Access to credit and debt</b>	
- Advance cash for poppy cultivation is not provided	<input type="text"/>
- If I have a large expense (e.g. wedding) I can access to credit (no need poppy)	<input type="text"/>
- Have low or not debt that need to be repaid	<input type="text"/>
<b>Access to labor and jobs</b>	
- Can find non-poppy related jobs	<input type="text"/>
- There is low availability of labor for poppy growing	<input type="text"/>
<b>Access to land, water and land ownership</b>	
- Have access to land or water to avoid poppy cultivation	<input type="text"/>
<b>Agronomic and environmental conditions</b>	
- Bad climate conditions for poppy growing (e.g., drought)	<input type="text"/>
- High poppy pests or diseases	<input type="text"/>
- Have not or have limited experience growing poppy	<input type="text"/>
<b>Addiction</b>	
- Afraid of family members become addict to opium	<input type="text"/>
<b>Eradication and forced activities</b>	
- Not forced to cultivate poppy any longer	<input type="text"/>
- Afraid of eradication	<input type="text"/>
<b>External or internal assistance</b>	
- External or government assistance has been provided	<input type="text"/>
<b>Income and market conditions</b>	
- Good results with alternative crops, enough income from them	<input type="text"/>
- Low demand for opium poppy	<input type="text"/>
- Low sale price for opium poppy	<input type="text"/>
- There has been an increase in the sale prices of alternative crops	<input type="text"/>
- Low prices of agricultural (non-poppy related) inputs	<input type="text"/>
<b>Social and religious issues</b>	
- Poppy cultivation is not common. Almost anybody does it.	<input type="text"/>
- Opium poppy cultivation has been banned by the government	<input type="text"/>
- Community associations have banned poppy cultivation	<input type="text"/>

**Transportation**

- In comparison to other villages, it is easier to take non-poppy crops to the market  
(markets are close, there are roads or no controls over the roads)

**Others**

- Others. Specify -----

**VI. INCOME-GENERATING ACTIVITIES****A. Average income per household**

- 28 What was the average income, after excluding expenses per household (including all working members of the household for each of the following sources over the last 12 months?

(Indicate the number of households performing the activity, household income per activity and corresponding currency)

Number of households	Household income per activity (Kyats)	
		Sales of paddy and rice (including by-products such as husk)
		Sales of other licit crops, fruits, and flowers (including by-products such as wheat, straw)
		Opium sales (including poppy straw and poppy oil from seeds)
		Cannabis sales.
		Livestock and by-products (e.g., eggs, milk, etc)
		Forest product sales.
		Daily wages (agricultural related)
		Daily wages (non-agricultural related)
		Salaried job or employee
		Petty trade. What products do they sell?
		Rental of property, vehicles, and tools
		Others. Specify -----

Check that sum of number of households = total number of households (Question 2)

**B. Poppy prices and labour and contribution of poppy to the local economy**

(Only if there is opium poppy cultivation this season in the village)

- 29 What are the current farm-gate price of:

29a fresh opium (just after harvesting)?  Kyat/Viss

29b dried opium?  Kyat/Viss

- 30 This season, how many households (who live permanently in the village) were -

30a Only growing their own poppy (but no earning labour on poppy fields run by others)?  Households

30b Only earning from labour on poppy fields run by others (but not growing their own poppy)?  Households

30c Growing their own poppy and earning from labour on poppy fields run by others?  Households

- 31 How many labourers do a poppy household hire on average (1 acre of poppy)?

31a for poppy weeding?  Labourers who live in the village  Temporal labourers (who do not live in the village)

31b for poppy lancing?

- 32 How many days on average a poppy household spend (1 acre of poppy in Myanmar)?

32a for poppy weeding?  Days

32b for poppy lancing?  Days

- 33 How much are labourers paid for -

33a Opium poppy weeding (Kyats)  Male  Female

33b Lacing or gum collection for opium poppy (Kyats)  Male  Female

- 34 Are labourers also paid with opium poppy?  Yes  No

(only labourers do not include tenant and sharecrop modality)?

Less than 1/4 of income  Between 1/4 - 1/2  More than 1/2 to 3/4

More than 3/4  No

- 35 Is daily food provided by the hiring household?  Yes  No

- 36 What was the poppy income used for by villagers?

