EMC Emerging Markets Consulting

Myanmar Cookstoves Market Assessment

geres Energie Environnement Solidarité

stove+

Social Enterprise EGG Since 1998

This project is funded by the European Union

Final Report

Tuesday, June 30th, 2015

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Country Overview

Political Environment

- The country has embarked upon a series of structural reforms since 2010. Nevertheless, organizations working in Myanmar may still face operational limitations.
- The country is politically divided into 7 regions, 7 ethnic states, 64 districts, 324 townships, and 64,436 villages.

Economy

- With an average GDP growth rate of 11% between 2000 - 2012, Myanmar's economic size has increased six-fold in the past decade.
- While the industry and service sectors represent over 60% of total GDP, more than 70% of Myanmar's total labor force is still dependent on agriculture.
- The financial sector in Myanmar is small, under development and currently represented by 4 state-owned banks and 19 private banks.
- Microfinance is being offered by a variety of stakeholders and growing. Nonetheless, demand for microfinance services is high with an estimated approximate market gap close to 1 billion USD.

Socio-Demographics

- The majority of population still resides in rural areas although there is a shift towards increased urban population as a percentage of the total population. Myanmar's population has had an average growth rate of 0.8% in the past decade.
- The economically active age group of 15-64 years old is approximately 70% of Myanmar's total population.
- There is clear income cutoff between rural and peri-urban areas, with ~83% of the population of rural areas earning less than 250,000 MMK / month, while the same number goes down to 67% for peri-urban areas.

Stoves and Fuels

Stoves

- The most common type of stove used across country is the three stone open fire (35%), followed by the charcoal / multipurpose stove (27%) and the electric stove (15%).
- Charcoal stoves (46%) and electric stoves (35%) dominate in peri - urban environments, while three stone is the most predominant stove in rural environments (50%).
- The penetration of LPG stoves is extremely low, due to the 2014 spikes in the price of liquid petroleum.
- The choice of stoves is highly dependent on location of the users and income levels. In urban environments users are more likely to switch to improved stoves with an increasing income, while this relationship is lower in rural locations.
- Production of A1 models, based on Thai design has been identified around Magway, while clay charcoal stoves are being produced around Pathein in the delta region.

Fuels

- The majority of the population in Myanmar is still dependent on solid fuels for cooking purposes (85%)[1]. Firewood (59%) and charcoal (24%) are the most prevalent fuel sources followed by electricity (15%).
- In rural environments, the % of population relying on firewood increases to 80%. The dominance of firewood in these environments persists across both lower and higher income brackets.
- Peri-urban environments are dominated by charcoal (45%) and electricity (35%), and it's possible to identify the tendency of households from charcoal to electricity from lower to higher income brackets.
- Among the 25% of households who use more than one type of fuel, primary firewood users tend to also use charcoal. Primary charcoal users tend to use electricity and wood as secondary fuels, and primary electricity fuels also resort to charcoal.

1. This figure is based on primary sources obtained from the Myanmar Household Cooking Survey – TNS (2015; N=803)

Health and Environment

Health

- Overall life expectancy in Myanmar (64.9 years) is ranked 146 out of 196 countries. This difference is more pronounced for women who tend to live almost 10 years shorter than regional comparison countries.
- The Global Burden of Disease assessment indicated that the three risk factors that account for the most disease burden in Myanmar are dietary risks, tobacco smoking, and household air pollution from solid fuels. Household air pollution represents a high risk for women 15 to 49.
- Over 95% of Myanmar households still use solid fuels as their primary cooking fuel [2]. The burning of solid fuels such as wood and charcoal on traditional cookstoves releases smoke that contains a complex mix of health damaging pollutants, such as $PM_{2.5}$ and carbon monoxide. Myanmar ranked 151 out of 178 countries for population weighted exposure to $PM_{2.5}$.

Environment

- Myanmar remains well endowed with forest cover yet the country has experienced some of the highest rates of forest loss on Earth: 1.17% (1990 to 2000), 0.9% (2000 to 2005) and 0.95% (2005 to 2010)
- Overall, about 65% of the rural population lives in areas that present wood fuel balance deficit conditions. South and Central regions present highest wood fuel balance deficit areas.
- Based on current trends of biomass consumption, UNEP estimates that if 25% of the country's 13 million households shift from traditional to efficient cook stoves - potential emissions reduction would amount to 6.5 million tCO2 per year. Recent studies however recommend caution in estimating the actual total reduction potential in Myanmar.
- Myanmar is classified as a LDC, which makes it suitable for both voluntary and compliance carbon markets. Myanmar has one registered voluntary cookstove Program of Activities (PoA), and one more CDM PoA is under development.

2. This figure is based from secondary sources obtained from the "Myanmar Energy Poverty Survey" – MercyCorps (2011)

Recommendations

Supporting Stove Producers

- GERES can support the currently existing production of A1 models stoves around the area of Magway, and the production of clay charcoal stoves undergoing in the area of Pathein.
  - Supporting the creation of national level **standards**, by testing the characteristics of current stove designs to identify potential improvements, and by working in close collaboration with the Forestry and Health Ministries who can support and inforce these standards.
  - Creating **quality assurance** mechanisms to improve quality and efficiency of local production, through production Training of Training systems, as well as by providing laboratory testing services.
  - Supporting the **market** access potential of involved suppliers by improving their management, marketing capacity, as well as aiding them in accessing finance from existing providers.

Building Market Demand

- GERES can support the demand growth for improved stoves, focusing at least in the short term in urban and peri-urban areas, featuring higher ease of market access.
  - Carrying out **marketing** activities through various channels: TV, radio and newspaper ads, focusing especially on demand drivers like stoves durability, safety and ease of use.
  - Partnering with existing grass roots organizations to carry out **awareness campaigns** in rural areas to expand local knowledge of the impact of unimproved cooking methods.
  - Continuous **research** on the customer base and the evolution of market trends will be crucial to be able to support stove producers.

Carbon Finance

- Depending on project stove efficiency, high potential exists for an improved cookstove program to achieve emission reductions and to qualify for carbon finance. Transaction costs can be reduced by joining an existing PoA, and financing can be accessed through the GACC Clean Cooking Loan Fund.

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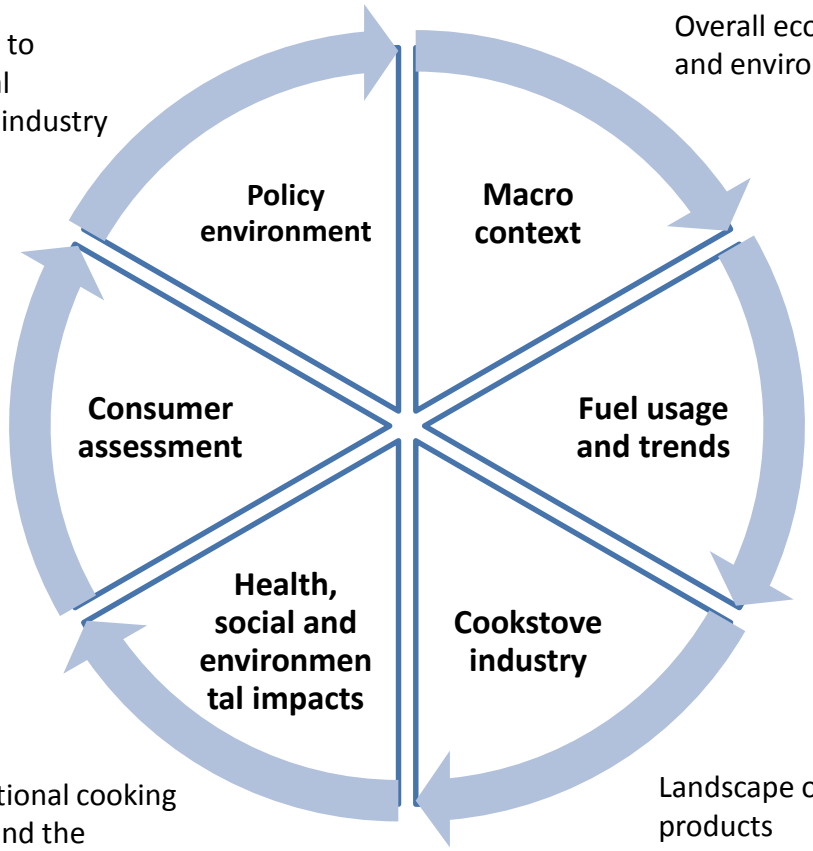
Project Background – Research Approach

The study was designed to provide an in-depth review of the cookstove industry in Myanmar by focusing on six key research areas

Governmental policies, access to finance, and non-governmental organizations priorities for the industry

Overall economic, social, demographic, and environmental trends



Market segmentation, needs, and challenges of current/potential customers of cookstoves

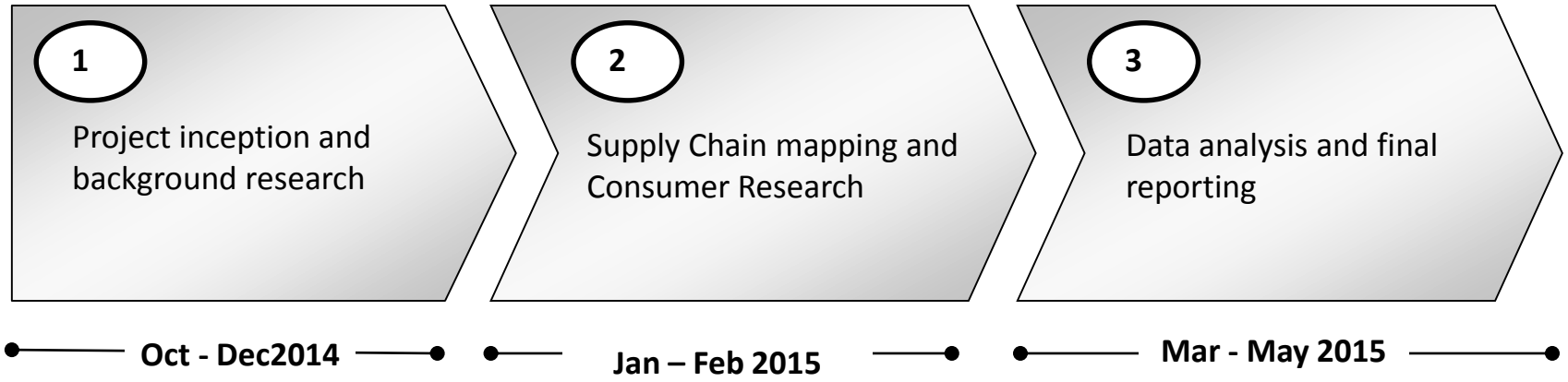
Types, amounts, and forecast of fuels used by consumers in Myanmar

Primary impacts of traditional cooking technologies on health and the environment

Landscape of available cookstove products

Project Background – Timeline

The consortium designed the project through three distinct phases to be completed in the lapse of 6 months



- Kick Off
- Desk review
- Stakeholder interviews
- Research methodology development
- Inception report

- Supply Chain assessment
- Quantitative research
  - Survey tools
  - Household interviews

- Data analysis
- Preliminary Findings
- Final report

Methodology - Overview

Primary research was carried out for the following analytical steps: Key Informant Interviews (KII), Household Survey (HS), and Supply Chain Analysis (SCA). The type of data collected for each was quantitative and qualitative in nature; with research tools including direct interviews, questionnaires and focus groups.

	Type of data	Research Tools	Sample size
Key Informant Interviews (KII)	Qualitative	Direct Expert interviews	16
Household Survey (HS)	Qualitative & Quantitative	Questionnaires	803
Supply Chain Analysis (SCA)	Qualitative & Quantitative	Questionnaires; Direct interviews	27

Methodology – Key Informant Interviews (KII)

In-depth interviews were carried out with key informants who had first hand knowledge of the cookstove sector Myanmar. A total of 18 interviews were conducted mainly in Yangon with representatives from the private sector, NGOs, government agencies, multi-lateral organizations and private experts.

Private sector/Social Enterprises	
Parami Energy	One of the main energy players in the country (especially oil and gas)
Indigo Energy	Company working in the installation of biomass and solar energy distribution sources
Proximity Design	Local social enterprise focusing on rural energy (e.g. solar lanterns) among others. It offers loans to customers for their products which has proven successful.
NGOs	
Ever Green Group	Local social enterprise partner of GACC and with experience in improved cookstoves
FREDA	Local CSO related to environmental deterioration and that has worked in the ICS sector for INGOs
Mercy Corps	Currently has a fuel-efficient cookstove program running in the country
Cesvi	INGO working on nutrition and management of natural resources in the dry area
Vision Fund International	Microfinance program mainly for small businesses
MERN	Local environmental NGO that has worked in the ICS sector for INGOs
EcoDev Myanmar	Leading local NGO advocating environmental governance and that has worked in the ICS sector for INGOs
Partnership for Change	Norwegian NGO working in the social, environmental and sustainable development of local communities
Mangrove Service Network	Local expereinces working with ICS
PACT World	Has a microfinance program running in the country but mainly as savings for women
Government Agencies	
Ministry of Environment, Conservation and Forestry (MOECAF)	In charge of biomass energy and conservartion specially of wood fuel
Multilateral agencies	
FAO - Myanmar	Has several projects in the dry area and has worked/procured efficient cookstoves in the past
UNDP - Myanmar	Has worked /procured efficient cookstoves in the past
2 Experts, Local ICS producers in Yangon	

Methodology - Household Survey (HS) sampling

The Household Survey (HS) collected primary data on stove use and fuel consumption from over 800 households across seven regions in Myanmar. A comprehensive questionnaire was designed for this purpose.

Target Areas			Sample		
Region	Location	Area	Peri-Urban	Rural	**Total**
Yangon	Yangon	Urban	60		**60**
Mandalay	Mandalay	Urban / Dry	32		**32**
Ayerwaddy	Pathein	Delta	40	90	**130**
Bago	Bago	Plain	30	101	**131**
Shan State	Taunggyi	Hilly	40	140	**180**
Magway	Magway	Dry	46	134	**180**
Tanintharyi	Dawei	Coastal	30	60	**90**
		Total	**278**	**525**	**803**

Methodology - Household Survey (HS) selection

The survey utilized a "probability proportionate to size" (PPS) approach for selecting villages that were interviewed in rural and peri-urban areas.

Selection of Townships

21 townships selected to give good representation across the regions specified. Yangon: 5 townships, Mandalay: 4 townships, all other regions/states 2 townships.

↓

Villages wards selected PPS. 20 households selected per village / ward.

↓

Selection of Households

Systematic random sampling. 803 Households selected.

↓

Selection of Respondents

Within each household, the female head of the household selected for interview.

- The sample was designed to give representation across the five main geographic regions of the country, and to include sizeable peri-urban and rural segments*; big enough for detailed analysis.
- This sample size provides 95% confidence level of results which are representative of the Myanmar population with a confidence interval of +/- 3%.
- Quality control processes applied throughout the research training, from tools development, enumerator training, to data entry

Note: Peri Urban refers to landscape interface between town and country, or also as the rural—urban transition zone where urban and rural uses mix.

Methodology – Supply Chain Analysis (SCA)

The supply chain analysis (SCA) focused in two key analytical areas: Fuels and cookstoves. In the case of the former, the emphasis was in understanding price differentials and sizes utilized for LPG tanks and charcoal bags. For the latter, the emphasis was in understanding types and profit margins of producers, modifiers and resellers of cookstoves.

Fuels

15 interviews were carried out to distributors/resellers of LPG and charcoal in five regions

- Ayeyarwaddy (3)
- Yangon (1)
- Mandalay (1)
- Bago (1)

- Yangon (3)
- Mandalay (2)
- Shan (2)
- Tanintharyi (1)
- Bago (1)

Cookstoves

12 interviews were carried out with producers, modifiers and resellers of cookstoves

Ayeyarwaddy	5 Participants in Pathein
Yangon	4 Participants
Magway	2 Participants
Mandalay	1 Participant

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Country Overview – Political Environment

The country has embarked upon a series of structural reforms since 2010. Nevertheless, organizations working in Myanmar may still face operational limitations.

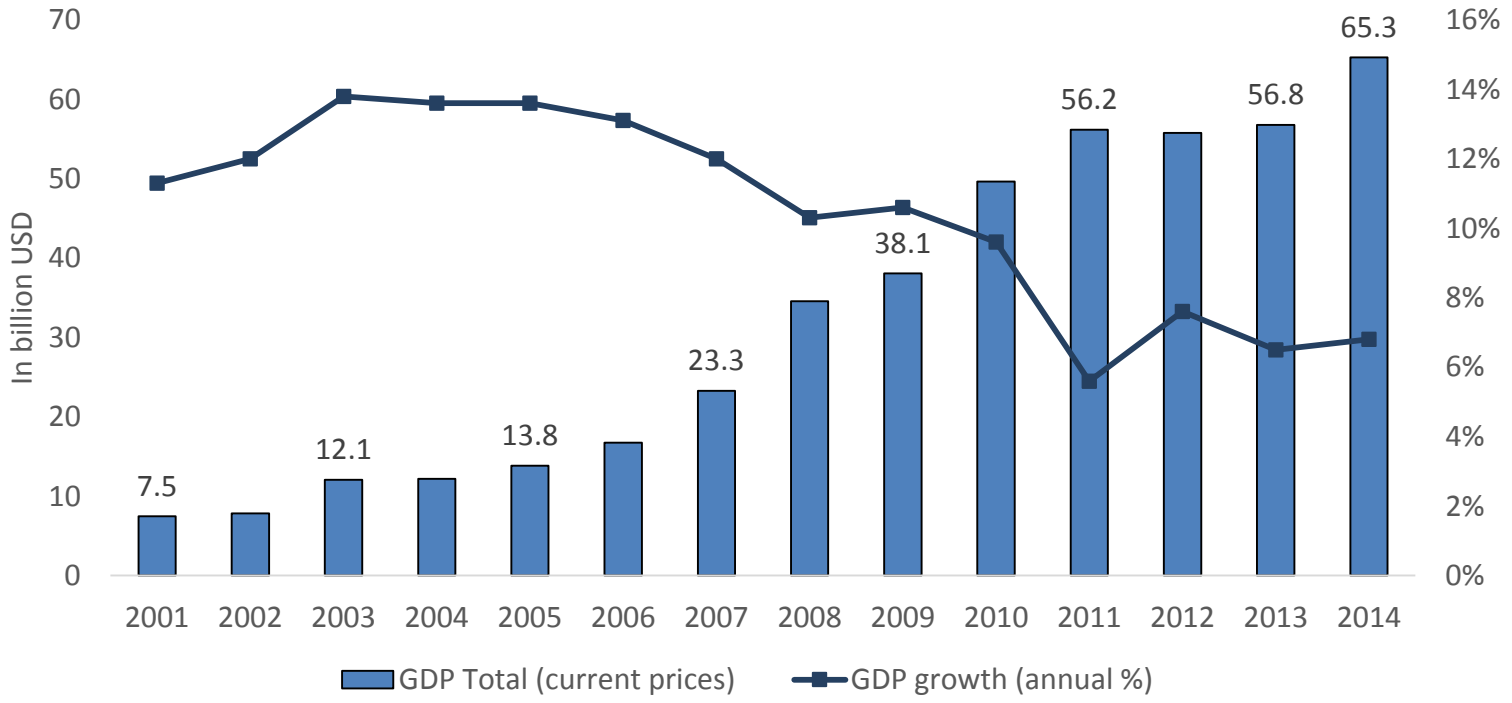
Political and Administrative structure	• The Republic of the Union of Myanmar is a unitary presidential constitutional republic • The President is the head of state and leads the country with its 31 cabinet members (ministries) • The country is politically divided into 7 regions, 7 ethnic states, 64 districts, 324 townships, and 64,436 villages. • The legislative branch is divided in the People's Assembly (elected on basis of township and population) and the House of Nationalities (equal number for each region and state)
Current Government	• Since 2010 the country has embarked into a series of reforms after decades of military rule, which has led to a reduction in the number of economic sanctions imposed by the international community. • The last elections were held in early 2012 where the main opposition party won the majority of available parliamentary seats . • The current president is Thein Sein who represents Myanmar's "Union Solidarity and Development Party". The opposition leader is Aung San Suu Kyi who represents the "National League for Democracy". The latter recently won 43 out of 44 contested seats in the 2012 parliamentary elections, but this still represents a small number of the total 440 seats in the People's Assembly. • The next general elections are due to take place in 2015.
Working with the Government	• According to a recent report by The Hauser Center, international organizations operate in the country under various frameworks such as Memoranda of Understanding (MOU) or Letters of Agreement with relevant ministries . • Other issues relate to uncertainty and delays in registration status for organizations working closely with the government
Military and Religious Unrest	• The country is still suffering from armed oppositions to the central government. Four ethnic armed groups still have not declared a cease fire: KIA, AA, ABSDF and TNLA. • Anti-Muslim violence has been rising in the country, with the recent high profile Rakhine State violence in 2012 and riots in Central Myanmar in 2013 and 2014. There has been attacks reported in Meiktila, Mandalay, Naypyidaw, Bago and Yangon, leaving ~100,000 Muslim homeless. The Rohingya ethnic minority are particularly affected by this violence since they are not recognized as citizens of Myanmar.

Sources: CIA Factbook, Harvard University's Hauser Institute for Civil Society, and Myanmar's Ministry of Health

Country Overview – Economy and GDP Growth

With an average GDP growth rate of 11%* between 2000 - 2012, Myanmar's economic size has increased six-fold in the past decade. Recent growth has been mainly bolstered by strong export earnings from resource-based commodities and by foreign direct investments.

GDP in Billion USD (current prices) vs. Annual GDP growth (%)



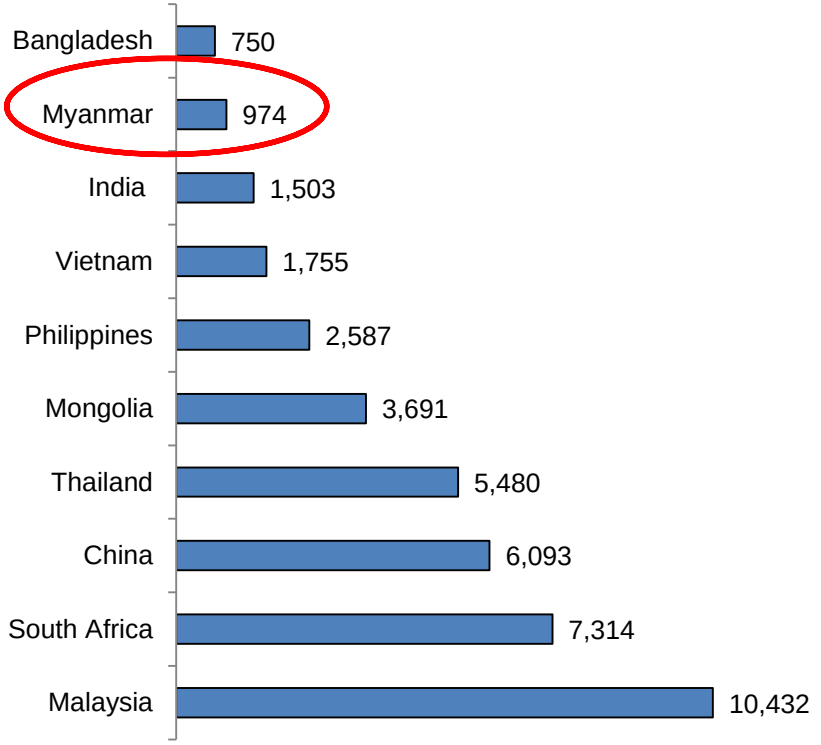
Sources: Asian Development Bank and IMF

Note: IMF reports a potential large estimation error in these figures used by other organizations by up to 3% - 4 %. (*)Constant Annual Growth Rate

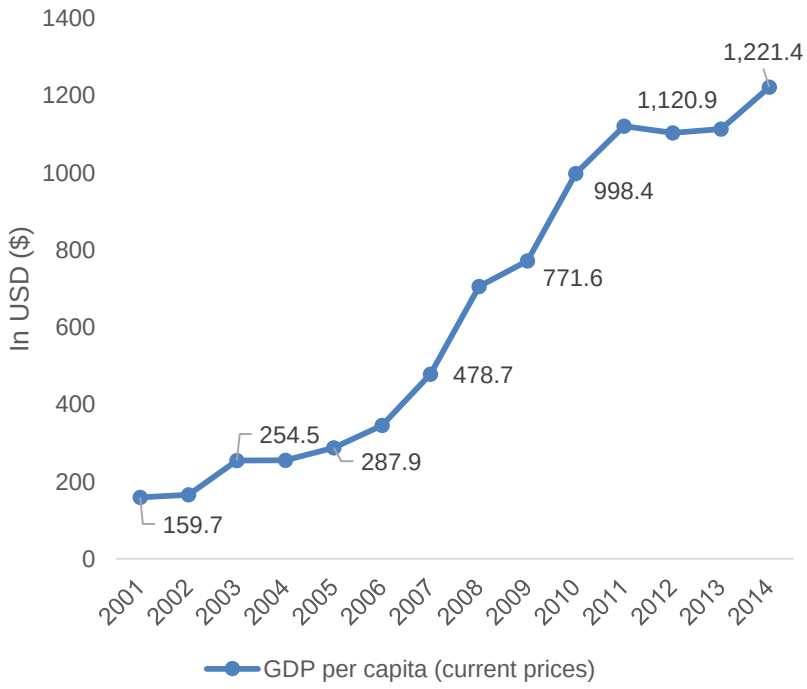
Country Overview – GDP Per Capita

On a per capita basis, Myanmar has experienced a seven-fold GDP increase in the past decade but this figure still lags behind regional averages.

GDP per capita 2012 (nominal, current international USD)



GDP per capita 2001-2014 (current prices, in USD)

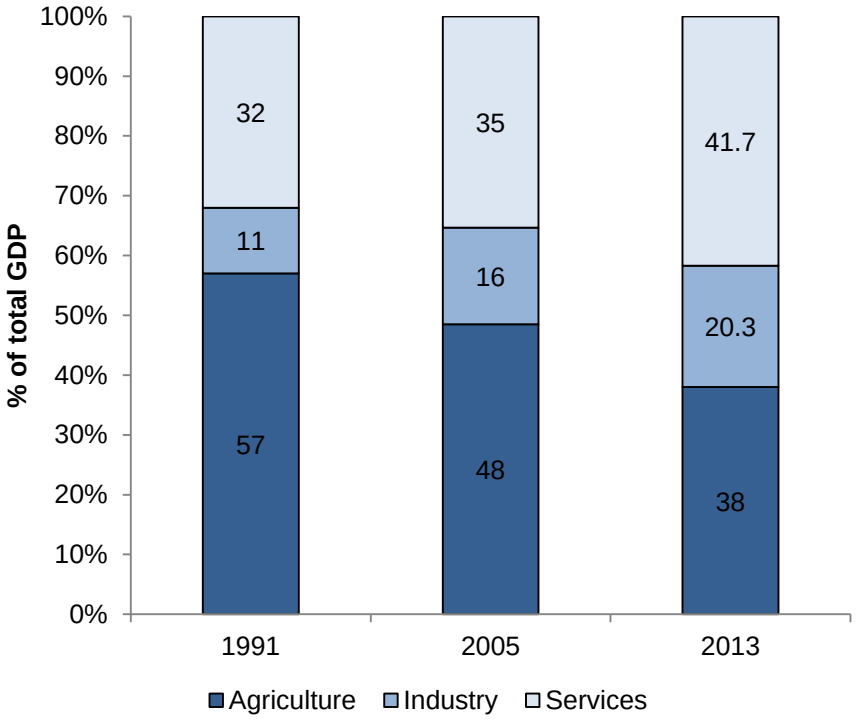


Sources: IMF and World Bank

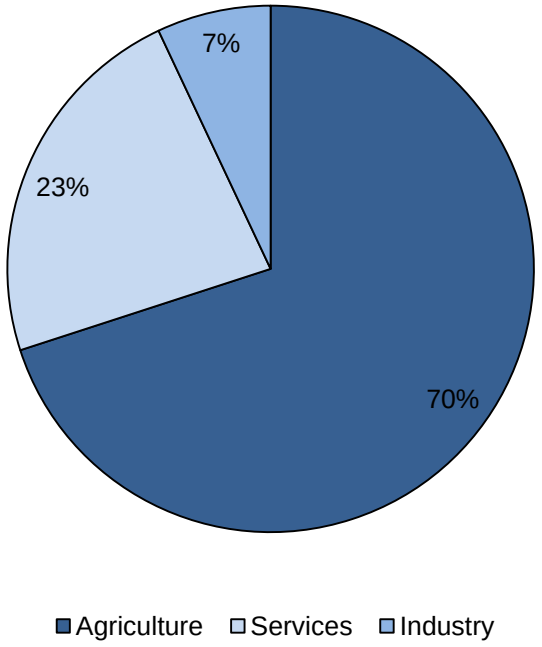
Country Overview – Sector Contribution

While the industry and service sectors represent over 60% of total GDP, more than 70% of Myanmar's total labor force is still dependent on agriculture.

Total GDP – Composition by sector (%)



Labor Force – by occupation (est. 2001)

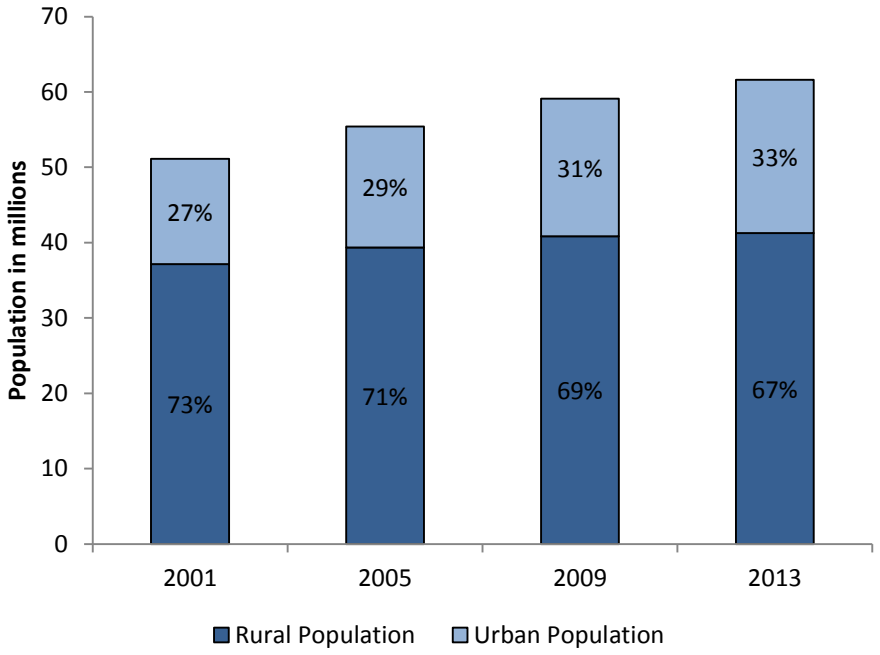


Sources: World Bank, CIA Factbook and Ministry of Planning and Economic Development

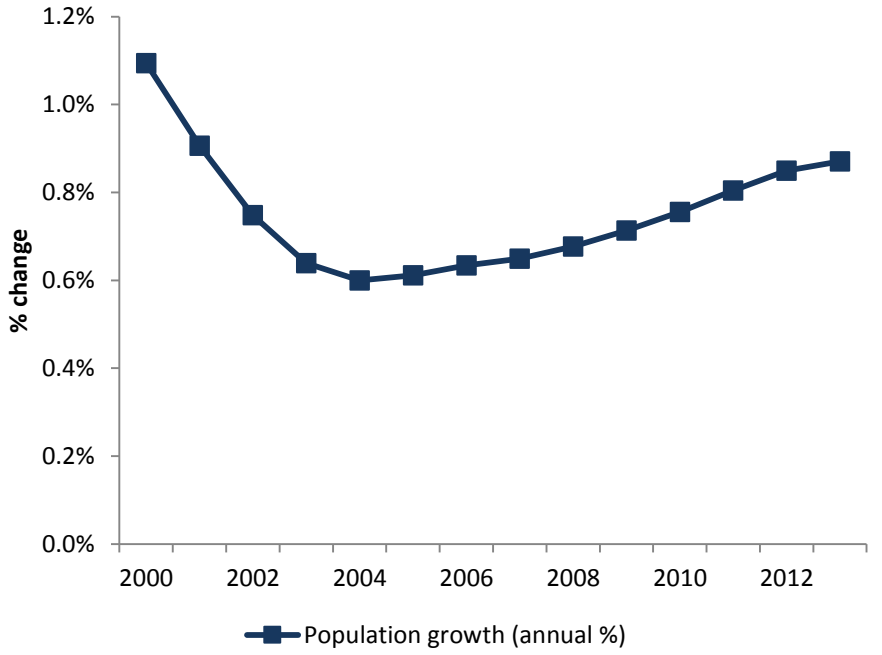
Country Overview - Demographics

The majority of population still resides in rural areas although there is a slight shift towards increased urban population as % of total. Myanmar's population has had an average growth rate of 0.8% in the past decade.

Population breakdown (Rural vs. Urban)



Population Growth (%)

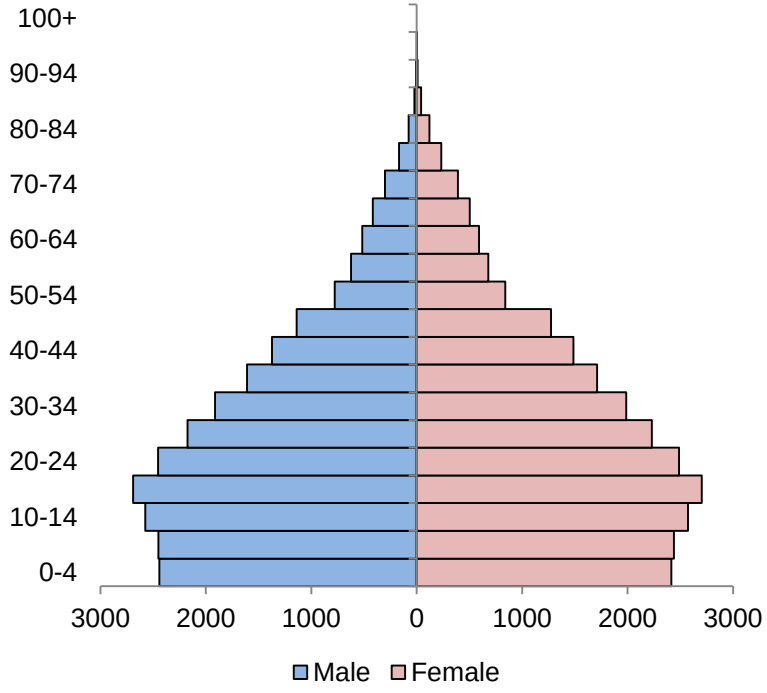


Sources: Asian Development Bank and World Bank

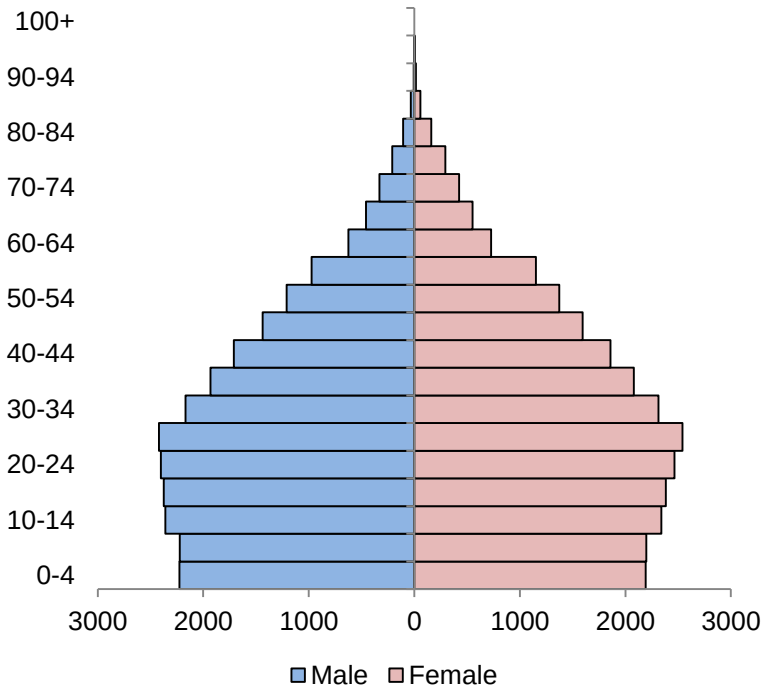
Country Overview – Age Distribution

The economically active age group of 15-64 years old represents approximately 70% of Myanmar's total population. The country's relatively low fertility rate (2.23 in 2011) compared to other SE Asian neighbors is causing the population distribution to shift towards older age brackets.

2000* Population Gender / Age Distribution, 000s



2010* Population Gender / Age Distribution, 000s



Source: United Nations, Department of Economic and Social Affairs Population Division

Country Overview – Population Distribution

The most populous and densest regions in the country are Yangon (14.3%), Ayeyarwaddy (12%), and Mandalay (12%). The average household size is 4.5 and regional urbanization rates are low with the exception of Yangon Region (over 70%).

State/Region	Population (in millions)	Sex ratio (male/female)	Urbanization Rate	Pop. Density (per sq. km)	Average household size
Kachin	1.69	108	36%	19	5.1
Kayah	0.29	100	25%	24	4.8
Kayin	1.57	97	22%	52	4.7
Chin	0.48	92	22%	13	5.1
Sagaing	5.32	90	17%	56	4.6
Tanintharyi	1.41	99	24%	32	4.8
Bago	4.86	92	22%	123	4.1
Magway	3.91	87	15%	87	4.1
Mandalay	**6.15**	91	35%	**206**	4.4
Mon	2.05	93	28%	167	4.6
Rakhine	3.19	90	17%	87	4.4
Yangon	**7.36**	92	**70%**	**723**	4.4
Shan	5.82	100	24%	38	4.7
Ayeyawady	**6.18**	95	14%	176	4.1
Nay Py Taw	1.16	95	32%	164	4.1
Total/Average	**51.4**	**94.7**	**27%**	**131**	**4.5**

Sources: Provisional results of the "Population and Housing Census of Myanmar" (2014)

Country Overview - Gender profile

Myanmar is making progress with regard to addressing gender inequality particularly with regard to education and representation in work force. With an gender inequality index (GII) of 0.43 it is performing better than Cambodia (GII index 0.51) and Lao PDR (GII index 0.53). Challenges that remain for Myanmar women include high maternal mortality rates, unequal pay for similar work with men, and low political representation.

Gender Equality Statistics		
	Myanmar	East Asia and the Pacific
UNDP Gender Inequality Index[1] (2013)	0.43 (ranking 83 out of 149 countries)	0.33
Population with at least some secondary education (%)	18.0% (female) 17.6% (male)	54.6% (female) 66.49% (male)
Literacy rate, adult female (% of female ages 15 and above), 2012	90%	
Labor force participation rate , female (%), 2012	85.7 % (female) 82.9% (male)	62.8% (female) 79.3% (male)
Reported amount less women are paid than men per day of casual work.	500 MMK to 1,000 MMK (Min. wage for laborers at 2,000 MMK/day)	
Maternal mortality ratio, deaths per 100,000 live births , 2010	200 (Can be as high as 700 in some ethnic states.)	72
Share of seats in parliament	4.6%	18.7

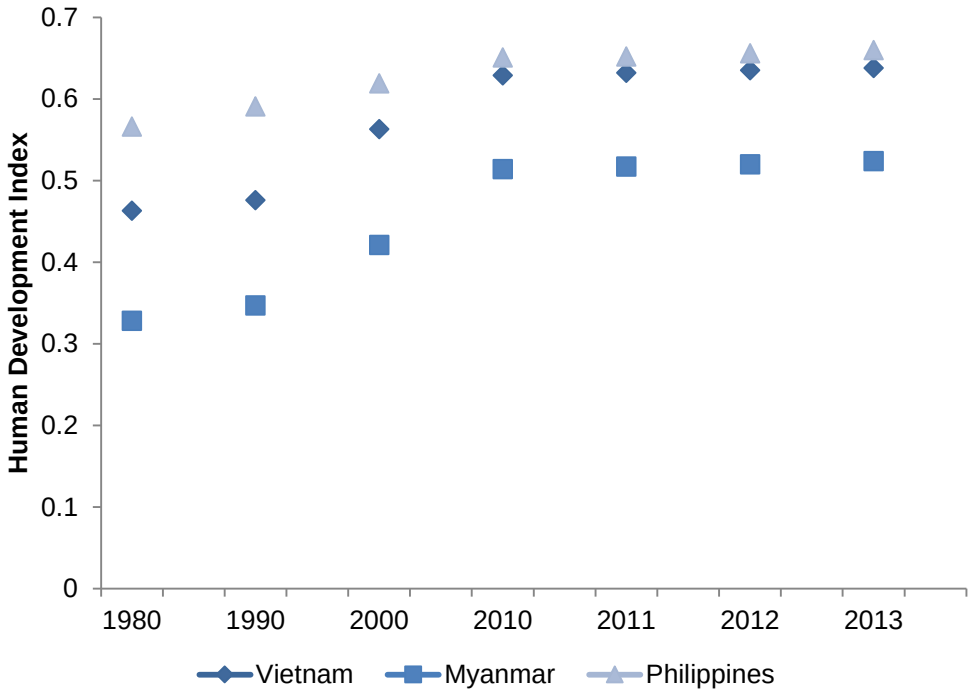
Source: UNDP, Livelihoods and Food Security Trust Fund Baseline Report (2012)

Note: The gender inequality index (GII) measures the human development costs of gender inequality, thus the higher the GII value the more disparities between females and males. The GII values vary greatly across countries, they range from 0.021 to 0.73.

Country overview – Development Index

Although still classified as a 'low human development' country, Myanmar's human development index1 has been growing over the past 10 years, albeit at a slower pace in recent years.

Trends in human development index 1990-2013



	HDI Rank (of 187)	Rank Change 2012-13
Vietnam	121	+2
Myanmar	150	0
Philippines	117	-1

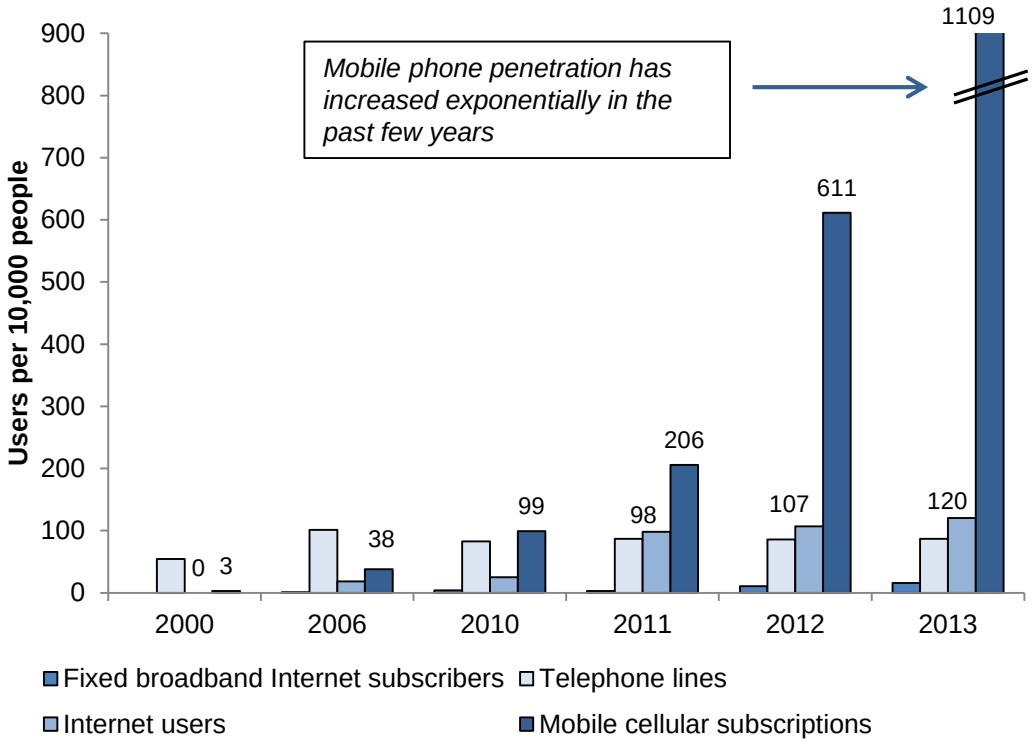
Source: UNDP [http://hdr.undp.org/en/content/human-development-index-hdi]

Note: The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions.

Country Overview – Media & Communications

Media and communications have undergone strict censorship and regulation in the country since the military takeover in 1962. Nonetheless, recent legal reforms have allowed for increased printed media circulation and exponential market expansion for the mobile phone industry.

Access to communications (national), per 10,000 people



* In 2013, Reporters Without Borders ranked Myanmar 153 out of 178 countries in its "Press of Freedom Index"

* The country has in circulation 3 government-owned dailies distributed free of charge, and 4 privately owned newspapers that sell for approximately $0.17 per copy. Some estimates

* There are 6 TV stations controlled by the government and only 1 private channel. The most watched ones are MTV1 and MTV2.

Source: Reuters and World Bank

Country Overview - Infrastructure

The country was ranked 133 out of 155 in the latest Logistics Performance Index (LPI) mainly due to institutional constraints. The current limited access to and the poor state of infrastructure are impediments to providing basic health/education services as well as for economic development. Many roads are not passable during the monsoon season. Still, the sector presents high potential for investments and development as the country is expected to become a major regional trading hub due to its geographical location between India and China.

Roads

- In 2011 Myanmar's number of vehicles per 1000 people was 38. In comparison the number for Thailand was 432 and for Lao PDR 171. Nonetheless, the number of registrations have been growing exponentially since 2007.
- With a total road length of over 150,000 km., road construction has more than tripled since 2003 and is expected to continue growing as the economy booms
- The main responsible agencies are the Ministry of Transport and Ministry of Construction

Railways

- The railway sector is monopolized by the state-owned enterprise "Myanmar Railways"
- With a network of 5844km, it has expanded over 78% between 1988 and 2010 but is still in poor conditions and dire need for upgrade investments
- The main responsible agency is the Ministry of Rail Transportation

Ports

- Myanmar currently has 9 ports along the western and southeastern coast of the country
- The most important one is in Yangon which handles over 90% of the total estimated cargo of 21.5 million tons per year
- Although still underdeveloped, these ports have the potential to become regional transportation hubs due to their strategic location
- The main responsible agencies are the Ministry of Transport and Myanmar Port Authority

Air Transport

- The country currently has 32 operational airports with 19 of them being international.
- The busiest one is in Yangon with total capacity of 2.7 million passengers per year
- The main responsible agency is the Myanmar Department of Civil Aviation

Source: "Infrastructure in Myanmar" (2013), KPMG

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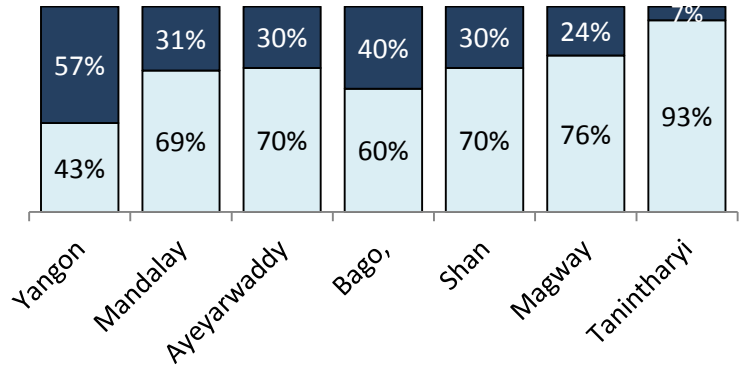
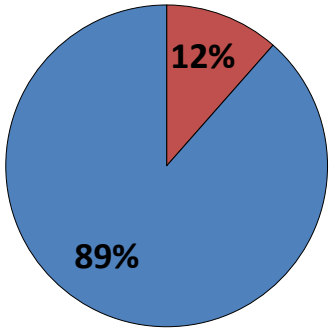
Socio-Economic Profiles - Summary

Over 84% of rural respondents fall in the lowest income bracket (<250,000 MMK/month), with Tanintharyi being the poorest region. This trend gets reflected in terms of income seasonality where over 50% of rural dwellers state engaging in seasonal work.

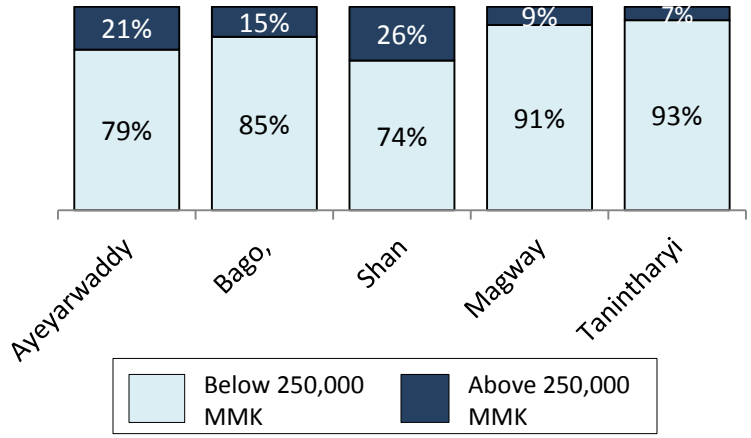
Income groups, % of peri-urban respondents



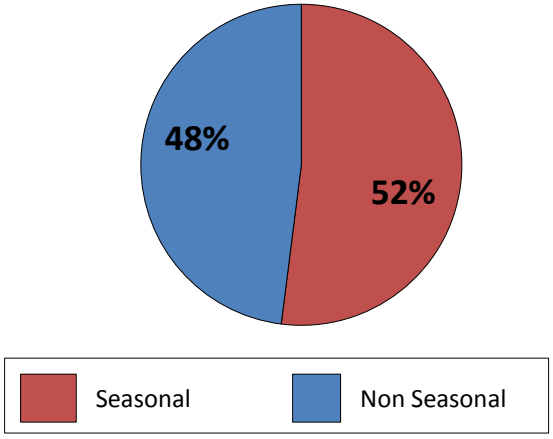
Seasonal vs. Non-seasonal work, % of peri-urban respondents



Income groups, % of rural respondents



Seasonal vs. Non-seasonal work, % of rural respondents

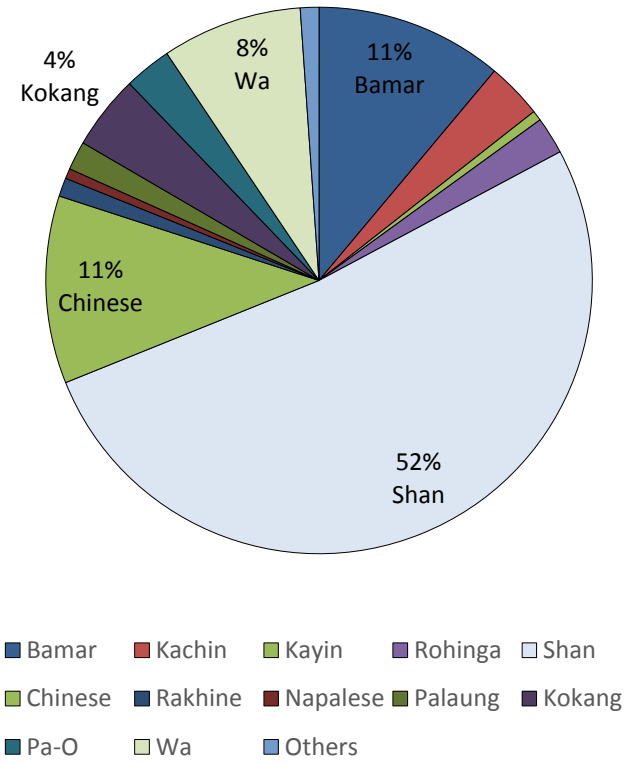


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Socio-Economic Profiles - Summary

In terms of ethnicity, the great majority of respondents self-identify as "Bamar" except in Shan State where a greater diversity can be found. Besides Yangon and Mandalay, the highest educational level attained by most respondents is middle school and income sources vary from farming for rural residents, and various types for peri-urban ones.