(select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option)

<input type="text"/>	Food	<input type="text"/>	Buying agricultural tools or vehicles
<input type="text"/>	Medical expenses	<input type="text"/>	Village infrastructure
<input type="text"/>	Education	<input type="text"/>	Religious buildings
<input type="text"/>	Paying debt	<input type="text"/>	Others. Specify -----
<input type="text"/>	Buying land or house property		

**C. Cost of agricultural production**

37 What are the average cost in Kyat of cultivating one acre of - ?

Rice	Opium poppy	
		Seeds
		Fertilizer
		Irrigation
		Ploughing
		Weeding
		Harvesting/Lacing
		<b>Total cost</b>

**D. Agricultural (non-poppy) and off-farm daily wages**

38 What is the current daily wage (Kyats) inside the village for the following activities?

- Farm labor (non-poppy)		Male		Female
- Non-farm labor (construction of roads, houses, etc.)		Male		Female

39 Considering the number of available positions, how difficult is to get a paid non-farm labor job inside the village?

	Very difficult		Difficult		More or less		Easy		Very easy
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40 During which months are there high demand for farm-labor (non-poppy)?  Month**E. Remittances and working abroad**

41 For relatives sending remittances or working abroad, how many months during the year are they away from the household?

	All year round		11 to 6 months		5 to 3 months		Less than 3 months
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42 Where do most of the people working abroad are located (*Cross only one option*)

	Other village in the same region		Neighbouring countries
	Other village in other region		Other non-neighbouring countries

**F. Livestock**43 How many households possess cattle? (e.g. cows, bulls, other oxen)  Households44 How many cattle are in the village?  Cattles

45 How many households possess the following -

45a Chicken and poultry:	<input type="text"/> Less than 1/4	<input type="text"/> Between 1/4 - 1/2	<input type="text"/> More than 1/2 to 3/4	<input type="text"/> More than 3/4
45b Goats:	<input type="text"/> Less than 1/4	<input type="text"/> Between 1/4 - 1/2	<input type="text"/> More than 1/2 to 3/4	<input type="text"/> More than 3/4
45c Sheep	<input type="text"/> Less than 1/4	<input type="text"/> Between 1/4 - 1/2	<input type="text"/> More than 1/2 to 3/4	<input type="text"/> More than 3/4
45d Pigs	<input type="text"/> Less than 1/4	<input type="text"/> Between 1/4 - 1/2	<input type="text"/> More than 1/2 to 3/4	<input type="text"/> More than 3/4

**G. Industrialization and value addition**

46 Inside the village, are there availability of -

46a co-operatives or farmer associations?	<input type="text"/> Yes	<input type="text"/> No
46b small scale manufacturing industries or similar?	<input type="text"/> Yes	<input type="text"/> No

**V. LAND OWNERSHIP, IRRIGATION AND SOIL QUALITY**47 How many households have property rights of their agricultural land inside the village?  Households47a If there is poppy cultivation, how many of them are poppy growers?  Households48 How do most of the villagers irrigate their agricultural field (*Cross only one option*)

<input type="text"/> Hosepipe	<input type="text"/> Superficial canal or divert stream / river / lake
<input type="text"/> Sprinkler	<input type="text"/> Underground canal or divert stream / river / lake
<input type="text"/> Flood	<input type="text"/> Buckets
	<input type="text"/> Others. Specify -----

49 What is the main source of irrigation? (*Cross only one option*)

<input type="text"/> Streams / springs (e.g. from mountain deglaciation)	<input type="text"/> Lakes
<input type="text"/> Rivers	<input type="text"/> Wells
	<input type="text"/> Others. Specify -----

50 How do villagers mainly extract irrigation water? (*Cross only one option*)

<input type="text"/> Hand-pump	<input type="text"/> Manually with buckets or similar
<input type="text"/> Treadle pump	<input type="text"/> Others. Specify -----
<input type="text"/> Motor pump	

51 Overall, how is the quality of land for agricultural production?

<input type="text"/> Very good	<input type="text"/> Good	<input type="text"/> Regular	<input type="text"/> Bad	<input type="text"/> Very bad
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51a If the quality of soil is bad or very bad, what are the main soil quality problems faced by the farmers? (*Cross only one option*)