Shan State's ethnic groups, % or respondents



- **Education**: Outside Yangon and Mandalay, the majority most of respondents have completed their education up to middle school only (over 63%).

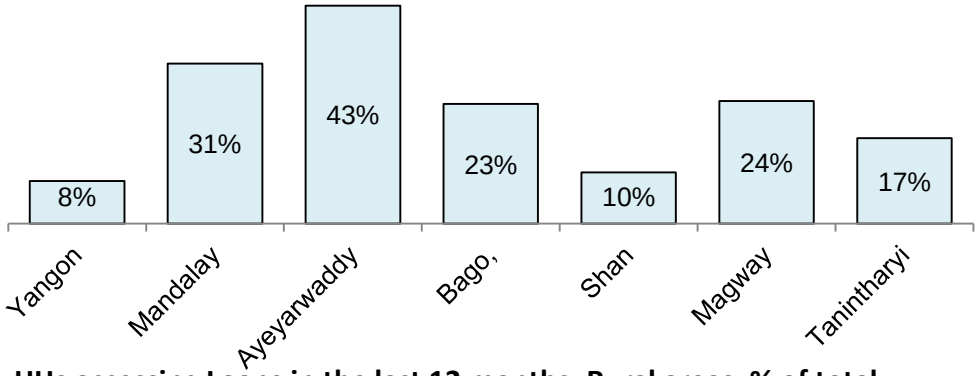
- **Income sources**: Peri-urban areas show high diversity of income sources but the most represented activities are small shop owners, hospitality services, domestic work and construction services. In rural areas, the majority of respondents are involved in farming activities (> 60%).

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

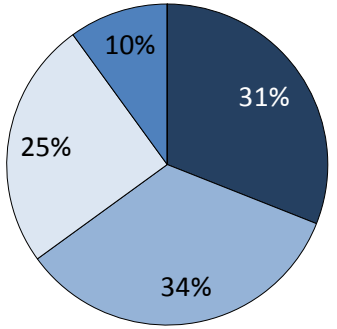
Socio-Economic Profiles - Summary

Access to micro-loans appears to be more prevalent in rural than in peri-urban areas. These were particularly relevant in Ayeyarwaddy, Magway, and Bago due to the high presence of loan providers in those regions. In terms of loan sizes, the great majority falls under 200,000 MMK (over 67%).

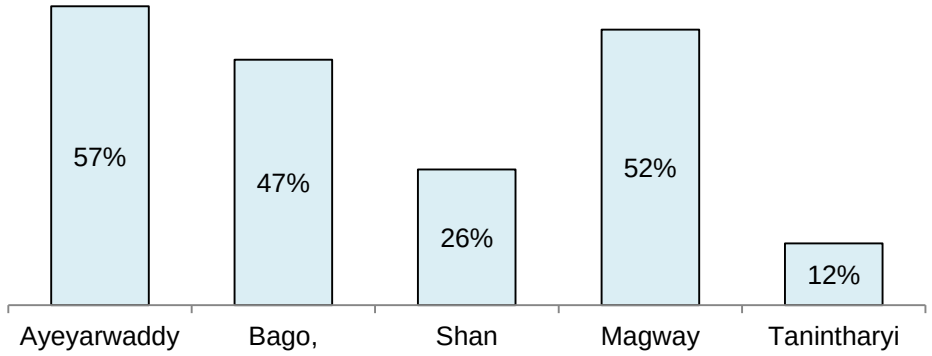
HHs accessing Loans in the last 12 months, Peri-urban areas, % of total



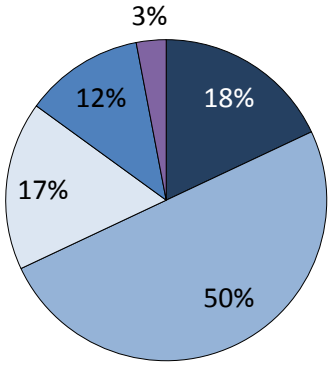
Loan sizes, Peri-urban areas (% of respondents)

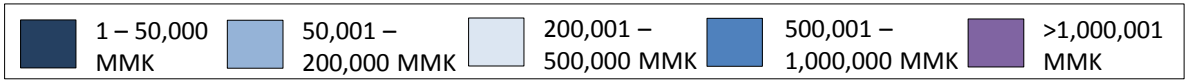


HHs accessing Loans in the last 12 months, Rural areas, % of total



Loan sizes, Rural areas (% of respondents)

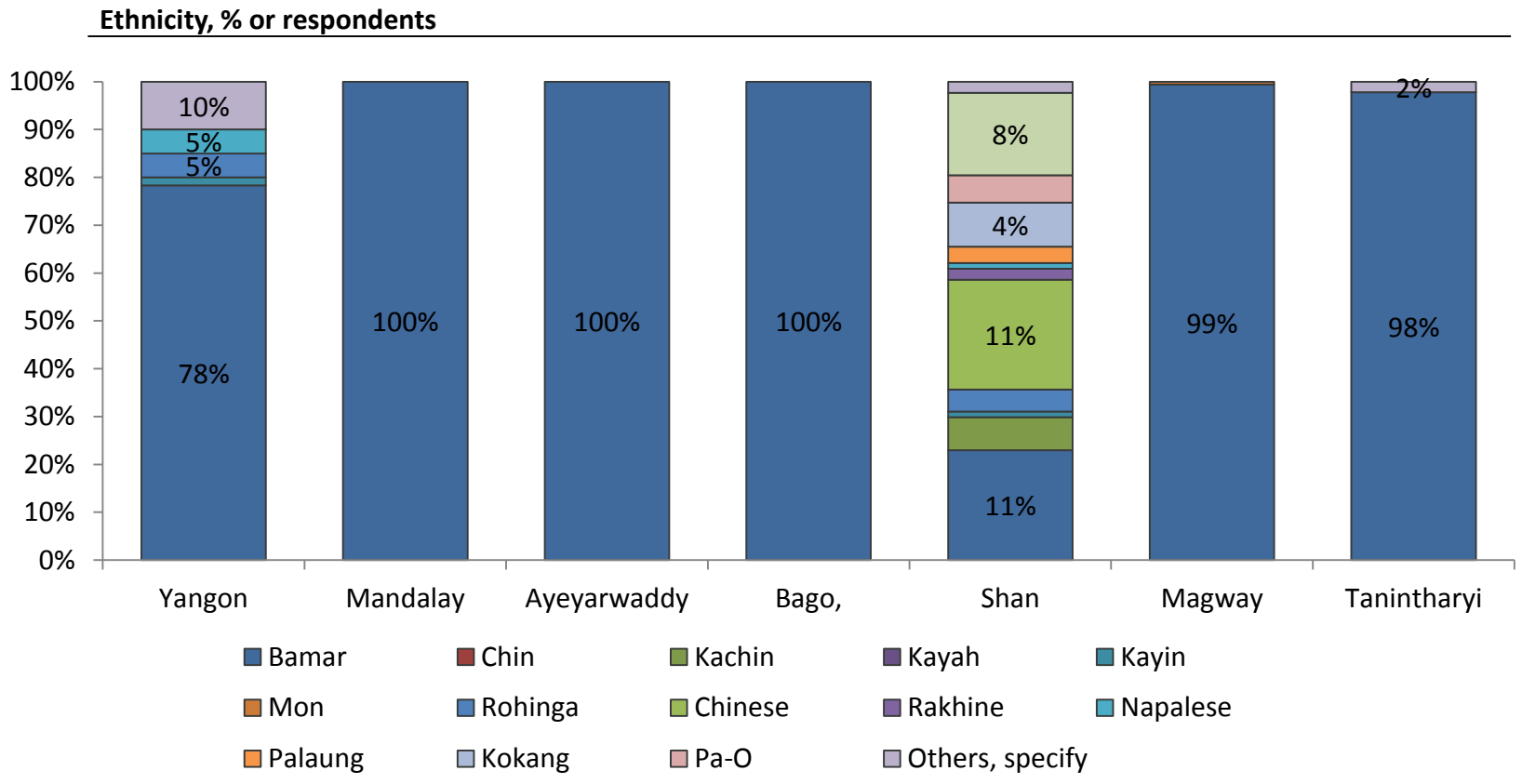




Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Socio-Economic Profiles – Ethnicity

Most ethnic diversity was seen among the respondents from the Shan state, followed by Yangon. Whereas the other regions are exclusively or almost exclusively Bamar.



Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Socio-Economic Profiles – Education Level

The proportions completing higher levels of education are higher in peri-urban environments compared to rural, particularly in Yangon, Shan and Magway. The rural regions with the highest educational attainment are Tanintharyi and Magway.

Highest Education Level Attained, % of respondents / region, peri-urban and rural

		No formal education	Primary School	Middle school	Senior high School	Monastic education	College / University	Postgraduate	Other
Peri-Urban	Yangon	3%	23%	25%	27%	-	20%	-	2%
	Mandalay	9%	34%	20%	6%	28%	3%	-	-
	Ayeyarwaddy	2%	52%	20%	10%	3%	13%	-	-
	Bago,	-	67%	17%	13%	-	3%	-	-
	Shan	2%	25%	40%	20%	-	13%	-	-
	Magway	2%	30%	18%	35%	2%	11%	2%	-
	Tanintharyi	3%	50%	20%	14%	0%	13%	-	-
Rural	Ayeyarwaddy	2%	70%	15%	4%	6%	3%	-	-
	Bago,	1%	66%	17%	8%	6%	2%	-	-
	Shan	29%	54%	13%	2%	-	2%	-	-
	Magway	12%	51%	20%	13%	3%	1%	-	-
	Tanintharyi	-	50%	30%	12%	-	8%	-	-

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Socio-Economic Profiles – Income Levels

While Yangon is the peri-urban environment characterized by the highest monthly incomes, Tanintharyi is the lowest. On the rural level, Magway is the region with the lowest monthly household incomes levels.

Income distribution, % of respondents / region, peri-urban and rural

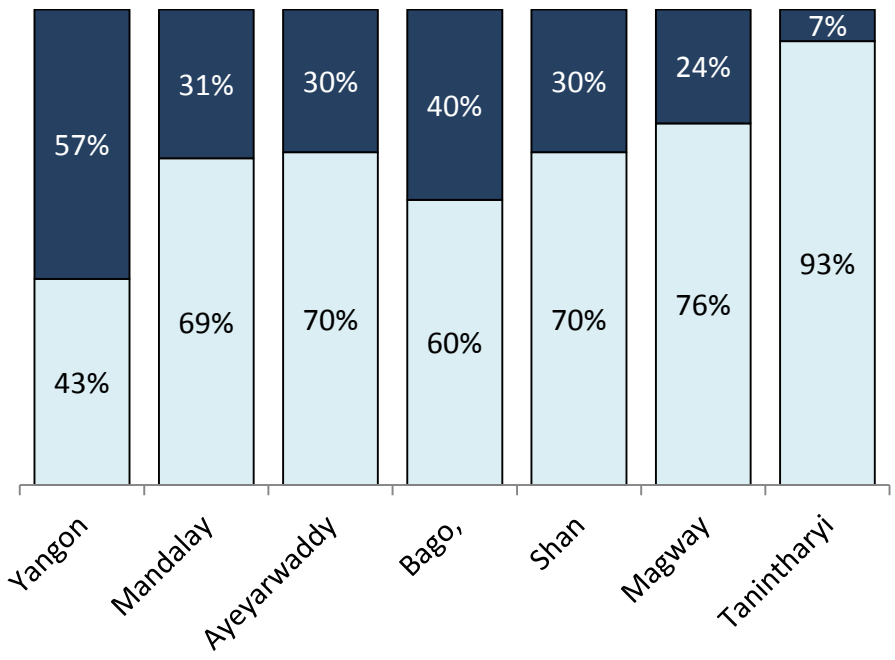
		< 125,000 MMK	125,001 - 250,000 MMK	250,001 - 375,000 MMK	375,001 - 625,000 MMK	> 625,001 MMK
Peri-Urban	Yangon	0	43%	32%	25%	-
	Mandalay	16%	53%	22%	9%	-
	Ayeyarwaddy	25%	45%	25%	5%	-
	Bago,	13%	47%	23%	17%	-
	Shan	7%	62%	22%	7%	-
	Magway	28%	48%	22%	2%	-
	Tanintharyi	13%	80%	7%	-	-
Rural	Ayeyarwaddy	40%	39%	19%	2%	-
	Bago,	42%	43%	11%	4%	-
	Shan	32%	41%	18%	9%	-
	Magway	52%	39%	8%	1%	-
	Tanintharyi	32%	62%	3%	3%	-

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

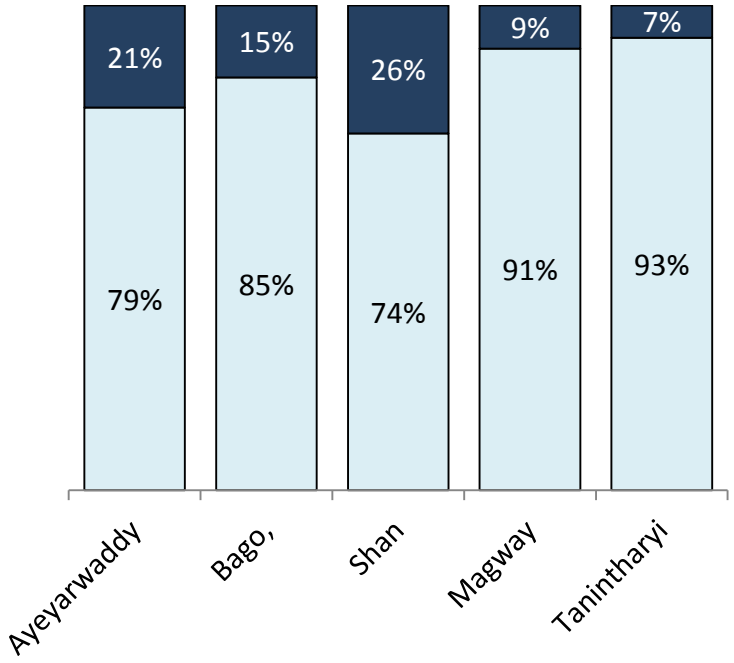
Socio-Economic Profiles – Income Groups

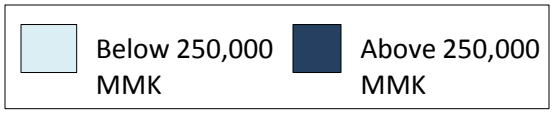
Tanitharyi results as the region with households scoring the lowest income levels in both peri – urban (93%) and rural environments (93%)

Income groups, % of peri-urban respondents



Income groups, % of rural respondents



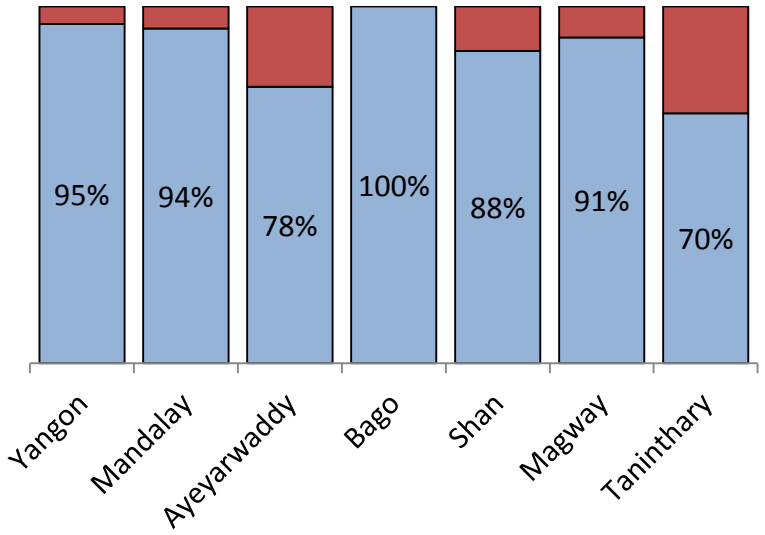


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

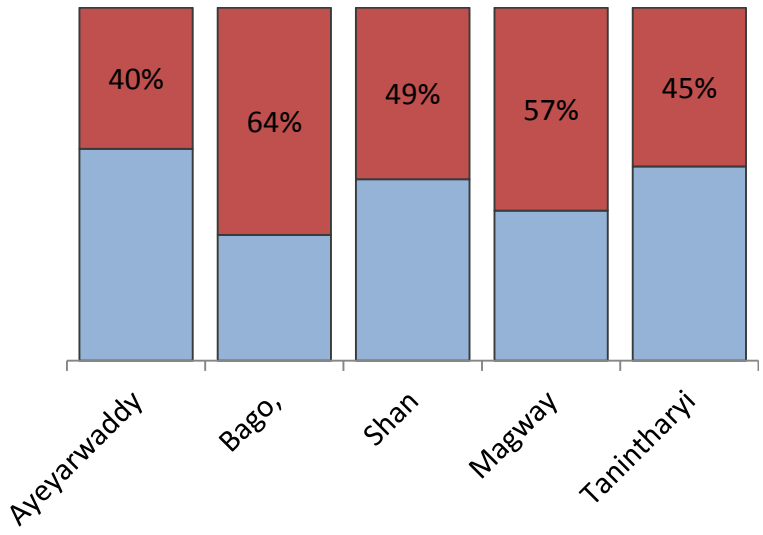
Socio-Economic Profiles – Income Seasonality

The level of income seasonality is highest rural Bago (64%), Magway (57%) and Shan (49%). In peri - urban environments, Taninthary (30%) and Ayeyarwaddy (23%) scored the highest

Seasonal vs. Non-seasonal work, % of respondents



Seasonal vs. Non-seasonal work, % of respondents



PERI - URBAN

- 66% of the urban respondents in Taninthary and 55% of the urban respondents in Ayeyawardy are involved in agriculture

RURAL

- The main rice producers in the country in order of importance are: Ayeyarwady (Main), Bago, Sagaing, and Yangon

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Seasonal Non Seasonal

Socio-Economic Profiles – Income Seasonality Groups

Seasonality of income is especially high in Tanitharyi (30% urban, 42% rural), Magway (53% rural) and Bago (52% rural)

Income distribution and Income Seasonality, % of respondents / region, peri-urban and rural

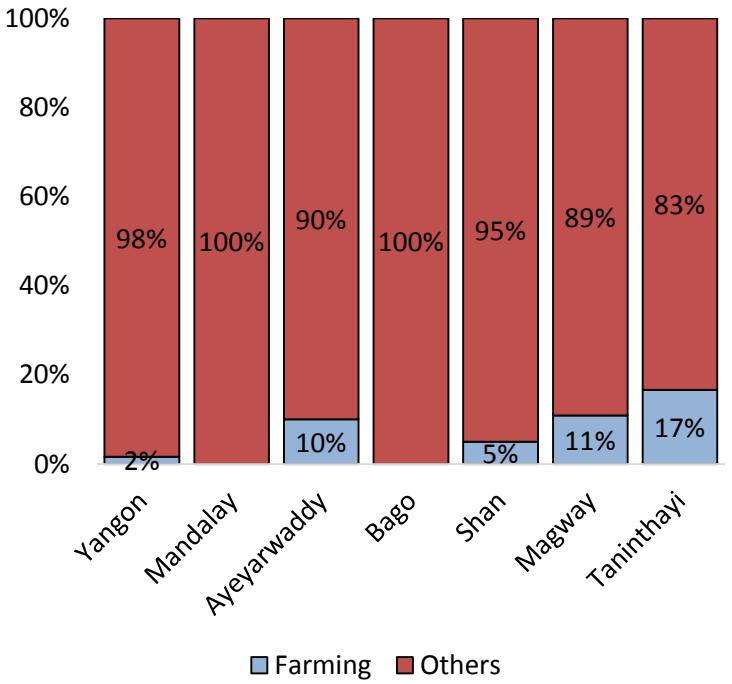
		Not Seasonal Income		Seasonal Income	
		Below 250,000 MMK	Above 250,000 MMK	Below 250,000 MMK	Above 250,000 MMK
Peri-urban	Yangon	43%	52%	-	5%
	Mandalay	63%	31%	6%	-
	Ayeyarwaddy	55%	22%	15%	8%
	Bago,	60%	40%	-	-
	Shan	60%	27%	10%	3%
	Magway	67%	24%	9%	-
	Tanintharyi	63%	7%	30%	-
Rural	Ayeyarwaddy	49%	11%	30%	10%
	Bago,	33%	3%	52%	12%
	Shan	41%	10%	33%	16%
	Magway	39%	4%	53%	4%
	Tanintharyi	52%	3%	42%	3%

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Socio-Economic Profiles – Dependency on Farming

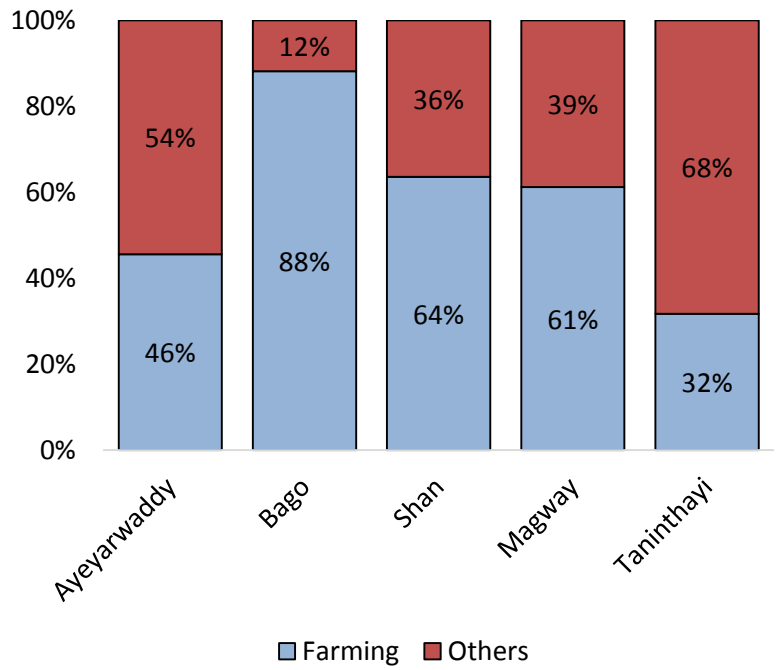
The difference in seasonality of income between rural and peri-urban areas can be largely attributed to the different dependency on farming activities as main sources of income

Main source of income, Farming vs. Others (%)



PERI - URBAN

Main source of income, Farming vs. Others (%)



RURAL

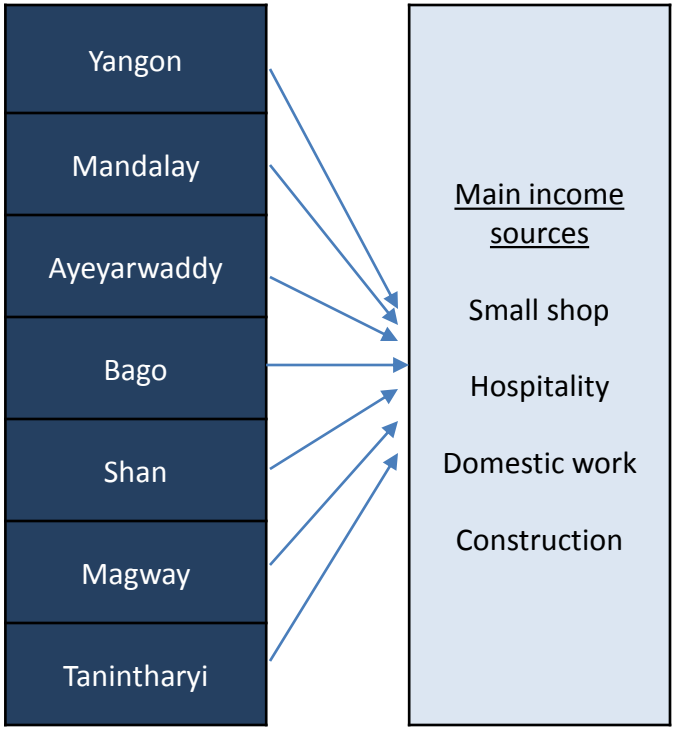
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Non-Agriculture Agriculture

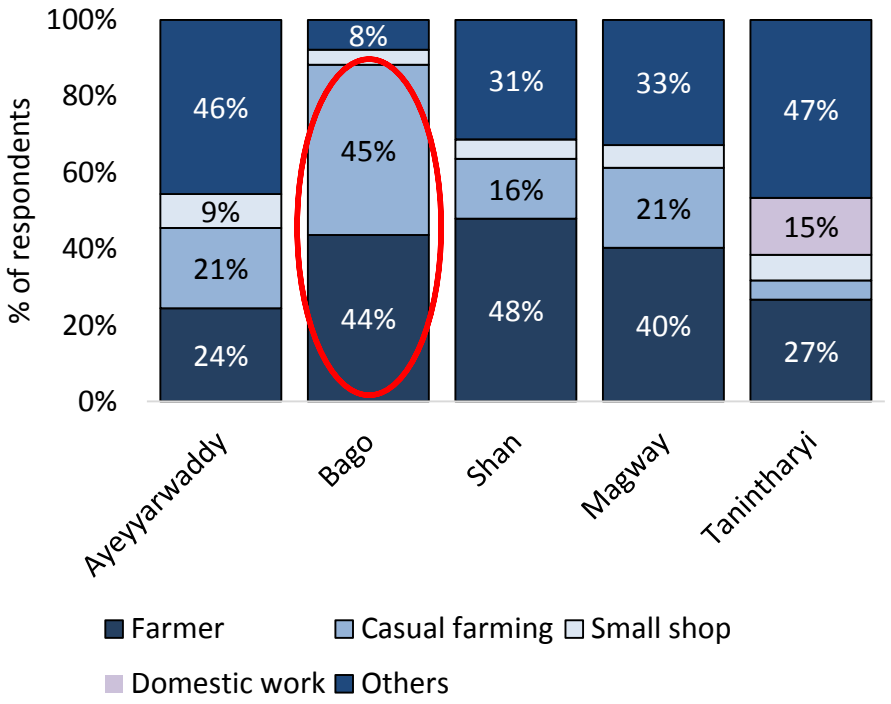
Socio-Economic Profiles – Income Sources

The income sources for peri-urban areas are highly diverse but the most represented activities are small shop owners, hospitality services, domestic work and construction services. In rural areas, the majority of respondents are involved in farming activities

Main income sources for peri-urban residents



Income sources for rural residents per region (% of respondents)



Note: For a further breakdown of income sources, refer to ANNEX
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Socio-Economic Profiles – Microfinance

The microfinance sector is at the earliest stages of development in Myanmar. A legal framework is being put into place for regulation but any successful intervention would require a rapid dissemination of international good practices and a high level of coordination

- The financial sector in Myanmar is small, underdeveloped and overly represented by 4 state-owned banks and 19 private banks. Recent research and industry estimates suggest that less than 20% of the population has access to formal financial services . The most common sources informal loans are family, friends and shopkeepers, while the less common formal sources include banks, government and microfinance institutions.

- Nonetheless, demand for microfinance services is high with an approximate market gap close to 1 billion USD according to the International Finance Corporation.

- Two clear market priorities are: (1) Rural finance, with 54% of the population involved in agriculture, and (2) International remittances, with over three million people from Myanmar working abroad.

- The supply side comprises a variety of formal and informal actors with a current estimated outreach of 2.8 million micro-clients. The UNDP-PACT project is the largest of these initiatives as it currently reports over 360,000 active borrowers and over 420,000 depositors.

- Overall, there is political willingness to develop the banking and microfinance sector, as exemplified by the recent adoption of a framework (Microfinance Law, 2011) that will allow local and foreign investors to establish fully privately owned MFIs. Additionally, 9 foreign banks were recently granted licenses to operate in Myanmar under a limited scope.

Source: "Microfinance in Myanmar – Sector Assessment" (2013), International Finance Corporation

Socio-Economic Profiles – Microfinance Providers

The country has several types of microfinance providers including state-owned banks, NGOs, cooperatives, and specialized agriculture development companies

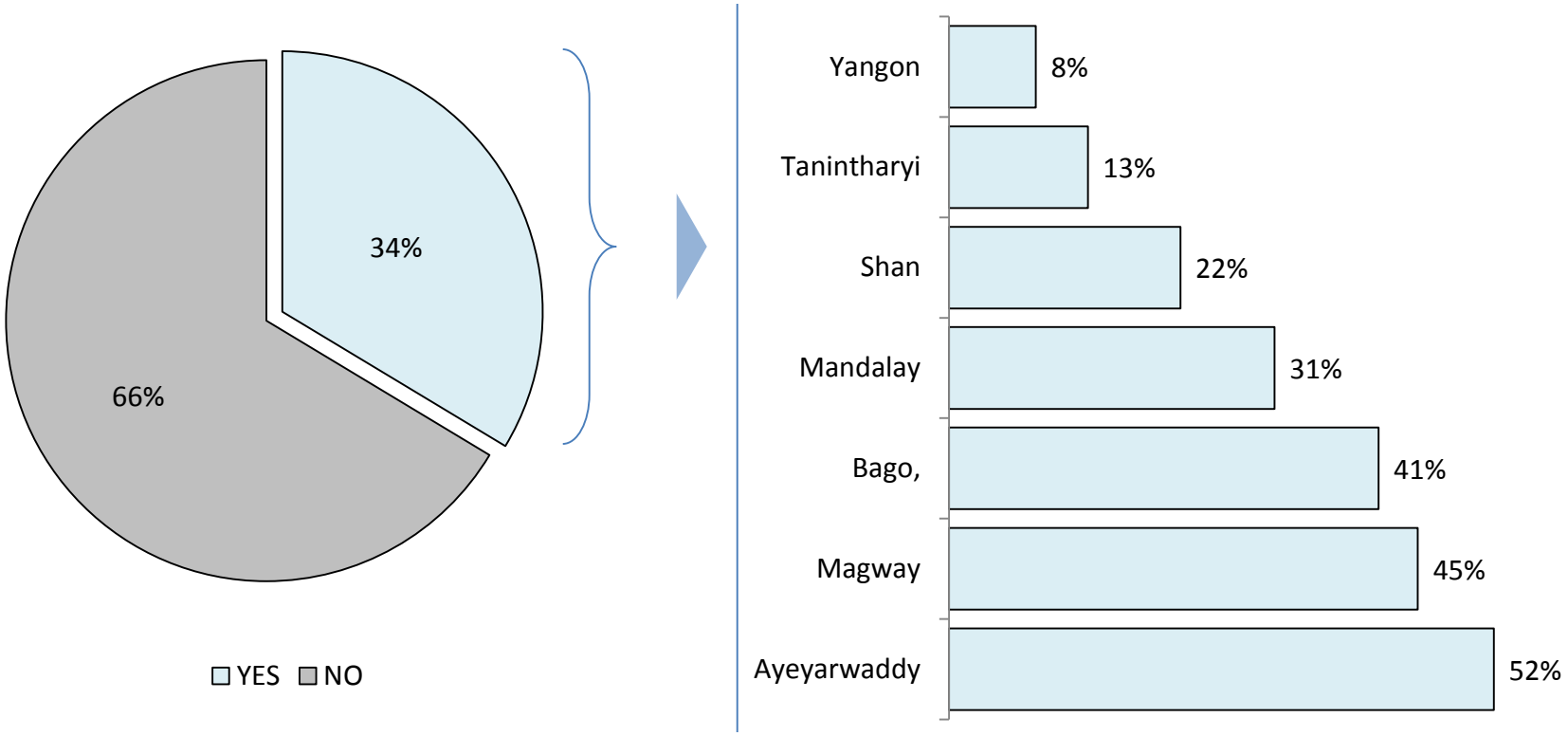
Category	Institution	# of branches	# of borrowers	# of deposit accounts	Regulated
State Owned Banks	Myanmar Agriculture Development Bank (MADB)	205	1,420,000	1,720,000	Yes
	MEB	325	208,778	N/A	Yes
Private Bank	Myanmar Livestock and Fisheries Development Bank	53	N/A	N/A	Yes
Non-Governmental Organization	PACT-UNDP	105	365,410	420,133	No
	PACT MFI	16	57,128	N/A	Yes
	GRET MFI	4	6,155	N/A	Yes
	Save the Children MFI	N/A	7,737	7,737	Yes
	World Vision MFI	12	13,282	N/A	Yes
	Proximity Design MFI	8	16,000	N/A	Yes
	AMDA	N/A	1,510	N/A	No
Cooperatives	Central Cooperative Society MFI	46	32,851	32,851	Yes
	Financial Cooperatives – Union of Savings and Credit Federation	1625	476,632	476,632	Yes
Specialized Agricultural Companies	Rice Specialization companies	38	57,502	N/A	No
	Other Agri-Specialized Companies	22	140,000	N/A	No
Women's Union		16	4,800	N/A	No

Source: "Microfinance in Myanmar – Sector Assessment" (2013), International Finance Corporation

Socio-Economic Profiles – Access to Loans

34% of the respondents reported to have accessed loans in the previous 12 months. Ayeyarwaddy (52%), followed by Magway (45%) and Bago (41%) had the highest frequency

Households accessing loans in the last 12 months, % of respondents, country wide and per region

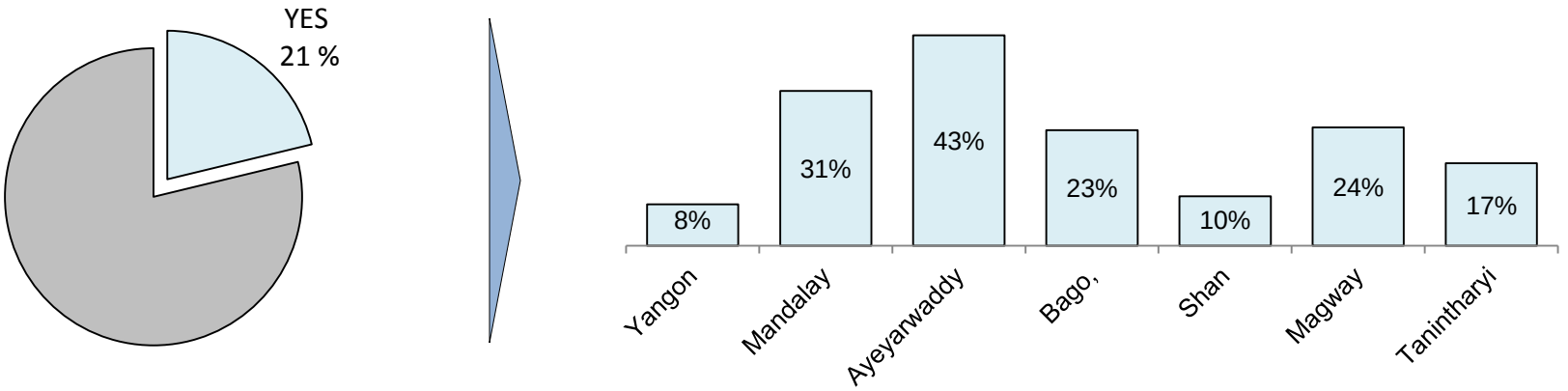


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

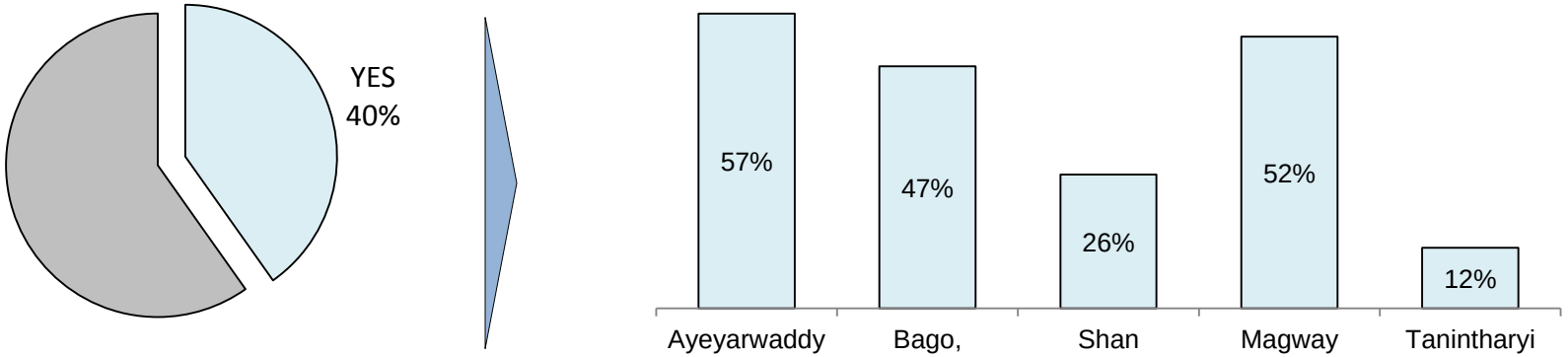
Socio-Economic Profiles – Regional Access to Loans

Ayeyarwaddy is the region with the highest number of HHs receiving loans (57% rural, 43% urban). In rural environments, Magway (52%) and Bago (47%) follow closely

HHs accessing Loans in the last 12 months, Peri - Urban areas, % of respondents



HHs accessing Loans in the last 12 months, Rural areas, % of respondents

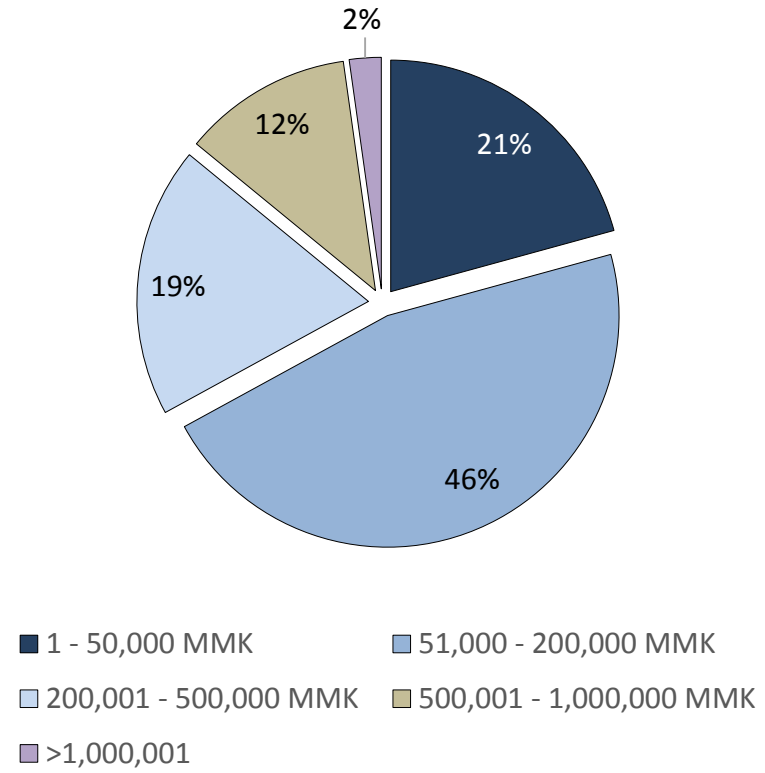


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

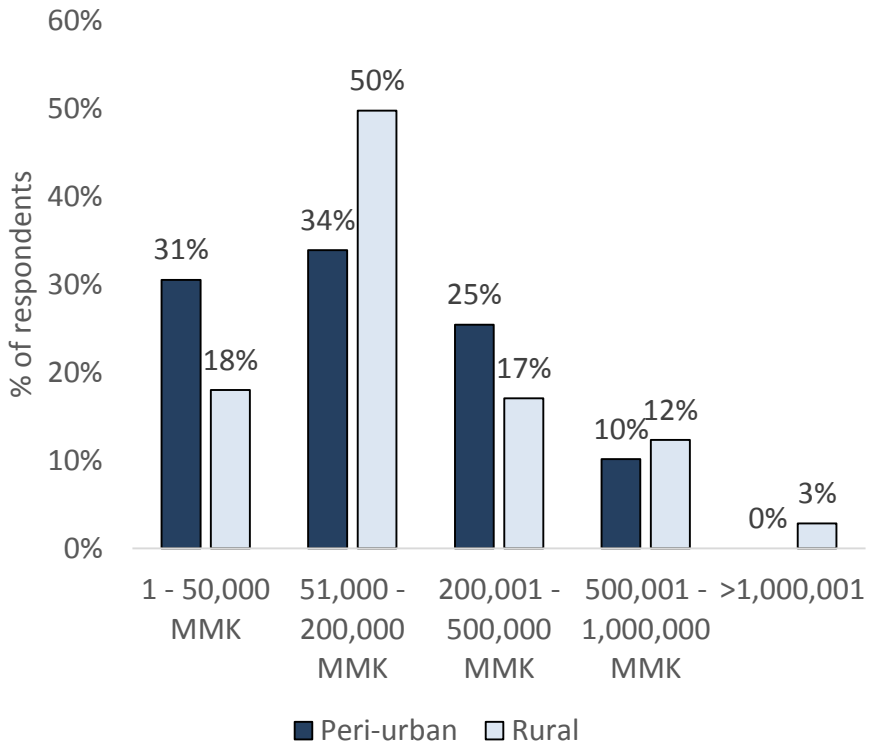
Socio-Economic Profiles – Loan Characteristics

At the national level, the majority of microloans provided are in the range of 51,000 – 200,000 MMK (46%). These numbers are consistent in both the peri-urban and rural areas, with the former having a more even distribution across the country in terms of loan sizes

Loan sizes, National (% of respondents)



Loan sizes – Urban vs. Rural (% of respondents)



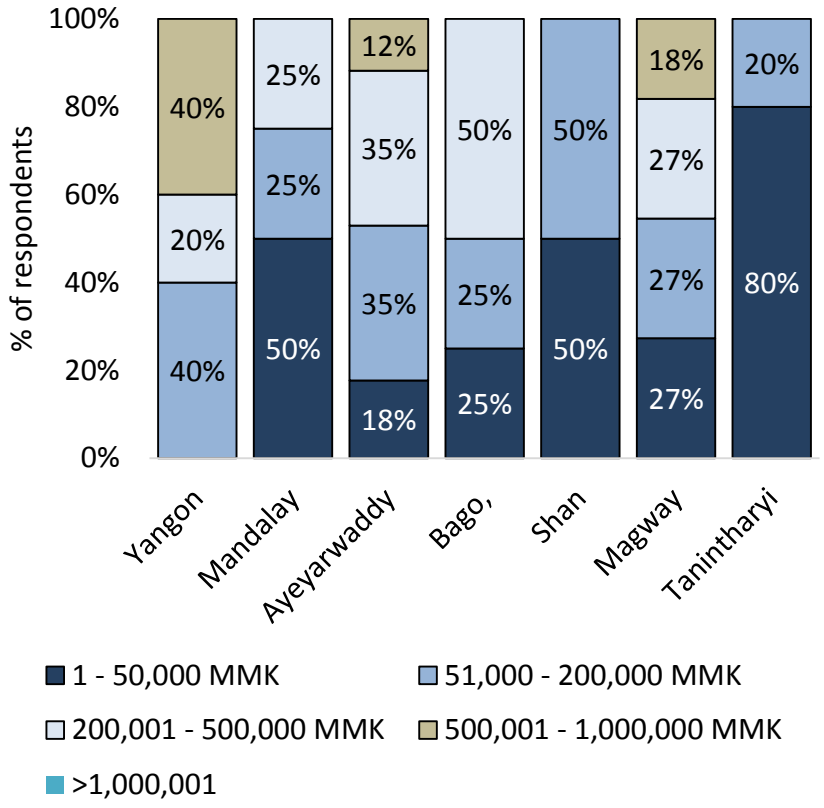
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above charts. The base of the visuals above is 273.

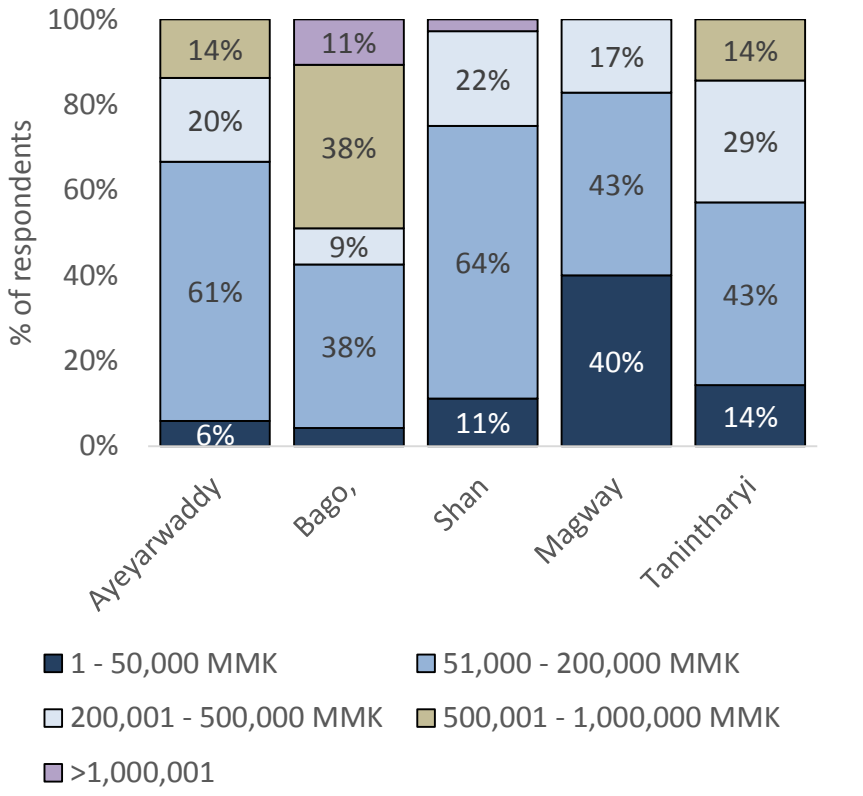
Socio-Economic Profiles – Loan Characteristics

At the regional level, Bago is the region with the highest number of people taking higher value microloans (50% over 200,000 MKK). People in urban Shan and Tanintharyi are more likely to take out smaller loans (< 50,000 MMK)

Loan sizes, Peri-urban (% of respondents)



Loan sizes – Urban vs. Rural (% of respondents)



Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above charts. The base of the left visual above is 169. The base of the right visual above is 321.

Socio-Economic Profiles – Regional Loan Providers

In peri-urban areas, the main providers of loans to respondents were NGO led MFIs, money lenders and private MFIs. At the rural level, NGO led MFIs are the most prevalent followed by farmers associations and money lenders

Loan providers (Regional)

		Family / Relative	Private Bank	Farmers Association	Private MFI	NGO - MFI	Savings Group	Money lender	Others
Peri-urban	Yangon	40%	-	20%	-	40%	-	-	-
	Mandalay	-	20%	-	10%	-	-	50%	20%
	Ayeyarwaddy	-	-	6%	-	65%	29%	-	-
	Bago	-	-	-	72%	-	14%	14%	-
	Shan	-	-	-	-	-	-	50%	50%
	Magway	9%	27%	-	9%	45%	-	-	10%
	Tanintharyi	-	20%	60%	-	-	-	-	20%

		Family / Relative	Private Bank	Farmers Association	Private MFI	NGO - MFI	Savings Group	Money lender	Others
Rural	Ayeyarwaddy	2%	-	22%	-	72%	4%	-	-
	Bago	9%	-	28%	-	50%	-	13%	-
	Shan	3%	-	44%	-	3%	11%	39%	-
	Magway	4%	4%	13%	9%	60%	3%	7%	-
	Tanintharyi	-	-	14%	14%	14%	-	14%	44%

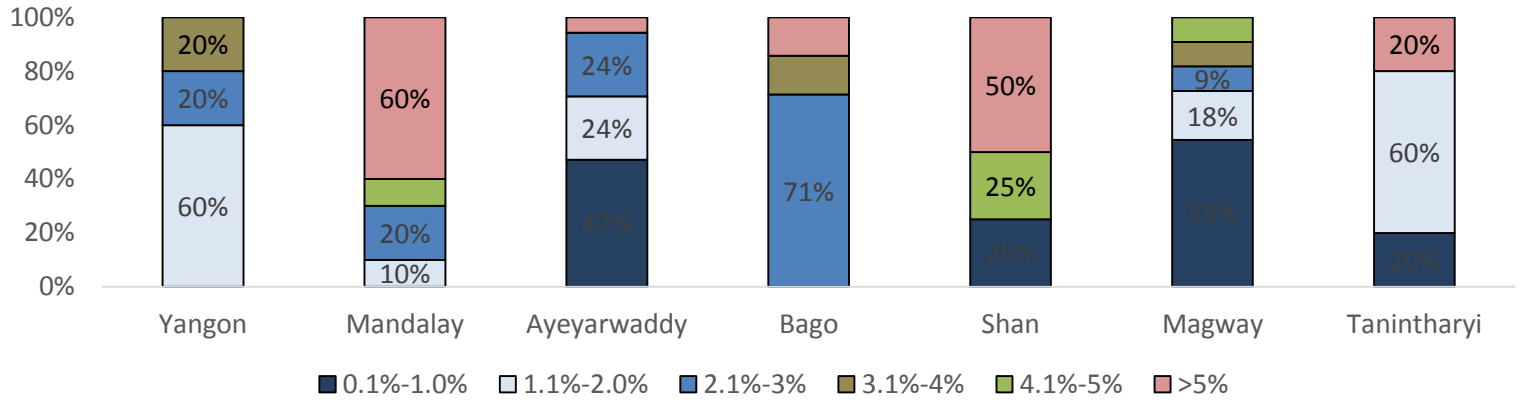
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above visual. The base of the upper visual above is 169. The base of the bottom visual above is 321.