<input type="text"/> Soil degradation / low organic matter and nutrients (farmers do not use enough fertilizers)
<input type="text"/> Soil degradation / low organic matter and nutrients (farmers do not rotate crops)
<input type="text"/> Soil erosion (e.g. due to deforestation and sharp slopes or heavy rain)



<input type="checkbox"/>	Soil salinization (e.g. bad drainages)
<input type="checkbox"/>	Others. Specify -----

**VI. NATURAL AND FOREST RESOURCES**52 What is the total forest area in the traditional boundary of the village?  Acres52a What is the extension of the forest area owned by individual households?  Acres52b What is the extension of common forest area, owned by groups or the community?  Acres*Check that sum of 36a+36b = total forest area (Question 36)*

53 How often do the villagers use resources provided by the forest and surroundings?

53a Collect wood for fire	<input type="checkbox"/> Always	<input type="checkbox"/> Often	<input type="checkbox"/> Sometimes	<input type="checkbox"/> Seldom	<input type="checkbox"/> Never
53b Collecting plants, seed, mushrooms	<input type="checkbox"/> Always	<input type="checkbox"/> Often	<input type="checkbox"/> Sometimes	<input type="checkbox"/> Seldom	<input type="checkbox"/> Never
53c Hunting and fishing	<input type="checkbox"/> Always	<input type="checkbox"/> Often	<input type="checkbox"/> Sometimes	<input type="checkbox"/> Seldom	<input type="checkbox"/> Never
53d Pastures for animals	<input type="checkbox"/> Always	<input type="checkbox"/> Often	<input type="checkbox"/> Sometimes	<input type="checkbox"/> Seldom	<input type="checkbox"/> Never
53e Others. Specify -----	<input type="checkbox"/> Always	<input type="checkbox"/> Often	<input type="checkbox"/> Sometimes	<input type="checkbox"/> Seldom	<input type="checkbox"/> Never

54 If there is communal forest....

54a Who have access to the communal forest resources? *(Cross only one option)*

<input type="checkbox"/>	Open access		
<input type="checkbox"/>	Regulated access.	Who regulates the access? -----	Who has access? -----
<input type="checkbox"/>	Others. Specify -----		

54b Do the status of the communal forest over the last two years have? *(Cross only one option)*

<input type="checkbox"/>	Deteriorated	<input type="checkbox"/>	Remained the same	<input type="checkbox"/>	Improved
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**VII. FOOD SECURITY AND NUTRITION STATUS**

55 During the last 12 months, how many households have not had enough food or money to buy food?

*(less than 3 rations/full cups of wheat/rice per adult per day)*

<input type="checkbox"/>	For three months or less?	<input type="checkbox"/>	For seven to nine months?	<input type="checkbox"/>	No food deficit
<input type="checkbox"/>	For four to six months?	<input type="checkbox"/>	For nine to 12 months?		

*Check that sum of 73a+...+73e = total households (Question 2)*

56 When the household do not have enough food, what do they usually do?

*select the three most important ones, and rank them from 1=the most important, 2=second most important,**3=third most important, write the number next to the corresponding option)*

<input type="checkbox"/>	Reduce number of daily meals or eat smaller meals
<input type="checkbox"/>	Do not consume expensive food or eat cheaper but less preferred staples
<input type="checkbox"/>	Reduce non-food expenditures
<input type="checkbox"/>	Spend cash savings
<input type="checkbox"/>	Borrow food from neighbors or relatives
<input type="checkbox"/>	Hunt wild animals or collect plants from the forest
<input type="checkbox"/>	Purchase food on credit
<input type="checkbox"/>	Receive free-aid or help from organizations, government, others
<input type="checkbox"/>	Sell livestock, household assets (e.g. farming tools) or land to buy food
<input type="checkbox"/>	Rent out part or all their farmland
<input type="checkbox"/>	Work longer hours or work more days
<input type="checkbox"/>	Other household members who were not working go to work
<input type="checkbox"/>	Remove children from school to work
<input type="checkbox"/>	Migrate to other regions or areas
<input type="checkbox"/>	Others. Specify -----

**VIII. ACCESS TO MARKETS AND SELF-CONSUMPTION**57 In which type of market do most of the farmers sell their crops or agricultural product *(Cross only one option)*