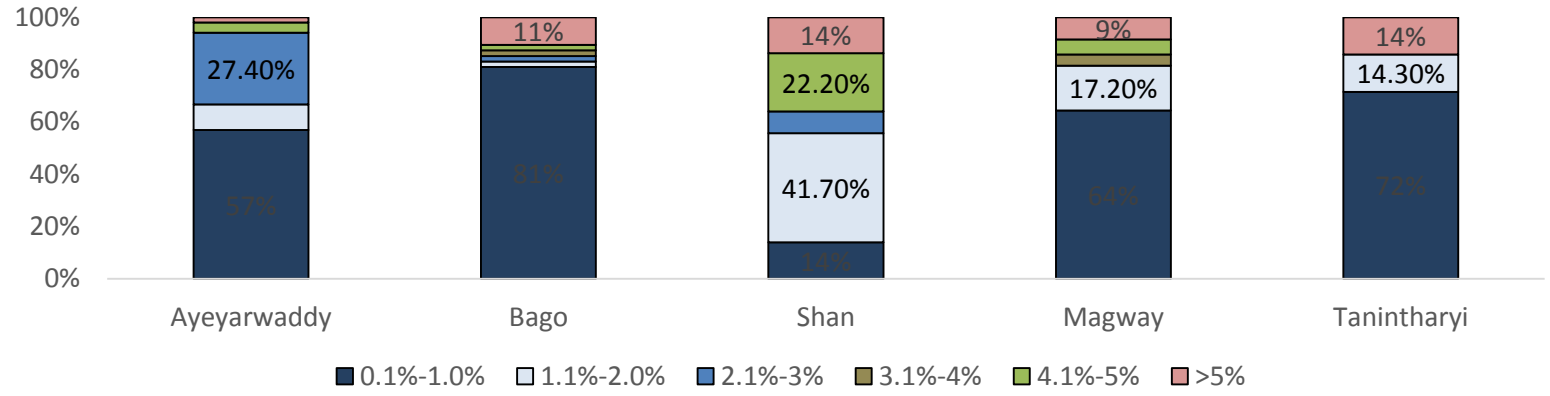
Socio-Economic Profiles – Regional Access to Loans

Interest monthly rates in rural areas are mainly in the range of 0.1% - 2%. In peri-urban areas, the ranges are more diverse and slightly higher with the majority of loans still having interests under 5%.

Loan interest rates per region, Peri - Urban areas, % of respondents



Loan interest rates per region, Rural areas, % of respondents



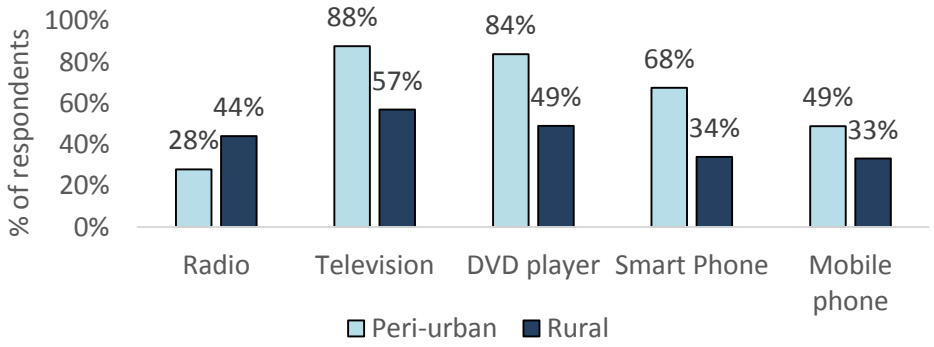
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above visual. The base of the upper visual above is 169. The base of the bottom visual above is 321.

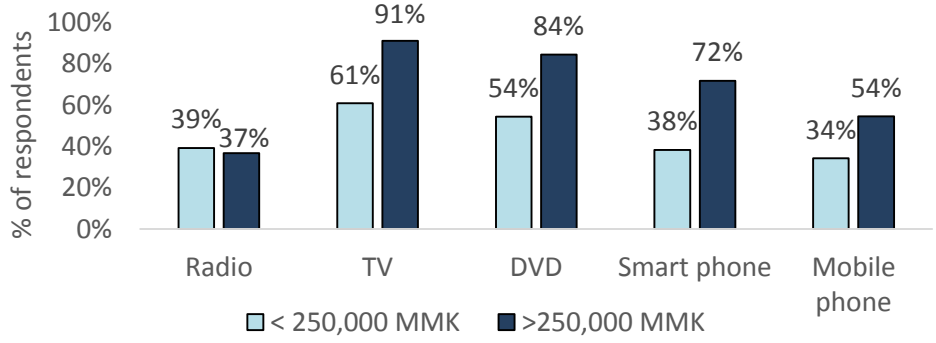
Socio-Economic Profiles – Appliances and media use

The majority of households in Myanmar own televisions (72%), DVD players (67%) and motorbikes (53%), with peri-urban areas having a particularly high use of smartphones (68%). In terms of media access, the average consumer spends 2.5 hours per day watching television, 1.1 hour listening radio and 1 hour using the internet

Appliances owned by HH, Peri-urban vs. Rural (% of respondents)



Appliances owned by HH, by income (% of respondents)



Media consumption per day (weighted average)

	Peri-urban	Rural
Television	2.8 hours	2.1 hours
Radio	1.4 hours	1.7 hours
Internet	1.3 hours	1 hour
Newspaper and magazines	1 hour	1 hour

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Country Overview – Cooking Habits

Rice, fish and fresh vegetables are the foundations of Myanmar cuisine. Cooking is still predominantly a female role in the country, and cooking tends to happen outside of the house

Types of Food

- The most **common ingredients** in Myanmar are rice, maize, millet, potatoes, yam, meat, fish, rice, dried meat, chicken, dried fish, pineapple, mango, green pawpaw, durian and chili.
- Rice is more difficult to grow in the highland regions and so is there often replaced with millet, sorghum, and corn.
- Fermented grain-based alcoholic drinks are commonly brewed among highland groups.
- The country's cuisine has received large Indian, Chinese and Thai influences. Stronger influences are closer to the borders.
- In rural locations, it's common to eat with three fingers, up to the first joint, and food is usually shared at the center of the table.

Cooking Habits

- Predominantly the household cook is the wife. Interviews have indicated that with increasing women involvement in the workforce this tends to shift in order to the elder daughters, the sons and the elders of the household.
- The average number of meals per day is 2 and 3 and varies slightly by region. Lunch is constantly the largest and most important meal of the day.
- There are regional differences regarding the cooking location. Cooking can happen outside the house during dry season, with the exception of northern states characterized by lower temperatures. In this instances cooking can happen within the house as an additional source of heating.
- Most cooking is carried out while in the squatting position.

Table of Contents

Stoves – Models (1/4)

These kinds of stoves were identified during the primary research across 7 regions of Myanmar

Three Stone Fires

- MATERIALS: Stone and/or bricks
- FUEL USED: Almost exclusively wood, and rarely with charcoal
- NAME ON THE MARKET: Open fire, 3-stone
- REGION OF USE: All rural areas where wood is plentiful
- THERMAL EFFICIENCY: 10%
- MANUFACTURER: households
- KEY FEATURES:
- COST: Free or very low cost

Tripods

- MATERIALS: Metallic frame
- FUEL USED: Almost exclusively wood
- NAME ON THE MARKET: Tripod
- REGION OF USE: All rural areas where wood is plentiful
- THERMAL EFFICIENCY: 10%
- KEY FEATURES: Portable
- COST: 1,000 to 2,000 MMK

Mud Stoves

- MATERIALS: Mud
- FUEL USED: Wood, charcoal or biomass
- NAME ON THE MARKET: Baked, green or mud cookstove
- REGION OF USE: Mainly in the Delta region
- THERMAL EFFICIENCY: 17%
- MANUFACTURER: Mangrove Service Network is the largest
- KEY FEATURES: Fired in kiln or baked through use
- COST: 3,000 to 5,000 MMK

Stoves – Models (2/4)

These kinds of stoves were identified during the primary research across 7 regions of Myanmar

Carved Stone Stoves

- MATERIALS: Carved stone
- FUEL USED: Mainly wood but also charcoal and residue
- NAME ON THE MARKET: Carved stone stove
- REGION OF USE: Found in the Delta Region as well as in Shan and Tanintharyi
- THERMAL EFFICIENCY: to be tested
- MANUFACTURER: unknown
- KEY FEATURES: Heavy and durable
- COST: ~5,000 MMK

A1 Stoves

- MATERIALS: Clay
- FUEL USED: Wood or charcoal
- NAME ON THE MARKET: A1 cookstove
- REGION OF USE: Mainly in the Delta and Dry Zones of peri-urban and urban areas
- THERMAL EFFICIENCY: to be tested
- MANUFACTURER: Various. Promoted by GoM and UNDP, largest producer in Magway
- COST: 3,000 to 5,000 MMK

Charcoal / Multipurpose Stoves

- MATERIALS: Clay, concrete, and metal
- FUEL USED: Mainly charcoal but also wood identified
- NAME ON THE MARKET: Charcoal or multi-purpose stove
- REGION OF USE: All across the country
- THERMAL EFFICIENCY: to be tested
- MANUFACTURER: clay production mostly in Magway
- KEY FEATURES: Thai bucket design
- COST: 3,000 to 6,000 MMK

Stoves – Models (3/4)

These kinds of stoves were identified during the primary research across 7 regions of Myanmar

Rice Husk Stoves

- MATERIALS: Metal
- FUEL USED: Mainly rice husks, but also other agricultural residues
- NAME ON THE MARKET: Rice husk stoves
- REGION OF USE: Only identified in the Delta region
- THERMAL EFFICIENCY: unknown
- KEY FEATURES: Promoted by NGOs
- COST: ~5,000 MMK

Iron Stoves

- MATERIALS: Iron
- FUEL USED: Use only with wood was identified
- NAME ON THE MARKET: Iron stove
- REGION OF USE: Only identified in Magway and peri-urban Tanintharyi
- THERMAL EFFICIENCY: unknown
- MANUFACTURER: Locally manufactured
- COST: 2,000 to 4,000 MMK

Stoves – Models (4/4)

These kinds of stoves were identified during the primary research across 7 regions of Myanmar

Electric Stoves

- FUEL USED: Electricity
- NAME ON THE MARKET: Electric stove
- REGION OF USE: Mainly in peri-urban areas, especially Yangon, Bago and Magway
- DISTRIBUTION CHANNELS: mostly in peri – urban areas
- COST: 15,000 MMK and above depending on models

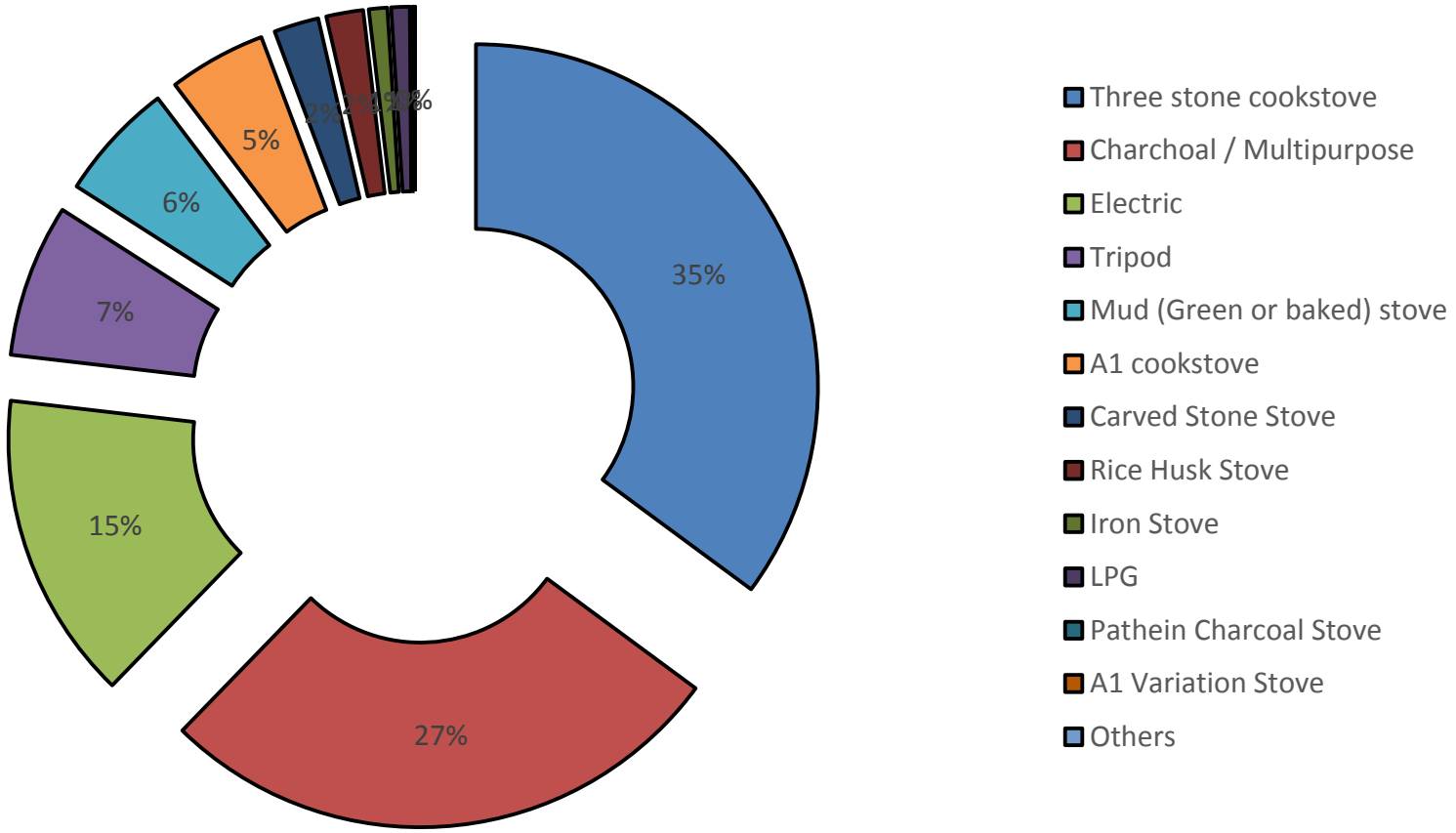
LPG Stoves

- MATERIALS: Metallic tank
- FUEL USED: Liquid petroleum
- NAME ON THE MARKET: LPG stove
- REGION OF USE: Penetration is very limited due to price instability
- KEY FEATURES: directly applied above the tank or through a pipe
- COST: 15,000 MMK

Stoves – Primary Stove Countrywide Penetration

The most common type of stove used across country is the three stone open fire (35%), followed by the charcoal / multipurpose stove (27%) and the electric stove (15%)

Primary Stove Used, % of respondents

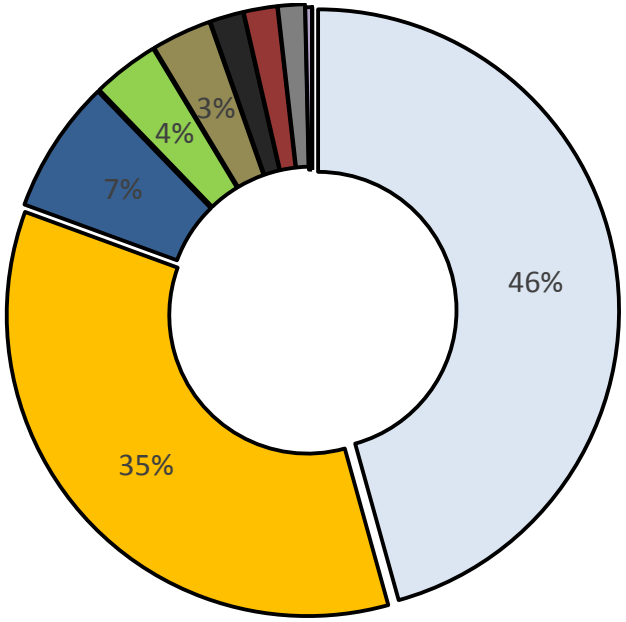


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Primary Stove Urban / Rural Penetration

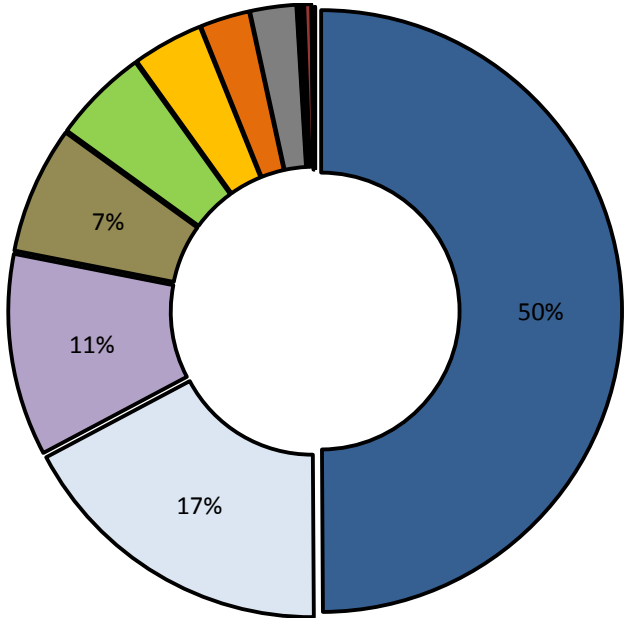
Charcoal / Multipurpose stoves (46%) and electric stoves (35%) dominate in peri - urban environments, while three stone fires are in rural environments (50%)

Primary Stoves, % of respondents



PERI - URBAN

Primary Stoves, % of respondents



RURAL

Three Stone | Charcoal / Multipurpose | Electric | A1 Stove | Mud Stove

Iron | LPG | Carved Stone | Tripod | Rice Husk | A1 Variation

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Primary Stove Penetration by Region

Charcoal stoves tend to be predominant in out of 7 peri - urban environments, with the exception of Yangon, Bago and Magway, where electric stoves are predominant. In rural contexts, open fires are predominant in 3 out of 5 locations with the exception of Shan and Tanitharyi

Stove Penetration, % of respondents / region

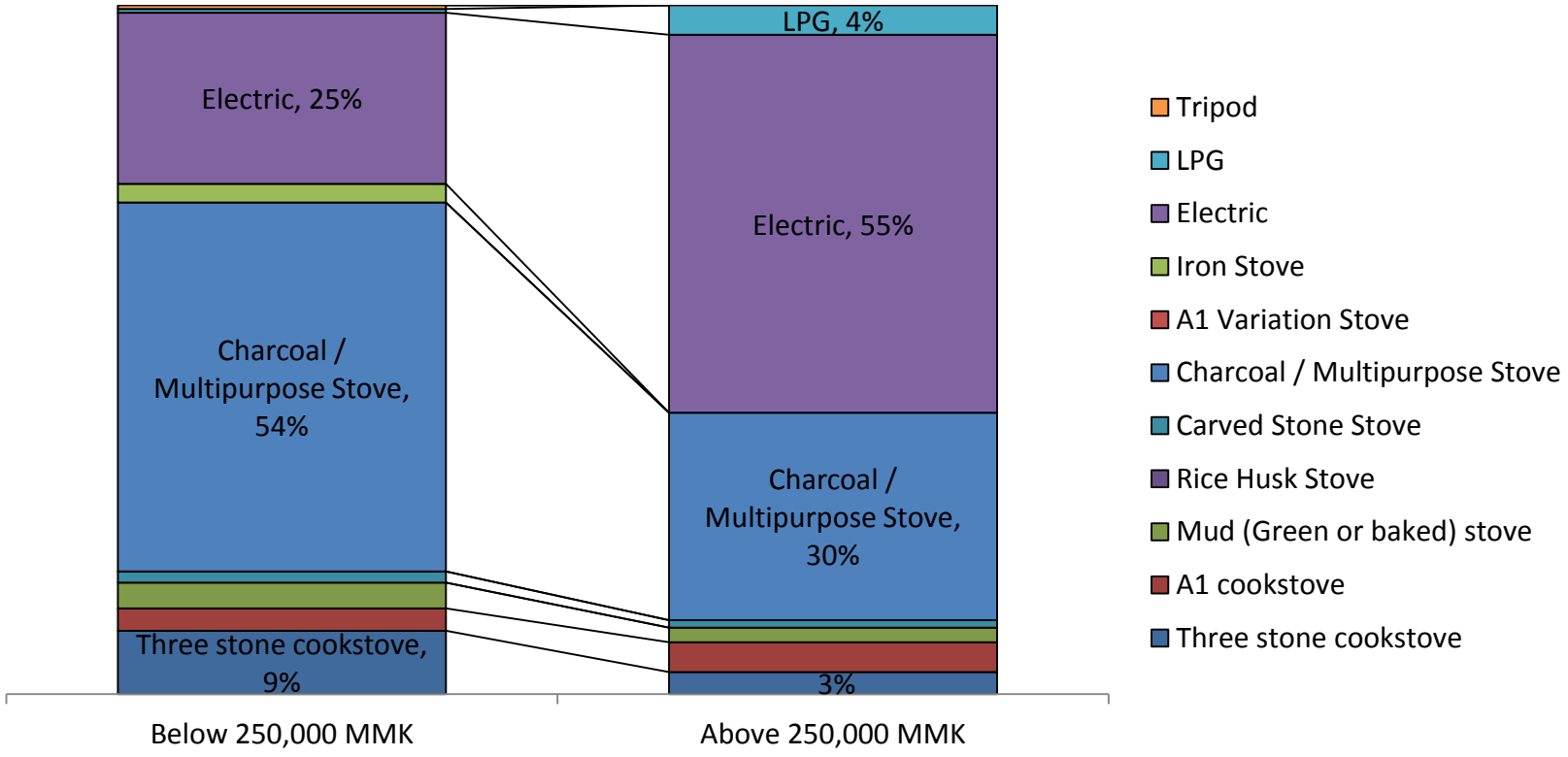
		Three stone cookstove	A1 cookstove	Mud (Green or baked) stove	Rice Husk Stove	Carved Stone Stove	Charcoal / Multipurpose Stove	Iron Stove	Electric	LPG	Tripod
Peri-urban	Yangon	-	3%	3%	-	-	28%	-	62%	3%	-
	Mandalay	6%	-	-	-	-	66%	-	28%	-	-
	Ayeyarwaddy	25%	-	15%	-	5%	45%	-	10%	-	-
	Bago,	7%	-	3%	-	-	40%	-	50%	-	-
	Shan	-	13%	0%	-	3%	50%	-	28%	8%	-
	Magway	9%	2%	0%	-	-	33%	9%	46%	-	2%
	Tanintharyi	7%	7%	0%	-	3%	80%	3%	-	-	-
Rural	Ayeyarwaddy	58%	1%	6%	12%	13%	8%	-	2%	-	-
	Bago,	65%	-	24%	3%	-	3%	-	4%	-	1%
	Shan	24%	1%	1%	-	-	31%	-	9%	1%	34%
	Magway	63%	18%	4%	-	-	7%	1%	-	-	7%
	Tanintharyi	43%	-	2%	-	2%	47%	-	3%	2%	-

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Primary Stove used per Income Group – Urban

The choice of stove is highly dependent on household income level, with ownership of electric and LPG stoves becoming more frequent and three stone fires and charcoal stoves less frequent with increasing incomes.

Primary Stoves, % of respondents per monthly income group, Peri-Urban Environments

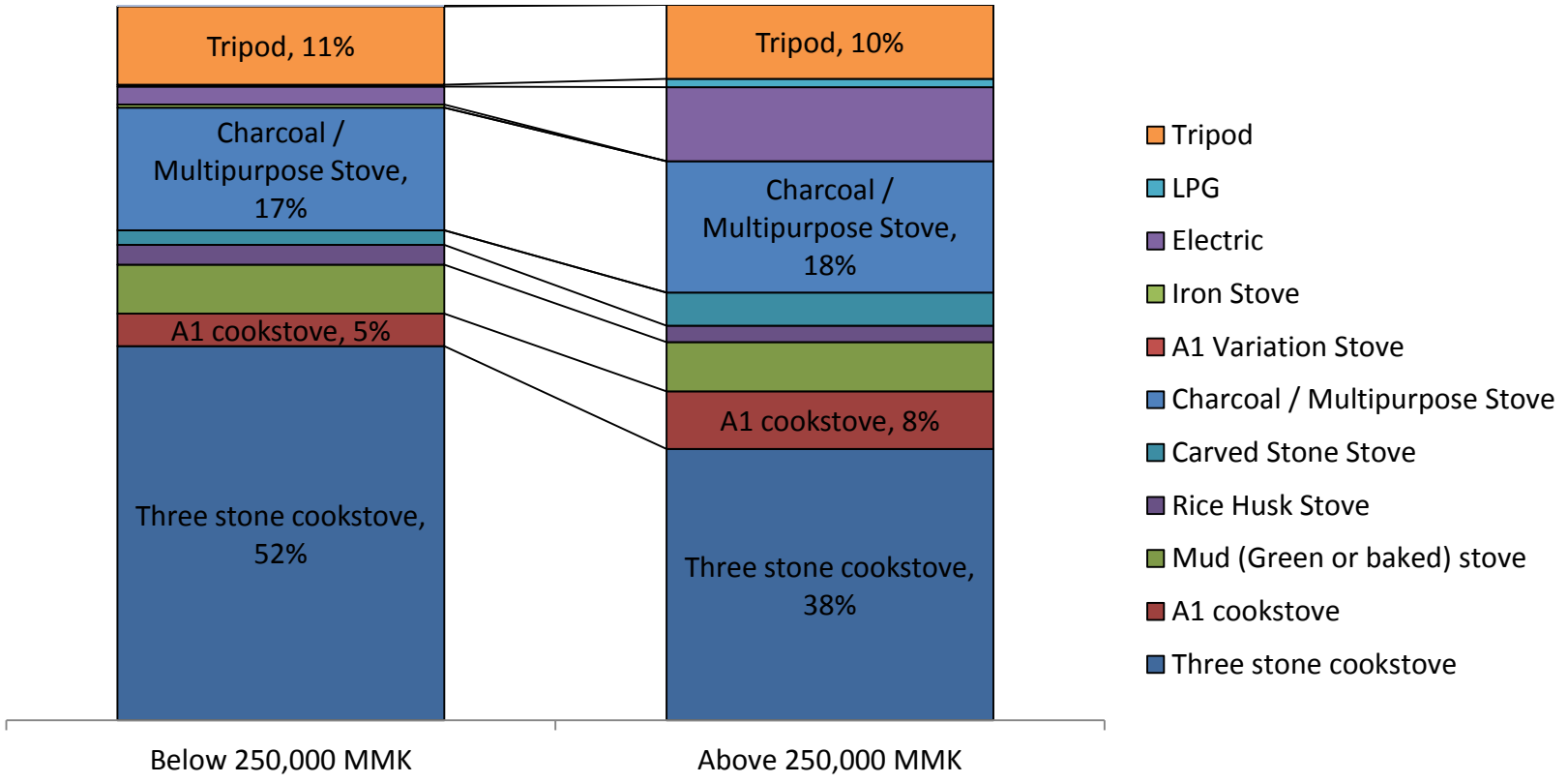


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Primary Stove used per Income Group – Rural

The choice of stove in rural areas is highly dependent on household income level, with utilization of three stone fires decreasing with as household income increases

Primary Stoves, % of respondents per monthly income group, Rural Environments



Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Price Ranges

Stove prices range from the lower value three stone, tripod and mud stoves to the highest priced electric and LPG stoves

		0	< 1,000	< 2,000	< 3,000	< 4,000	< 5,000	< 6,000	< 7,000	< 8,000	< 9,000	< 10,000	< 15,000	< 20,000	< 30,000	> 40,000
Three stone	Peri - Urban	75%	20%			5%										
	Rural	79%	16%	2%	1%	1%	1%									
A1	Peri - Urban			10%	20%	20%	20%	10%		10%	10%					
	Rural	7%		52%	15%	19%		4%	4%							
Mud Stove	Peri - Urban	29%		29%	43%											
	Rural	45%	12%	27%	3%	3%	6%	3%								
Carved Stone	Peri - Urban	50%					25%			25%						
	Rural				8%	8%	46%	15%	23%							
Charcoal / Multipurpose	Peri - Urban	2%	2%	7%	33%	34%	14%	2%	3%			1%	1%		1%	2%
	Rural	10%	2%	3%	22%	26%	10%	15%	4%	2%					3%	3%
Iron Stove	Peri - Urban			25%	50%	25%										
	Rural			50%	50%											
Electric	Peri - Urban	9%			2%		8%		2%	1%		3%	31%	13%	13%	4%
	Rural				16%		5%				5%		21%	3%	14%	17%
LPG	Peri - Urban												75%			20%
	Rural															
Rice Husk	Peri - Urban															
	Rural			14%			29%	21%	14%	7%		7%	7%			
Tripod	Peri - Urban															
	Rural	17%	23%	29%	13%	12%	2%	2%	2%							

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Stove Lifespan

Most stoves appear to have been purchased by respondents in the last 1 to 2 years, with the exception of three stone fires and tripods

Stove Lifespan, % of respondents

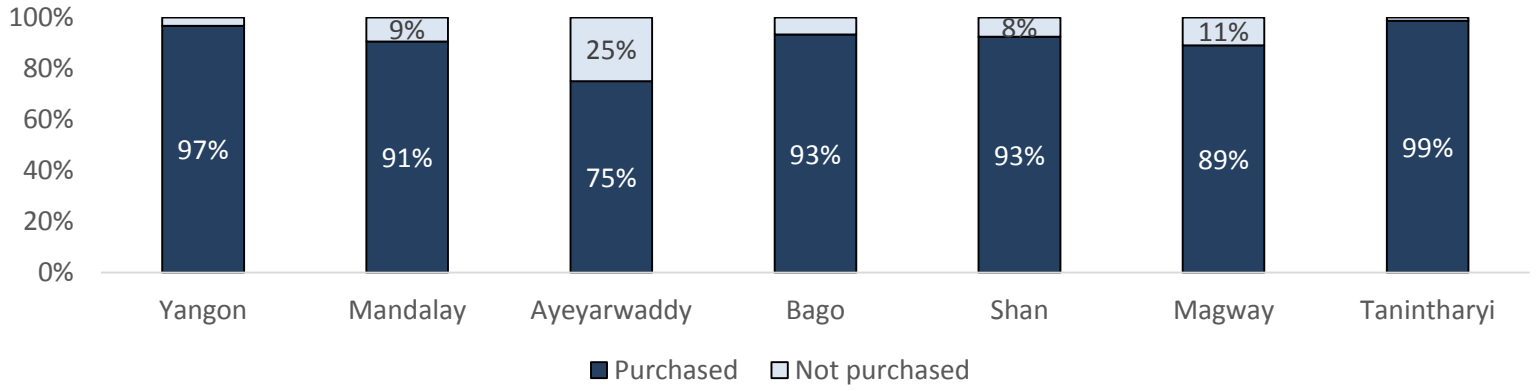
	Less Than 1 Year Ago			Over 1 Year Ago			
	1-3 months	4-6 months	6-12 months	1-2 years ago	3-5 years ago	More than 5 years	No Answer
Three stone cookstove	4.26%	2.48%	3.55%	7.80%	7.09%	11.35%	63.48%
A1 cookstove	5.41%	5.41%	5.41%	48.65%	18.92%	10.81%	5.41%
Mud (Green or baked) stove	6.67%	6.67%	4.44%	28.89%	22.22%	4.44%	26.67%
Rice Husk Stove	14.29%	14.29%	21.43%	28.57%	7.14%	14.29%	0.00%
Carved Stone Stove	0.00%	0.00%	11.76%	35.29%	35.29%	17.65%	0.00%
Charcoal / Multipurpose Stove	2.43%	10.93%	13.19%	30.56%	32.13%	6.92%	3.84%
Iron Stove	28.57%	0.00%	28.57%	14.29%	28.57%	0.00%	0.00%
Electric	10.26%	7.69%	13.68%	30.77%	28.21%	5.13%	4.27%
LPG	0.00%	0.00%	0.00%	57.14%	0.00%	14.29%	28.57%
Tripod	1.72%	1.72%	5.17%	15.52%	12.07%	55.17%	8.62%

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

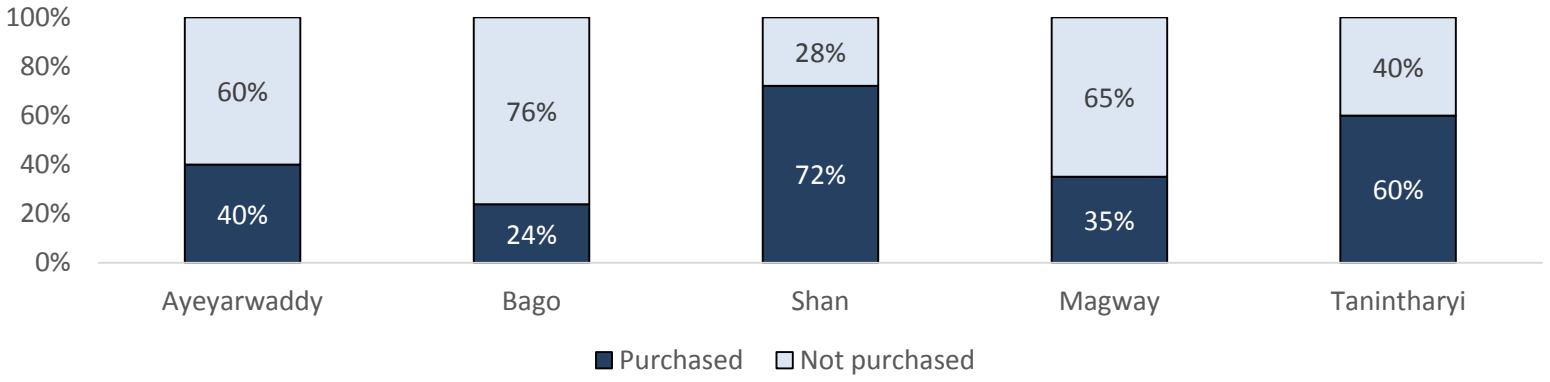
Stoves – Purchase Location

The vast majority of peri – urban households purchase their stoves, while in rural areas these are produced, up to 76% in Bago, 65% in Magway and 60% in Ayeyarwaddy

Purchased vs. Non-purchased (Cookstoves), Peri - Urban areas, % of respondents



Purchased vs. Non-purchased (Cookstoves), Rural areas, % of respondents



* Not purchased stoves include gifts from NGO/Governments and self-produced

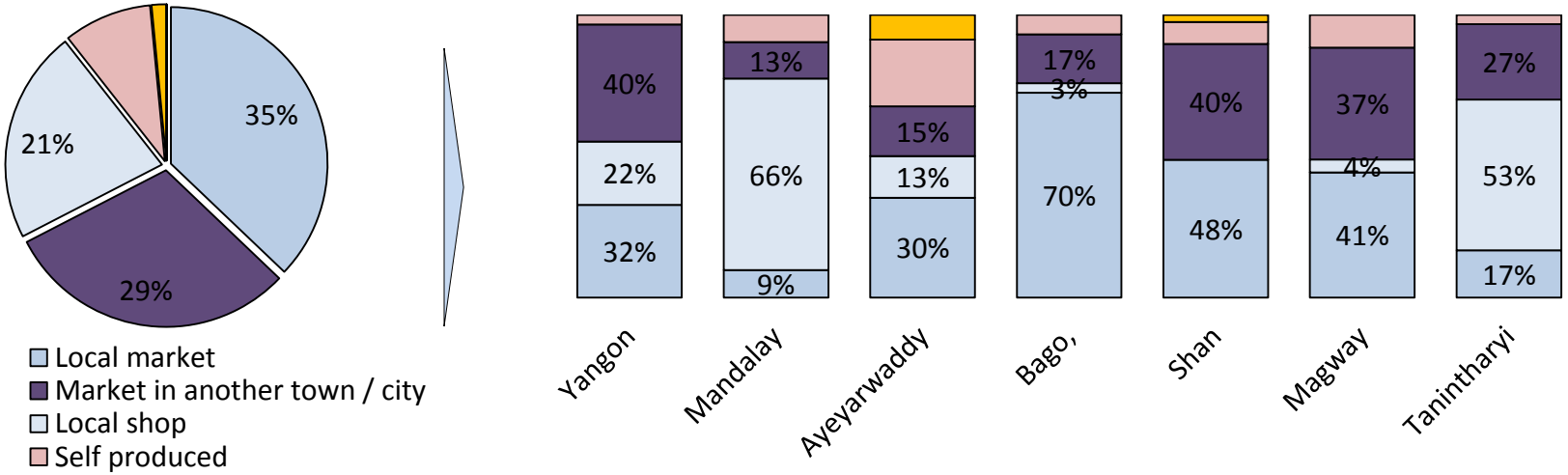
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Purchase Location

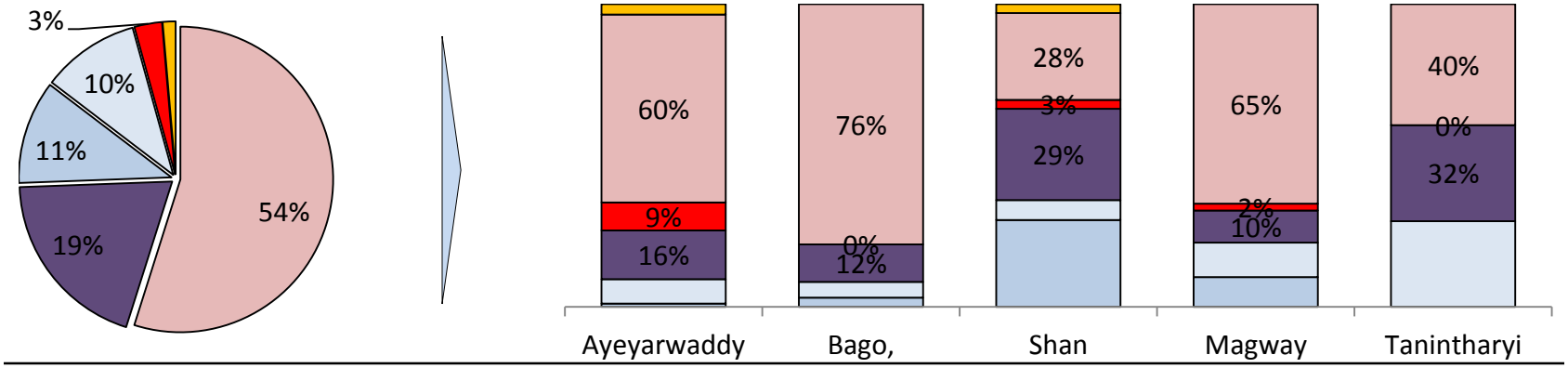
Rural households who purchase stoves almost equally get them from other towns (19%) or from local shops (20%) or markets (11%)

Stove Purchase Location, % of respondents

PERI - URBAN



RURAL

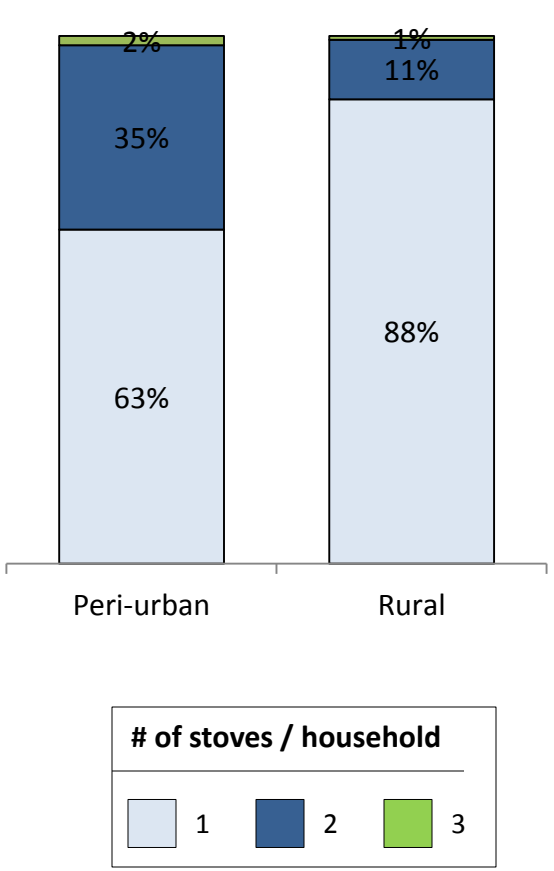


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

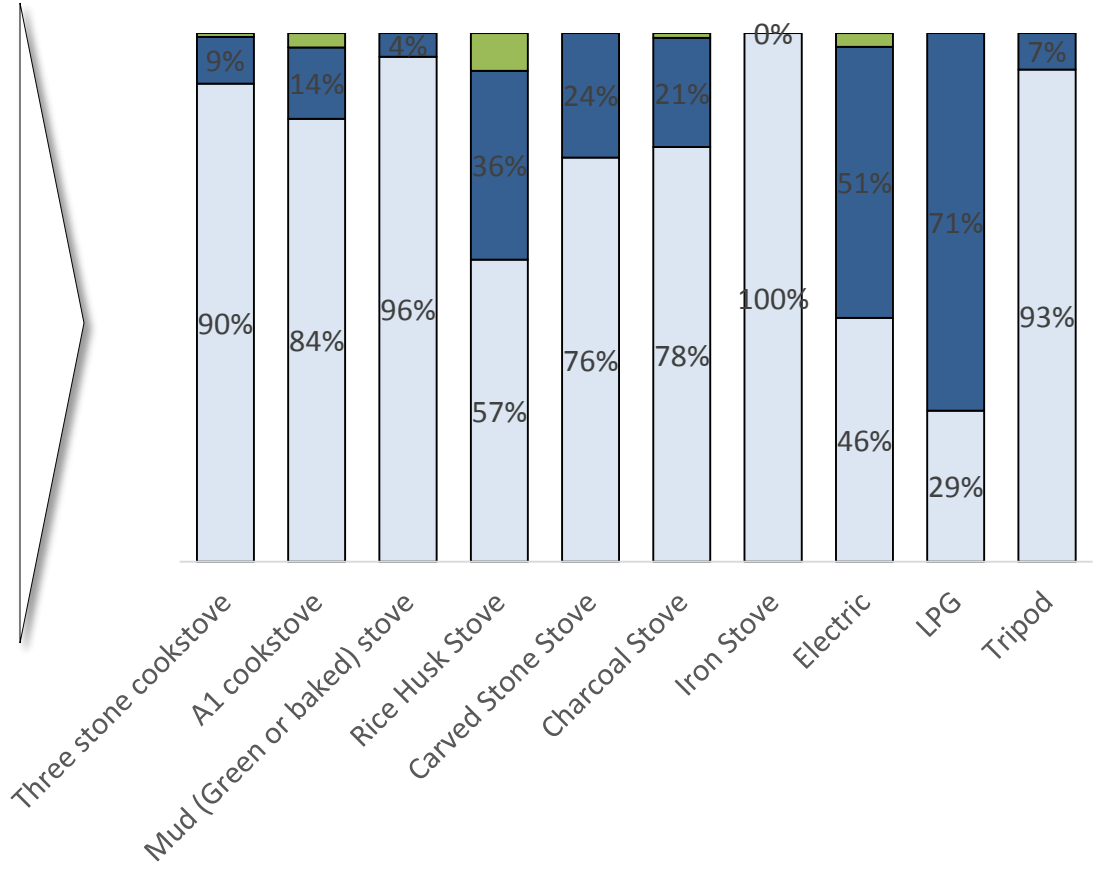
Stoves – Stoves per Household

Urban households tend to own and use more stoves than rural households. Households using Iron, thee stone fires and mud stoves are the most likely to only use 1 stove regularly

# of stoves / Households. % of respondents



# of stoves / Households by primary stove type. % of respondents

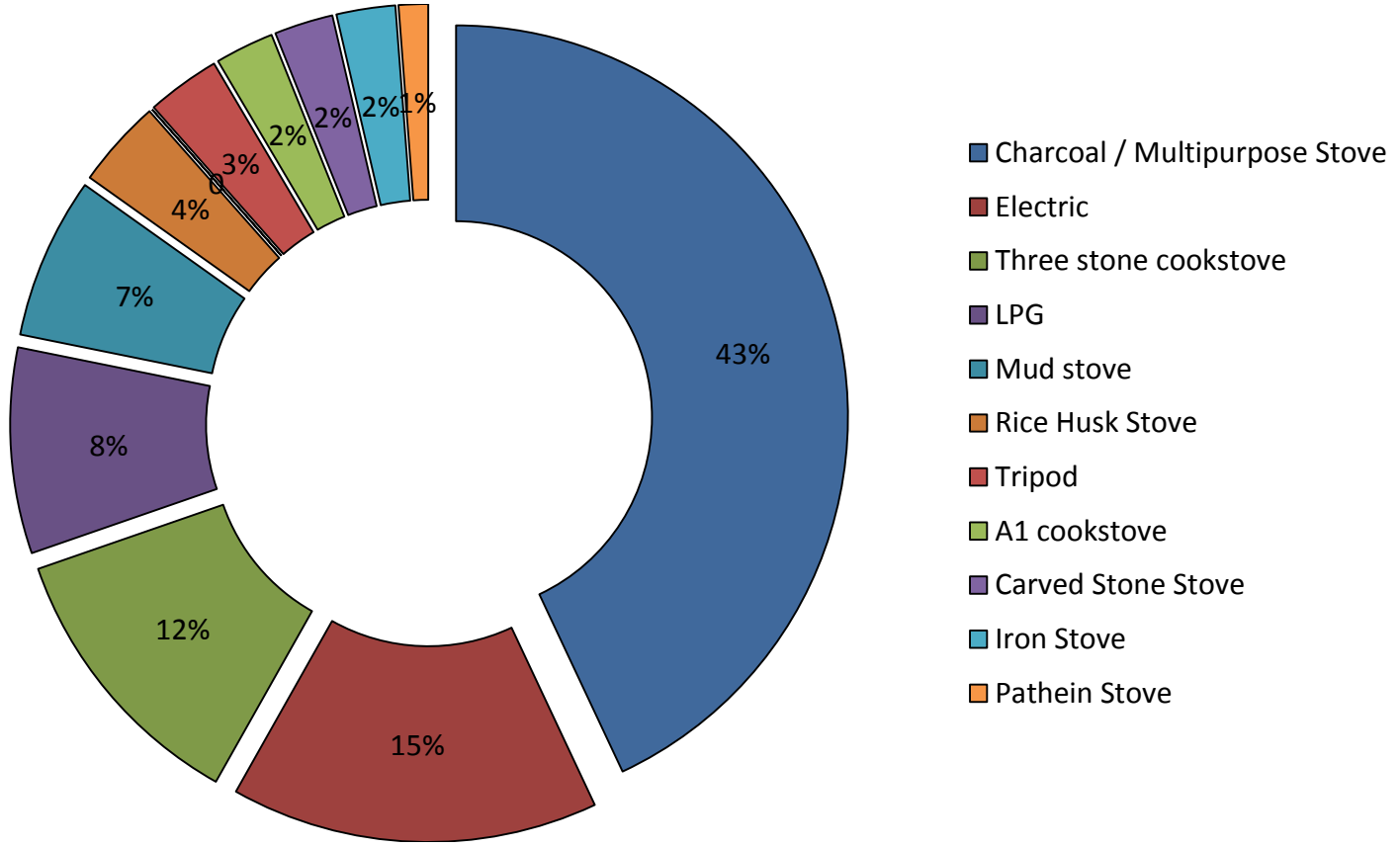


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Secondary Stove Countrywide Penetration

Secondary stoves used by households are led by charcoal stoves (43%), followed by electric (15%), and with three stone fires stoves still maintaining relevance (12%)

Secondary Stove Used, % of respondents

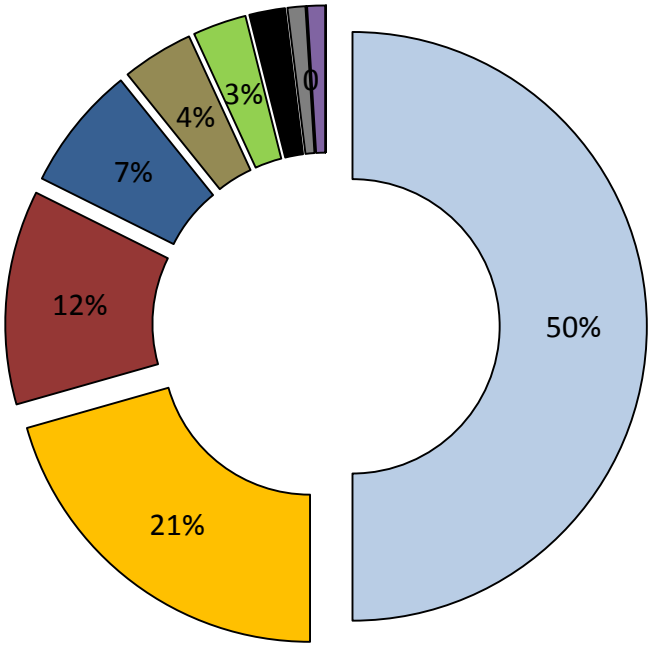


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

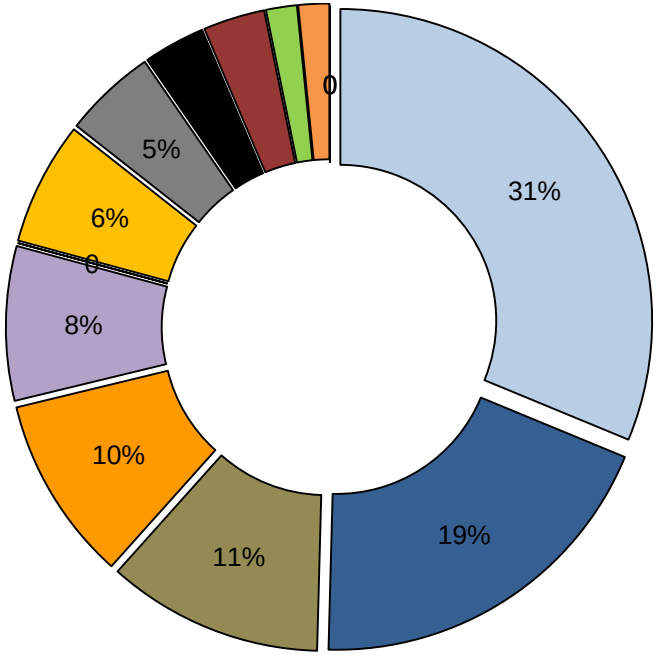
Stoves – Secondary Stove Country Level Penetration

Charcoal / Multipurpose stove is the main secondary stove both in peri - urban (50%) and rural environments (31%)

Secondary Stoves, % of respondents (Peri - Urban)



Secondary Stoves, % of respondents (Rural)