<input type="checkbox"/>	Local market inside the village
<input type="checkbox"/>	Market outside the village
<input type="checkbox"/>	Others. Specify -----

58 What type of market is it? *(Cross only one option)*

<input type="checkbox"/>	Daily	<input type="checkbox"/>	Irregular, sporadic
<input type="checkbox"/>	Weekly	<input type="checkbox"/>	Others. Specify -----
<input type="checkbox"/>	Monthly		

59 What is the most common mean of transportation to get to the market? *(Cross only one option)*

<input type="checkbox"/>	Feet	<input type="checkbox"/>	Motorcycle
<input type="checkbox"/>	Horse or donkey	<input type="checkbox"/>	Others. Specify -----
<input type="checkbox"/>	Bus or car		

59a How long (minutes) does it take to get to the market by this mean of transport?  Minutes

60 How most of the farmers choose the buyer? (Cross only one option)

<input type="checkbox"/>	Always sell to the same trader / They trust him/her	<input type="checkbox"/>	Contract to sell to buyer
<input type="checkbox"/>	Closest buyer	<input type="checkbox"/>	Others. Specify -----
<input type="checkbox"/>	Best price		

61 Which cash crops are usually sold?

Crop Name	Unit	Sale price
Paddy	<input type="text"/>	<input type="text"/> Kyats
Maize/Corn	<input type="text"/>	<input type="text"/> Kyats
-----	<input type="text"/>	<input type="text"/> Kyats
-----	<input type="text"/>	<input type="text"/> Kyats
-----	<input type="text"/>	<input type="text"/> Kyats
-----	<input type="text"/>	<input type="text"/> Kyats

62 If some farmers do not sell their products in the market, what is the main reason? (Cross only one option)

<input type="checkbox"/>	The market is too far
<input type="checkbox"/>	There is not demand for them
<input type="checkbox"/>	The sales prices are too low and it does not worth to sell products in the market
<input type="checkbox"/>	The roads are in bad shape for transporting products to the market
<input type="checkbox"/>	The market is difficult to reach because there are controls imposed by government/ insurgents on road transit
<input type="checkbox"/>	The market is difficult to reach due to violence and conflict make difficult to travel
<input type="checkbox"/>	The sellers in the market only buy from people they know or they trust / Farmers do not know the sellers in the market
<input type="checkbox"/>	The quality of the products is too low or good enough for finding buyers in the market
<input type="checkbox"/>	Low price / good quality products from neighboring countries are already available in the market
<input type="checkbox"/>	It is inconvenient. Traders buy on credit.
<input type="checkbox"/>	Lack of information on which agricultural products have demand or good prices
<input type="checkbox"/>	Others. Specify -----

63 How many households buy staples in the market for eating at home?

<input type="checkbox"/>	Less than 1/4 of households	<input type="checkbox"/>	More than 1/2 to 3/4
<input type="checkbox"/>	Between 1/4 -1/2	<input type="checkbox"/>	More than 3/4

#### IX. MAIN EXTERNAL AND INTERNAL SHOCKS

64 In the last 12 months, was the village affected by -

(rank the three most important shocks: 1=most severe, 2=second most severe, 3= third most severe)

<input type="checkbox"/>	Lower crop yields due to climate conditions (e.g. drought or floods)
<input type="checkbox"/>	Crop diseases or crop pests
<input type="checkbox"/>	Livestock died due to drought, floods, diseases or stolen
<input type="checkbox"/>	End of regular assistance, aid
<input type="checkbox"/>	Large fall in sale prices for crops
<input type="checkbox"/>	Large rise in price of food
<input type="checkbox"/>	Illness, accidents or deaths of household members
<input type="checkbox"/>	Infrastructure (e.g., dwelling/houses, medical clinics, school buildings) or roads damaged or destroyed
<input type="checkbox"/>	Vehicles, agricultural tools have been damaged or destroyed
<input type="checkbox"/>	Lack of employment (large number of unemployed or unpaid people)
<input type="checkbox"/>	Others. Specify -----

#### X. EXTERNAL AGRICULTURAL AND NON-AGRICULTURAL ASSISTANCE

65 What kind of external agricultural assistance have the villagers received during the last 12 months? (Multiple choice)