Three Stone | Charcoal / Multipurpose | Electric | A1 Stove | Mud Stove

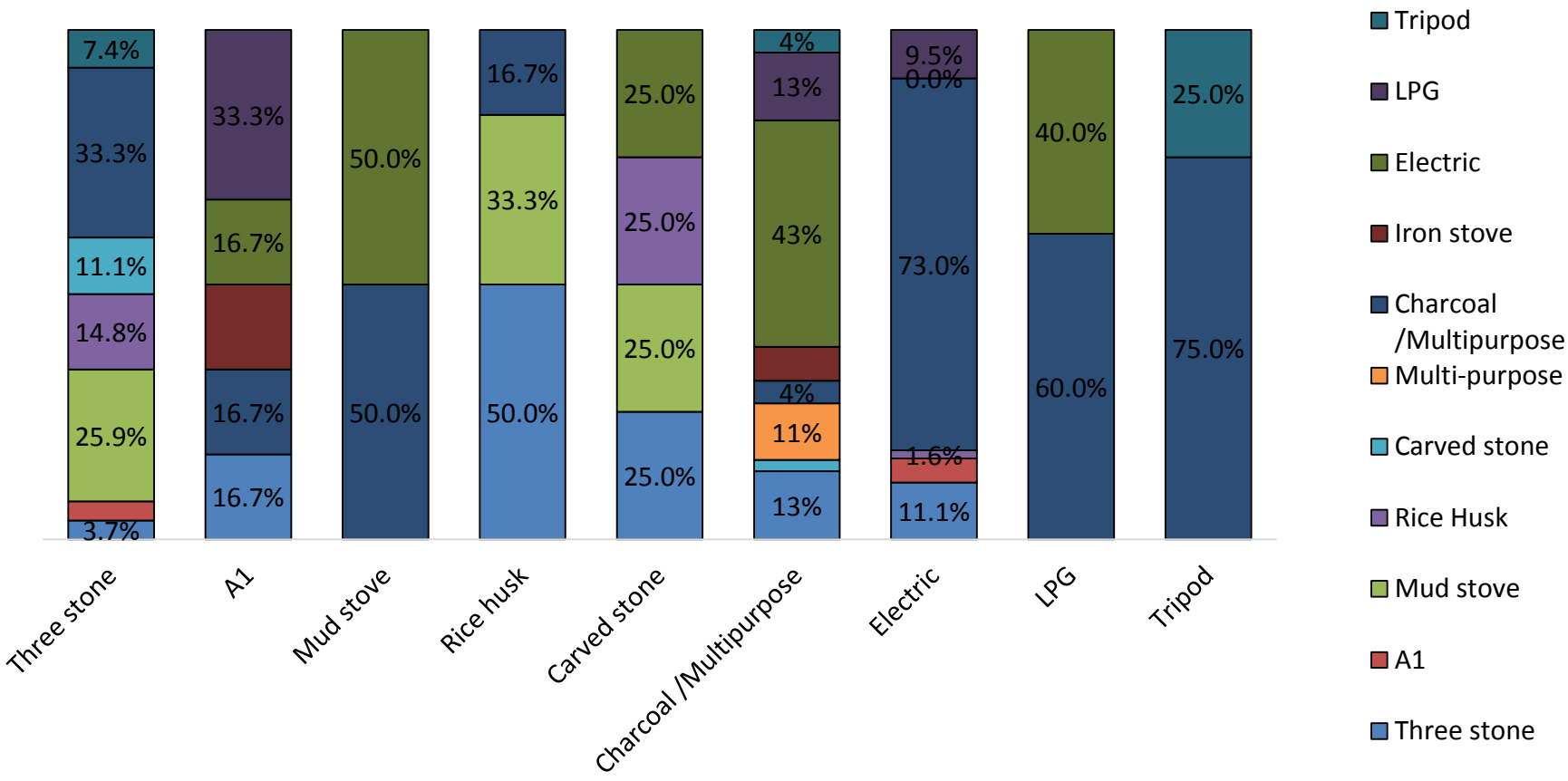
Iron | LPG | Carved Stone | Tripod | Rice Husk | A1 Variation

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Stoves per Household

Primary users of Three stone fires, charcoal / multipurpose stoves, A1s and carved stone stoves have the highest diversification in terms of secondary stoves types

Primary vs. Secondary cookstove combination, % of respondents

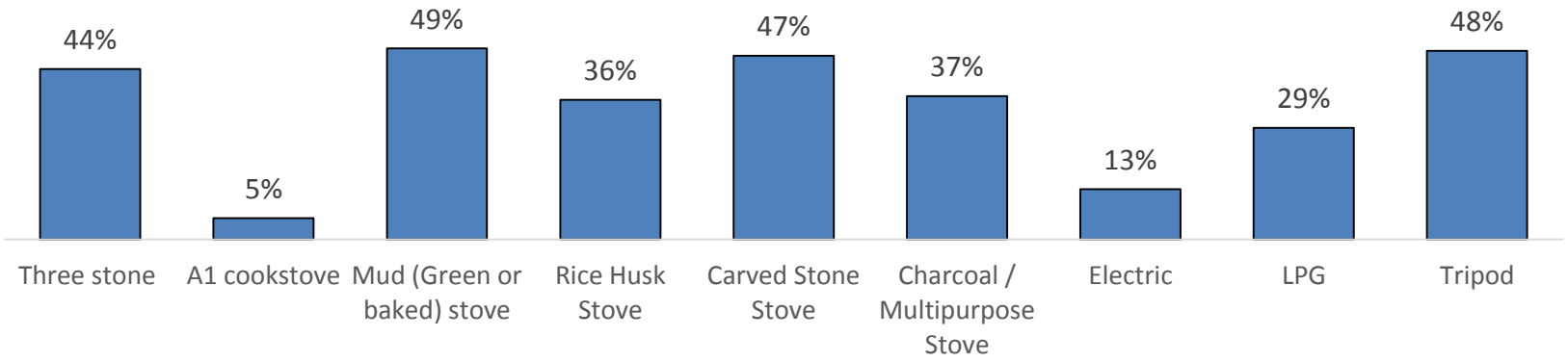


Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Secondary Stove Uses

Most respondents indicated using the stove for water heating, while only a lower amount, mostly of wood or charcoal based stoves indicating using it for other purposes

Secondary Stoves Uses, % of respondents



	Three stone	A1 cookstove	Mud (Green or baked) stove	Rice Husk Stove	Carved Stone Stove	Charcoal Stove	Electric	LPG	Tripod
Water Boiling	94%	50%	100%	100%	88%	95%	100%	100%	93%
Insect Repellant	-	-	-	-	-	-	-	-	-
Lighting	3%	-	-	-	-	-	13%	-	-
Warmth	19%	-	23%	-	-	15%	20%	50%	25%
Animal Feeding	10%	50%	-	20%	-	1%	-	-	18%
Others	2%	-	-	-	13%	4%	7%	-	-

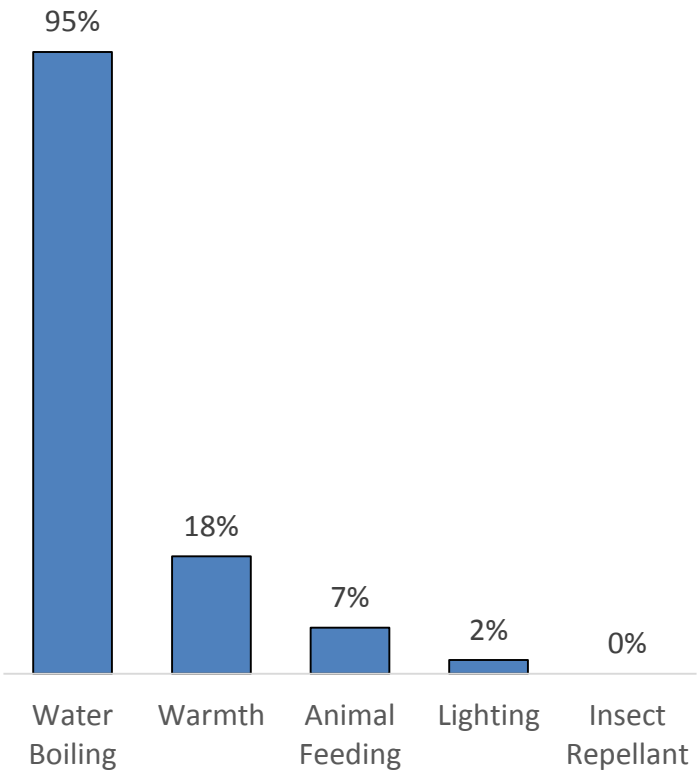
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above visuals. The base of the above visuals is 286.

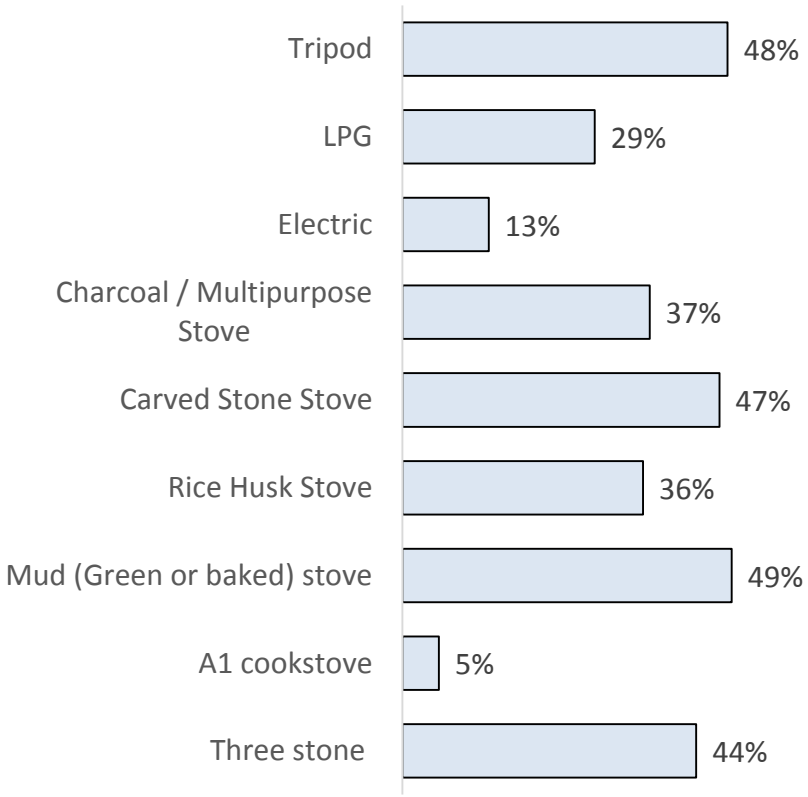
Stoves – Secondary Stove Uses

95% of respondents indicated using the stove for water boiling, while only 18% for warmth, 7% for animal feeding, and 2% lighting

Secondary Stoves Uses, % of respondents



Secondary Stoves Uses, % of primary stove users

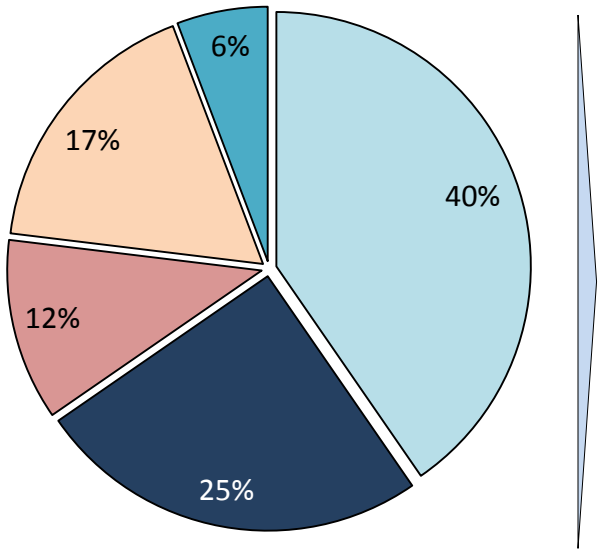


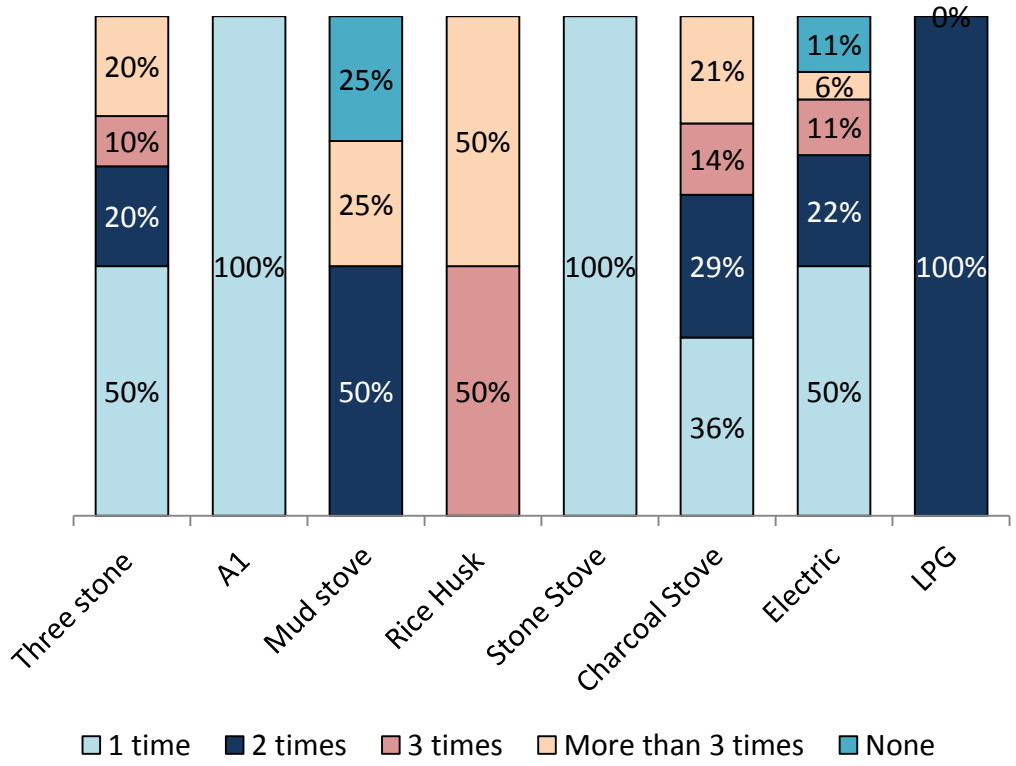
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Maintenance

Only 6% of respondents did not have to carry out any maintenance or repairs in the last 6 months, even if the cost does not appear to exceed 3,000 MMK

Times the main stove required maintenance over the last 6 months, % of respondents





The cost of these repairs never exceeded 3,000 MMK, with 50% of respondents indicating they did not spend any money for the repairs

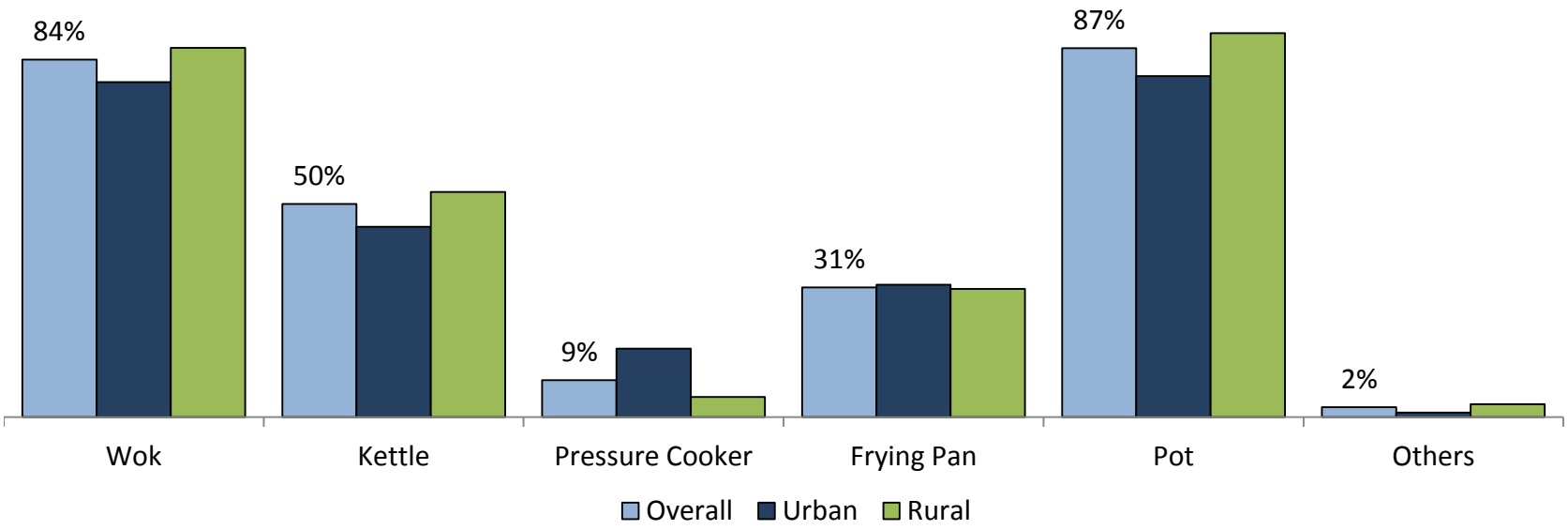
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Cookware

The diameter of the bottom of the main cookware used is mostly between 10 and 13 inches. The most common cookware owned are woks (84%) and Pots (87%)

Diameter of the Bottom of the Main Cookware used (inches*)														
6	7	8	9	10	11	12	13	14	15	16	17	18	20	34
0%	0%	4%	4%	16%	21%	29%	14%	7%	2%	1%	1%	0%	0%	0%

Types of cookware used by respondents, % of respondents



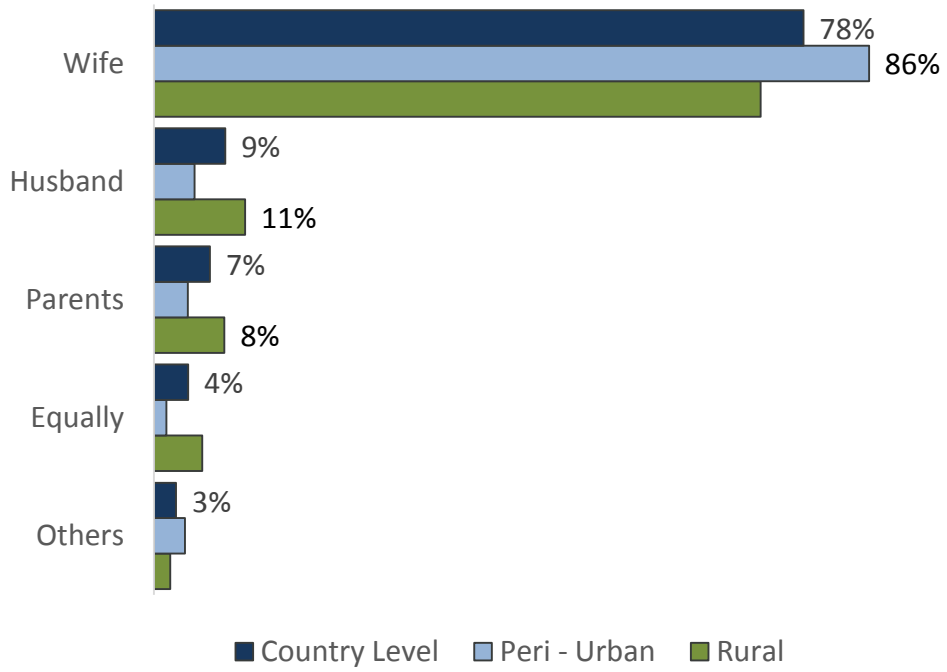
* 1 inch = 2.54 centimeters

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Decision Makers and Drivers

It is the household wife, who is usually the main cook, who is the main decision maker in the purchase of cooking stoves

Stove Purchase Decision Makers, % of respondents



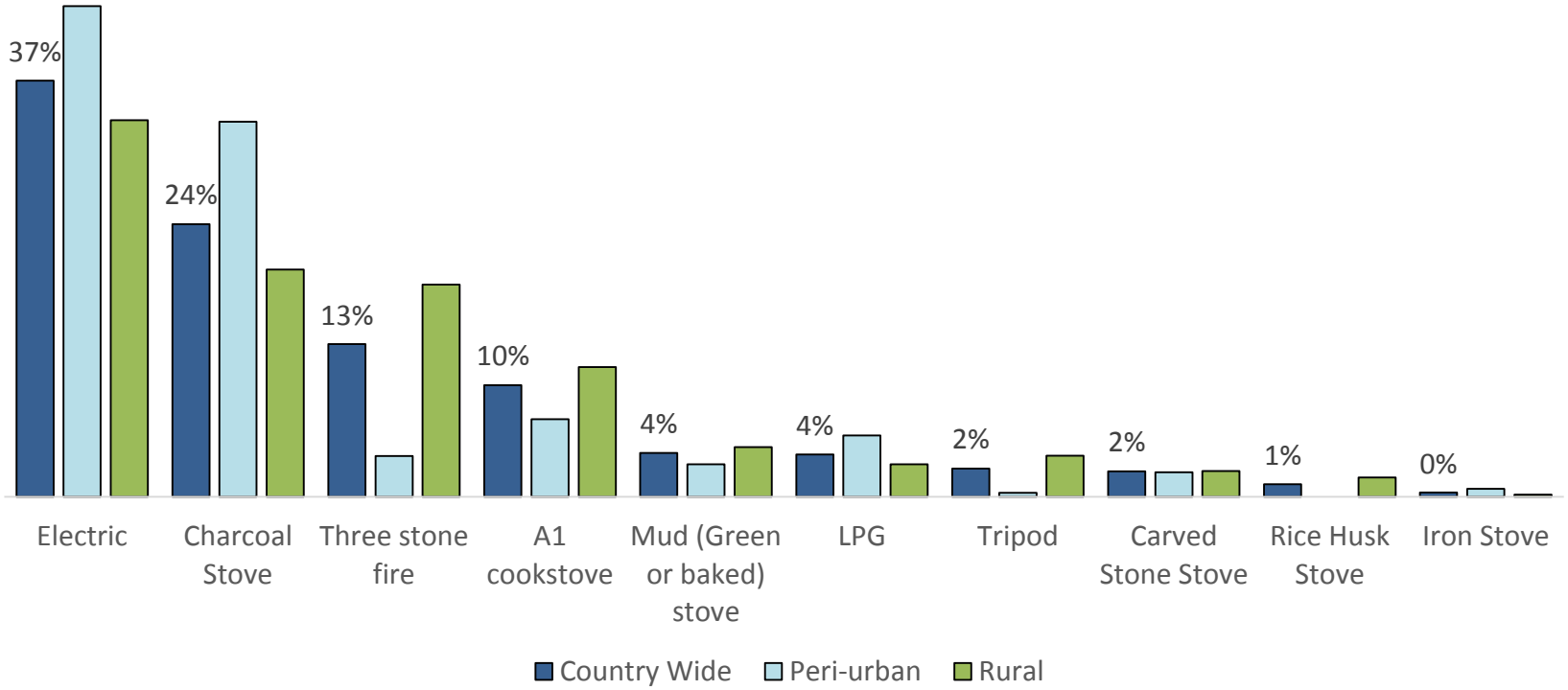
- The most common decision maker is the household wife, especially in peri-urban environments.
- The husband is a distant second, but it's interesting to notice that their decision power seems to increase in rural environments (11%)
- Similarly, parents seem to be more influential decision makers in rural environments (8%)

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Rural & Peri-Urban Preferred Stoves

Across the country, the electric stove was reported to be the aspirational stove for most peri-urban (43%) and rural (33%) respondents

Preferred Stove, % of respondents (Country, Peri-Urban and Rural)



Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Regionally Preferred Stoves

Electric and charcoal / multipurpose stoves maintain the dominance in preference across different regions with the exception of rural Ayeyawaddy, where 23% report the three stone fire to be their preferred stove, and in Magway 33% expressed a preference for the A1 stoves

Preferred Stove, % of respondents per region, Peri – Urban & Rural

		Three stone	A1	Mud Stove	Rice Husk	Carved Stone	Charcoal / Multipurpose Stove	A1 Variation	Iron Stove	Electric	LPG	Tripod
Peri-urban	Yangon	-	10%	2%	-	-	30%	-	-	50%	8%	-
	Mandalay	-	-	-	-	-	41%	-	-	56%	-	-
	Ayeyarwaddy	15%	8%	15%	-	10%	30%	3%	-	18%	3%	-
	Bago,	-	-	-	-	-	47%	-	-	53%	-	-
	Shan	-	10%	-	-	3%	28%	8%	-	33%	13%	-
	Magway	4%	7%	-	-	-	20%	-	4%	61%	2%	2%
	Tanintharyi	7%	10%	3%	-	3%	30%	-	-	27%	10%	-
Rural	Ayeyarwaddy	23%	10%	8%	6%	11%	17%	-	-	20%	2%	-
	Bago,	26%	-	10%	4%	-	28%	-	-	29%	1%	1%
	Shan	11%	5%	1%	-	-	23%	5%	1%	39%	2%	11%
	Magway	19%	33%	3%	-	-	7%	-	-	35%	1%	2%
	Tanintharyi	17%	-	2%	-	3%	5%	-	-	43%	13%	-

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Preferred Stoves

Respondents indicated primarily preference for their current primary stove, followed by Electric and Charcoal / Multipurpose stoves mostly