65a <input type="checkbox"/>	Seeds	For which crops? -----	65e <input type="checkbox"/>	Agricultural tools	Which kind? -----
65b <input type="checkbox"/>	Fertilizers		65f <input type="checkbox"/>	Animal vaccinations	
65c <input type="checkbox"/>	Herbicides		65g <input type="checkbox"/>	Others. Specify -----	
65d <input type="checkbox"/>	Pesticides and fungicides		65h <input type="checkbox"/>	No external agricultural assistance	

66 Have the farmers participated in formal or non-formal training in the last 12 months? ☐ Yes ☐ No

67 Have the farmers received in kind or money transfers from social assistance programs in the last 12 months?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
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#### XI. DEBT AND RURAL FINANCE

68 How many households are in debt or have outstanding loans?  Households

68a Of them, how many are poppy growers?  Households

69 What was the main reasons for obtaining loans? (Cross only one option)

<input type="checkbox"/>	Purchase land	<input type="checkbox"/>	Purchase non-farm inputs
<input type="checkbox"/>	Purchase agricultural inputs	<input type="checkbox"/>	Others. Specify -----
<input type="checkbox"/>	Purchase inputs for opium cultivation		

70 What is the main reason why do some households do not borrow mor (Cross only one option)

<input type="checkbox"/> No need	<input type="checkbox"/> Inadequate collateral
<input type="checkbox"/> Have already failure to pay debt	<input type="checkbox"/> Do not like to be in debt
<input type="checkbox"/> Believed to be refused	<input type="checkbox"/> Do not know any lender
<input type="checkbox"/> Too expensive	<input type="checkbox"/> Others. Specify -----
<input type="checkbox"/> Too much trouble for what it is worth	

71 If there is poppy growing in the village this season -

71a Did farmers get advance money or advance payments to cultivate opium poppy this season? ☐ Yes ☐ No

## XII. INFORMATION, SECURITY ISSUES, SOCIAL CAPITAL, AND RULE OF LAW

72 Do households in the village have their own -

72a Radio:	<input type="checkbox"/> Less than 1/4	<input type="checkbox"/> Between 1/4 and 1/2	<input type="checkbox"/> More than 1/2 to 3/4	<input type="checkbox"/> More than 3/4
72b Television:	<input type="checkbox"/> Less than 1/4	<input type="checkbox"/> Between 1/4 and 1/2	<input type="checkbox"/> More than 1/2 to 3/4	<input type="checkbox"/> More than 3/4
72c Cell phone	<input type="checkbox"/> Less than 1/4	<input type="checkbox"/> Between 1/4 and 1/2	<input type="checkbox"/> More than 1/2 to 3/4	<input type="checkbox"/> More than 3/4

73 How safe is currently the village?

☐ Very safe ☐ Safe/Secure ☐ More or less safe ☐ Insecure ☐ Very insecure

74 In comparison to last year, has safety inside the villa? (Cross only one option)

☐ Deteriorated ☐ Remain the same ☐ Increased

75 If villagers were in serious financial/economic troubles -

75a do they have relatives or friends they can count on to help them?

☐ Less than 1/4 ☐ Between 1/4 and 1/2 ☐ More than 1/2 to 3/4 ☐ More than 3/4

75b do they access to help through the organized community ?

☐ Always ☐ Usually ☐ About half of the time ☐ Seldom ☐ Never

76 Which is the main method used to solve internal, neighbor-related or domestic disputes from villagers

(formal or informal judicial mechanism) (Cross only one option)

<input type="checkbox"/> Government officials	<input type="checkbox"/> Anti-government organization
<input type="checkbox"/> Respected member of the community	<input type="checkbox"/> Traditional justice through community-based organizations
<input type="checkbox"/> Military or police	<input type="checkbox"/> Others. Specify -----

76a In general, how effective is this method in solving disputes?

☐ Very effective ☐ Effective ☐ More or less effective ☐ Ineffective ☐ Very ineffective

77 How many villagers (male adults in working age) participate in organized communal activities?

(e.g. construction of common roads for the community)

<input type="checkbox"/> Less than 1/4 of male adults	<input type="checkbox"/> Between 1/4 and 1/2
<input type="checkbox"/> More than 1/2 to 3/4	<input type="checkbox"/> Between 1/4 and 1/2

78 In the last 12 months, would you say the villagers have become -

☐ More united ☐ Less united ☐ As always ☐ Do not know

79 Who has been mainly controlling of the villa? (final decision on access to territories and resources)

79a This year (Cross only one option)

<input type="checkbox"/> Government	<input type="checkbox"/> Insurgence
<input type="checkbox"/> Militia	<input type="checkbox"/> Others. Specify -----
<input type="checkbox"/> Ceasefired ethnic force	

79b Last year (Cross only one option)

<input type="checkbox"/> Government	<input type="checkbox"/> Insurgence
<input type="checkbox"/> Militia	<input type="checkbox"/> Others. Specify -----
<input type="checkbox"/> Ceasefired ethnic force	

## XIII. AWARENESS AND ERADICATION CAMPAIGNS FOR OPIUM POPPY

80 Was there any initiative to convince farmers not to cultivate opium poppy inside the village before planting time?

☐ Yes ☐ No

80a If yes, what was the main source of the awareness information? (Cross only one option)

<input type="checkbox"/> Billboard	<input type="checkbox"/> TV
<input type="checkbox"/> Governador	<input type="checkbox"/> Community-based association
<input type="checkbox"/> Religious leader	<input type="checkbox"/> Others. Specify -----
<input type="checkbox"/> Radio	

81 If there was poppy growing in the village this season -

81a has there been any poppy eradication in the village this season? ☐ Yes ☐ No

81b If yes, what proportion of the total poppy area in the village was affected?

☐ Less than 1/3 ☐ Between 1/3 - 2/3 ☐ More than 2/3

**XIV. MIGRATION AND DISPLACEMENT**82 How many people have permanently left the village in the last 12 months?  People

83 What are the main reasons for leaving the village?

(select the three most important ones, and rank them from 1=the most important, 2=second most important, 3=third most important, write the number next to the corresponding option).

<input type="text"/>	Schooling	<input type="text"/>	Getting married
<input type="text"/>	Unemployment / lack of jobs	<input type="text"/>	Natural disasters / destroy or damage of crops
<input type="text"/>	Lack of access to food	<input type="text"/>	Others. Specify -----
<input type="text"/>	Security issues		

84 Where did they mainly leave? (cross only one option)

<input type="text"/>	Other village in the same region	<input type="text"/>	Other non-neighbouring countries (e.g., as refugees)
<input type="text"/>	Other village in other region	<input type="text"/>	Others. Specify -----
<input type="text"/>	Neighbouring countries		

85 How many people have immigrated to the village in the last 12 months?  People

86 From where did they mainly come from? (cross only one option)

<input type="text"/>	Other village in the same region	<input type="text"/>	Other non-neighbouring countries (e.g., as refugees)
<input type="text"/>	Other village in other region	<input type="text"/>	Others. Specify -----
<input type="text"/>	Neighbouring countries		

**XV. WELL-BEING, ETHNIC COMPOSITION AND FINAL QUESTIONS****A. Assessment of well-being and ethnic composition**87 What different languages do the villagers speak at home? 

88 How many households are under the following situations?

(Indicate number of households and the languages these households speak at home)

	Number of households	Languages they speak at home
- Current income allows them to build their savings	<input type="text"/>	-----
- Current income allows them to save just a little	<input type="text"/>	-----
- Current income only just meets their expenses	<input type="text"/>	-----
- Current income is not sufficient so they need to use their savings or sell assets to meet expenses	<input type="text"/>	-----
- Current income is really not sufficient, so they need to borrow to meet expenses	<input type="text"/>	-----

Check that sum number of household equal total households (Question 2)

**B. Use of drugs and prevention of drug use**

89 How many persons above or equal to 15 years old took -

89a Opium in the last 4 weeks?	<input type="text"/>	Persons
89b Heroin in the last 4 weeks?	<input type="text"/>	Persons
89c Synthetic drugs in the last 4 weeks?	<input type="text"/>	Persons

90 During the last 12 months, were there any -

90a awareness campaign in place inside the village to prevent drug use?	<input type="text"/>	Yes	<input type="text"/>	No
90b initiative in place inside the village to treat drug users?	<input type="text"/>	Yes	<input type="text"/>	No

**C. Suggestions for government**

91 What would be your suggestion for the government to stop poppy cultivation?

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**D. Final comments**

92 Do you have any final comments you would like to add?

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# UNODC

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