Preferred Stove, % of respondents per type of primary stove

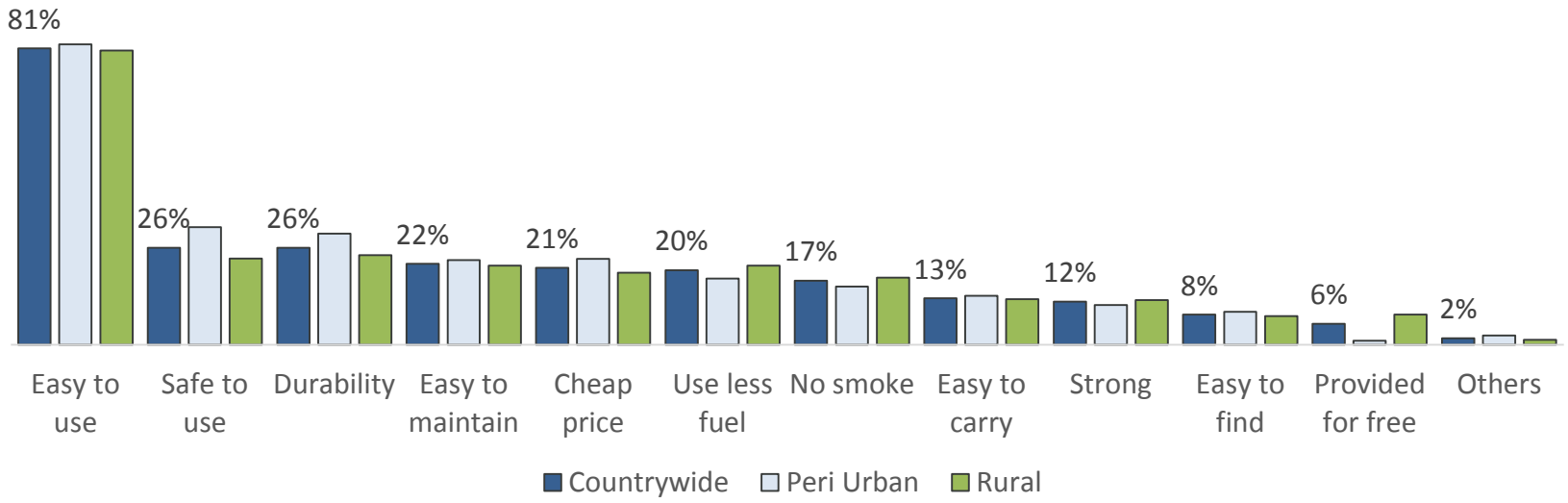
Primary Stove Used	Preferred Stove: Three stone	A1	Mud Stove	Rice Husk	Carved Stone	Charcoal / Multipurpose Stove	Iron Stove	Electric	LPG	Tripod
Three stone	38%	11%	2%	1%	2%	17%	0%	26%	2%	0%
A1	0%	73%	0%	0%	0%	3%	0%	22%	0%	3%
Mud Stove	2%	4%	42%	2%	4%	16%	0%	24%	0%	0%
Rice Husk	0%	0%	7%	43%	0%	14%	0%	36%	0%	0%
Carved Stone	0%	18%	12%	0%	47%	6%	0%	18%	0%	0%
Charcoal / Multipurpose	0%	2%	1%	0%	1%	54%	0%	35%	5%	0%
Iron Stove	0%	14%	0%	0%	0%	14%	29%	43%	0%	0%
Electric	0%	3%	1%	0%	0%	9%	0%	82%	3%	0%
LPG	0%	0%	0%	0%	0%	0%	0%	14%	86%	0%
Tripod	0%	10%	0%	0%	0%	19%	2%	29%	3%	31%

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Stove Characteristics

Across the country, ease of use was indicated as the most appealing quality of a stove (81%). While the second most important in peri-urban environments was safety of use (32%), in rural environments this was surpassed by durability of the stove (24%)

Most Important Stove Characteristics, % of respondents



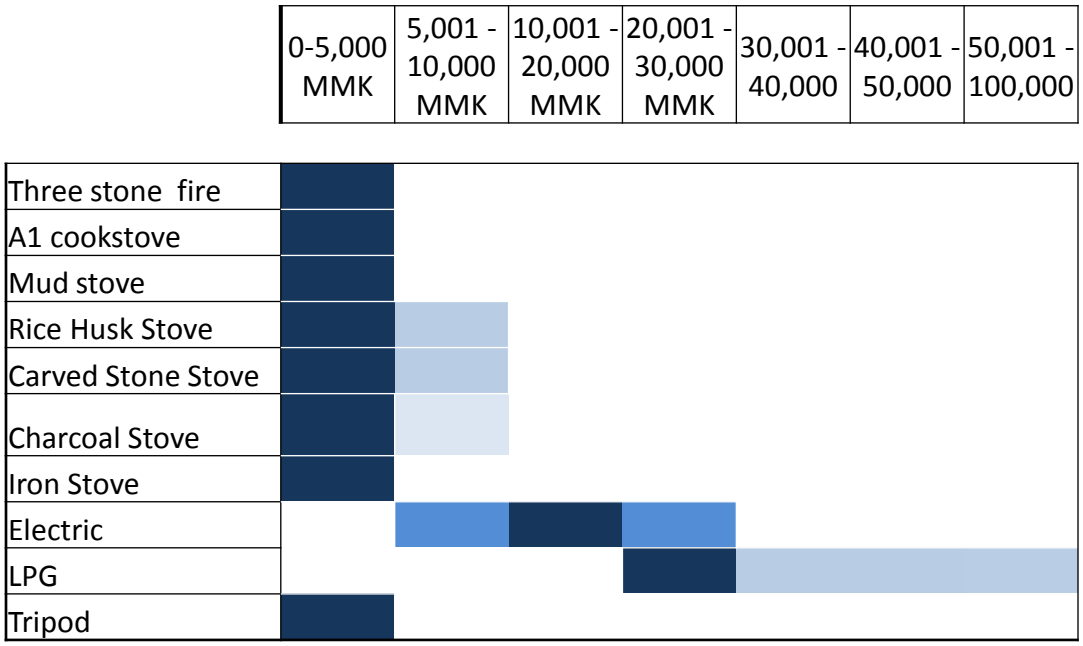
	First	Second	Third
Peri Urban	Ease of Use (82%)	Safety (32%)	Durability (30%)
Rural	Ease of Use (80%)	Durability (24%)	Safety (23%)

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Stoves – Willingness to Pay

Respondents indicated that electric and LPG stoves are the ones they would be willing to pay the most for

Willingness to Pay for Preferred Stove, % of respondents



- Most respondents would pay 5,000 MMK or less for most stoves, including A1, mud stoves, charcoal stove and iron stoves.
- A second group can be identified in rice husk stoves, carved stone stoves and multi-purpose, going up to max 10,000 MMK.
  - The main reason for non purchase of stoves is usually lack of local availability
- Electric stoves and LPG stoves score the highest with respondents willing to pay up to 30,000 and 50,000 MMK respectively

Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

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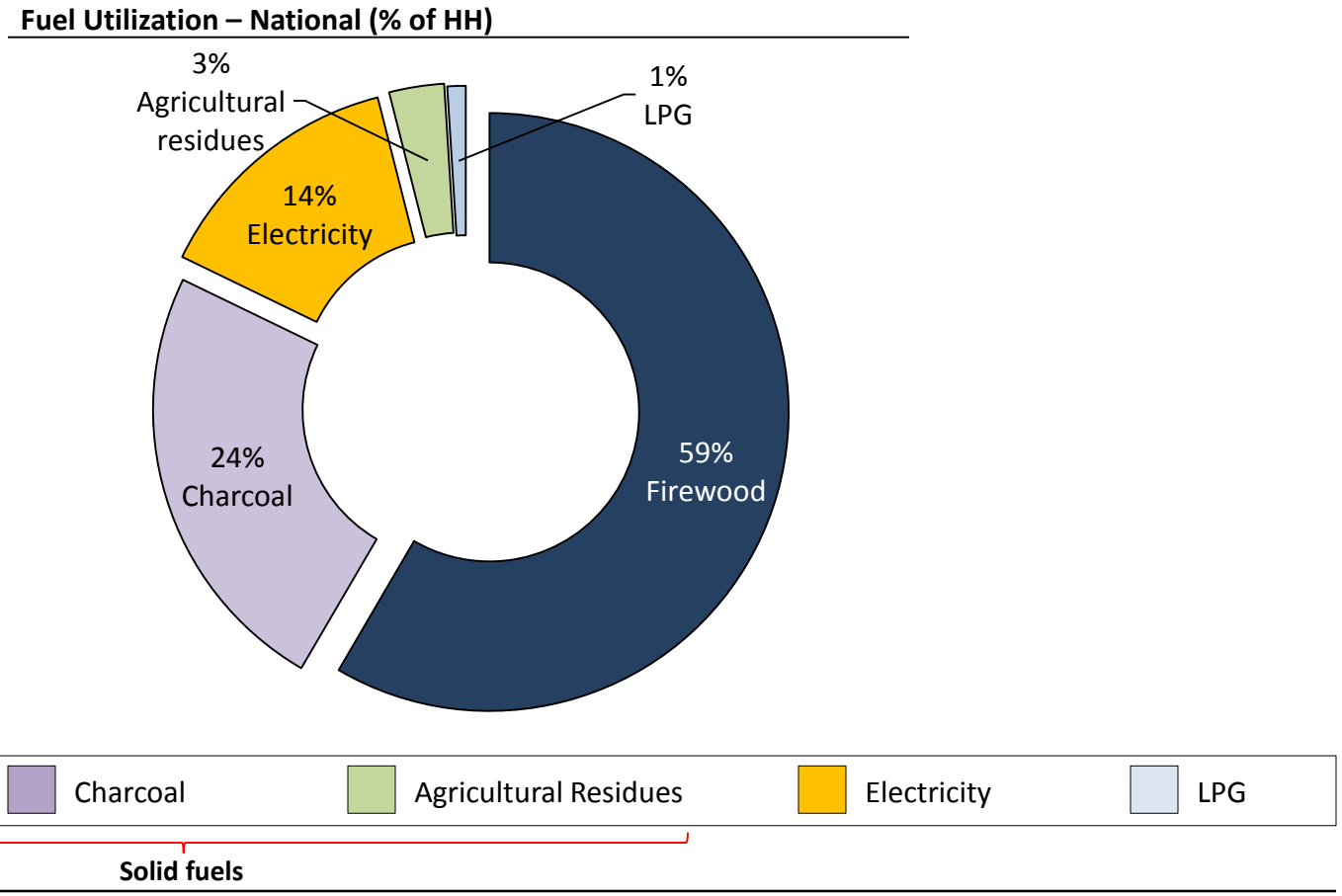
Fuels – Fuel overview – National

The majority of the population in Myanmar is still dependent on solid fuels for cooking purposes (85%). Firewood and charcoal are the most prevalent fuel sources followed by electricity

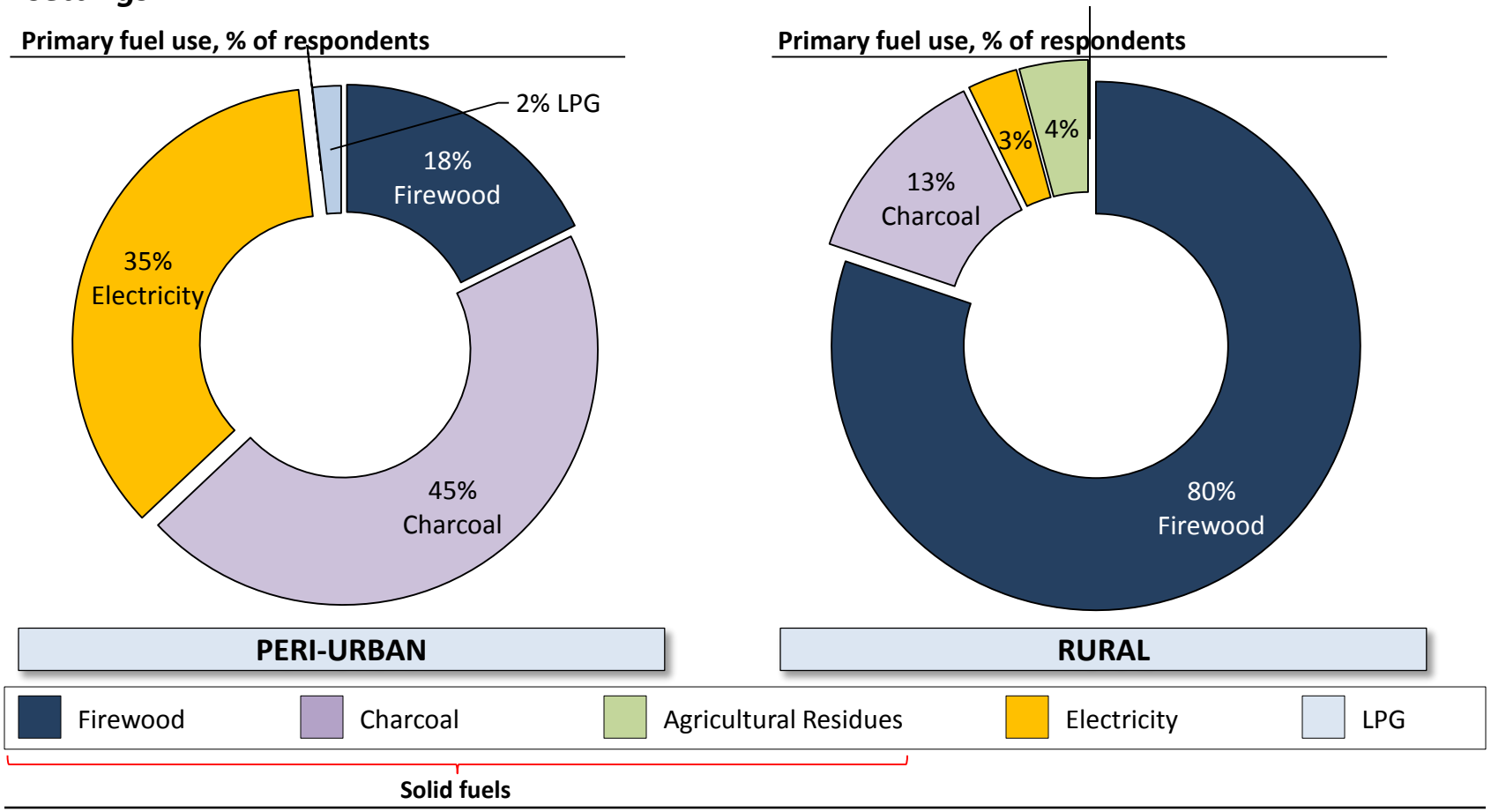
Fuel Utilization – National (% of HH)



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Fuels – Fuel overview – Urban vs. Rural use

This dependency changes at the peri-urban/rural divide where over 96% of rural households still use solid fuels as opposed to 63% of peri-urban ones. Firewood is overwhelmingly used in the former context, while charcoal is the preferred source in urban settings

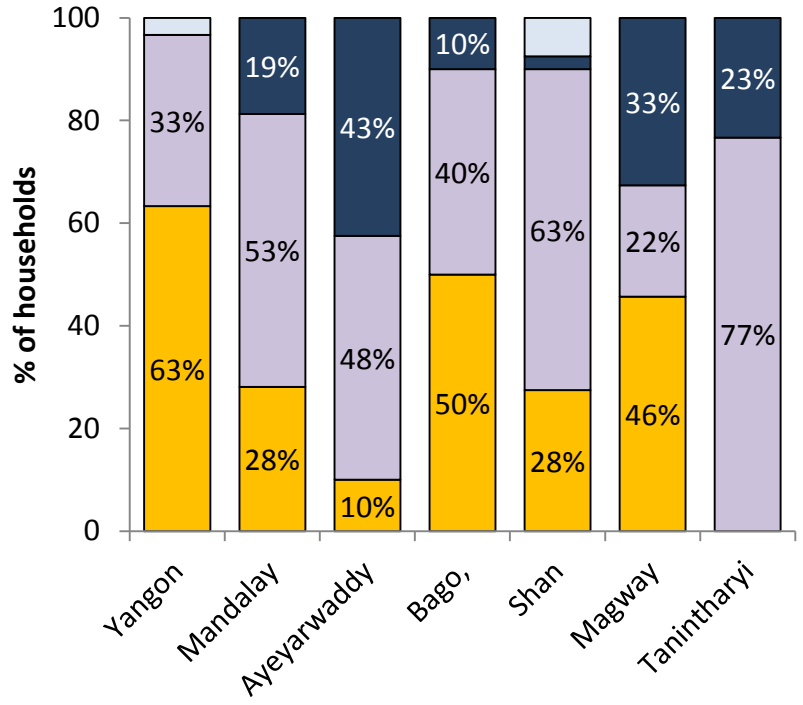


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

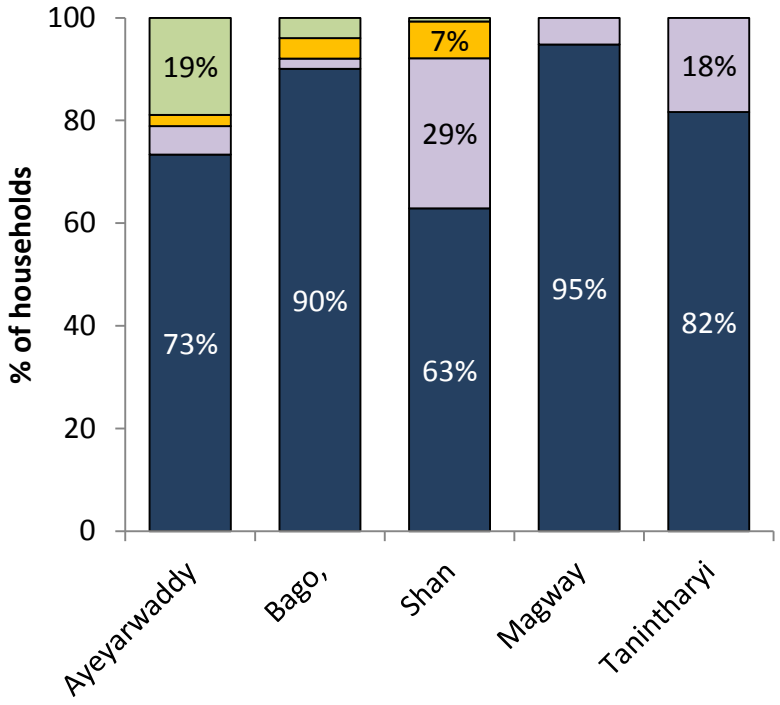
Fuels – Fuel overview – Type by region

Ayeyarwaddy (43%) and Magway (33%) have the country's highest peri-urban wood consumption; while Shan and Tanintharyi have high charcoal utilization in rural areas (29% and 18% respectively)

Fuel use by region, % of respondents / Peri-urban



Fuel use by region, % of respondents / Rural



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Fuels – Fuel overview – Utilization by income

There is a clear trend between higher income brackets and the utilization of electricity, charcoal and firewood -in that specific order- in urban contexts. On the other hand, rural households tend to use mainly firewood regardless of income levels

Fuel use by income, % of respondents / Peri-urban vs. Rural

		Electricity	LPG	Charcoal	Wood
Peri-urban	0 - 250,000 MMK	26%	1%	50%	23%
	250,001 - 625,000 MMK	54%	4%	35%	6%

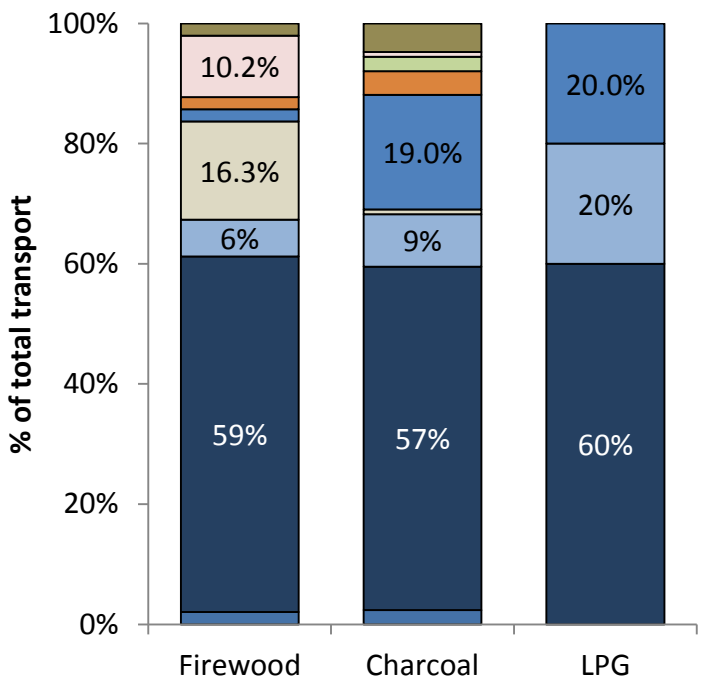
		Electricity	Charcoal	Wood	Agricultural residues
Rural	0 - 250,000 MMK	2%	12%	82%	4%
	250,001 - 625,000 MMK	10%	14%	72%	3%

Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

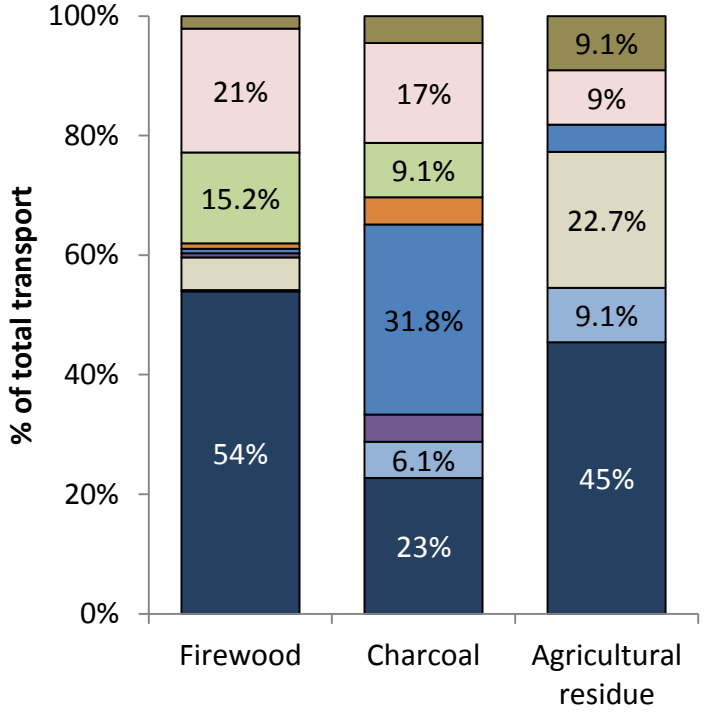
Fuels – Fuel overview – Transport method

On average, more than half of all peri-urban fuels (59%) are transported on foot. In rural settings, wood is still transported over half the time on foot but other fuels are delivered by other transportation methods

Transport method for primary fuels, Peri-urban (% of total)



Transport method for primary fuels. Rural (% of total)



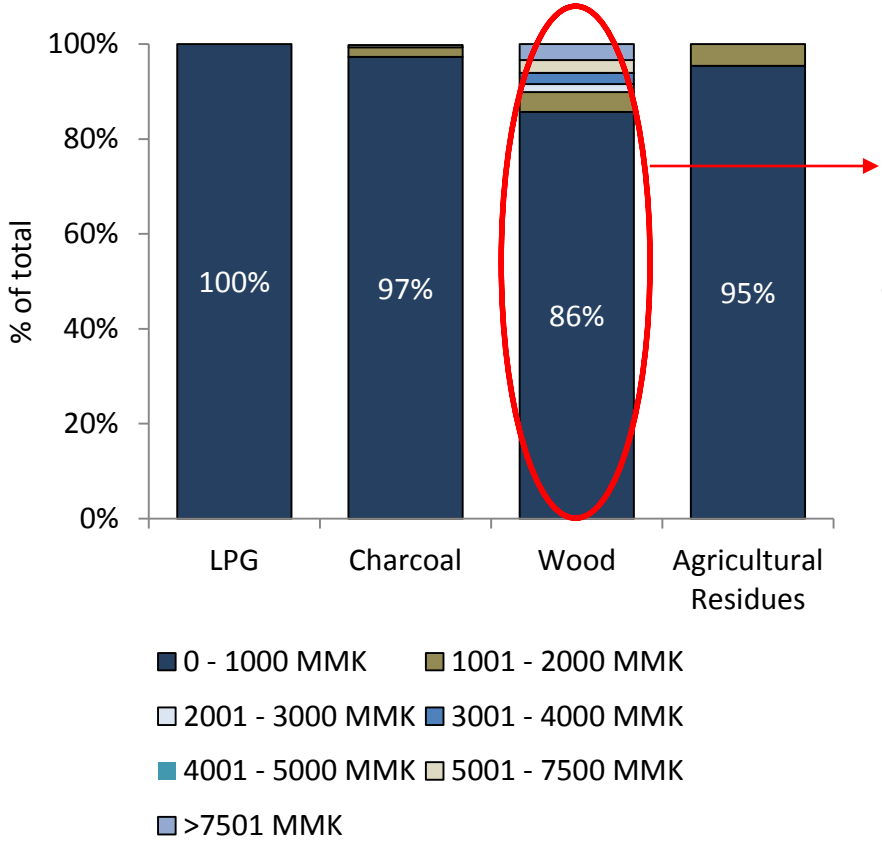
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above visuals. The base of the above left visual is 180. The base of the above left visual is 509..

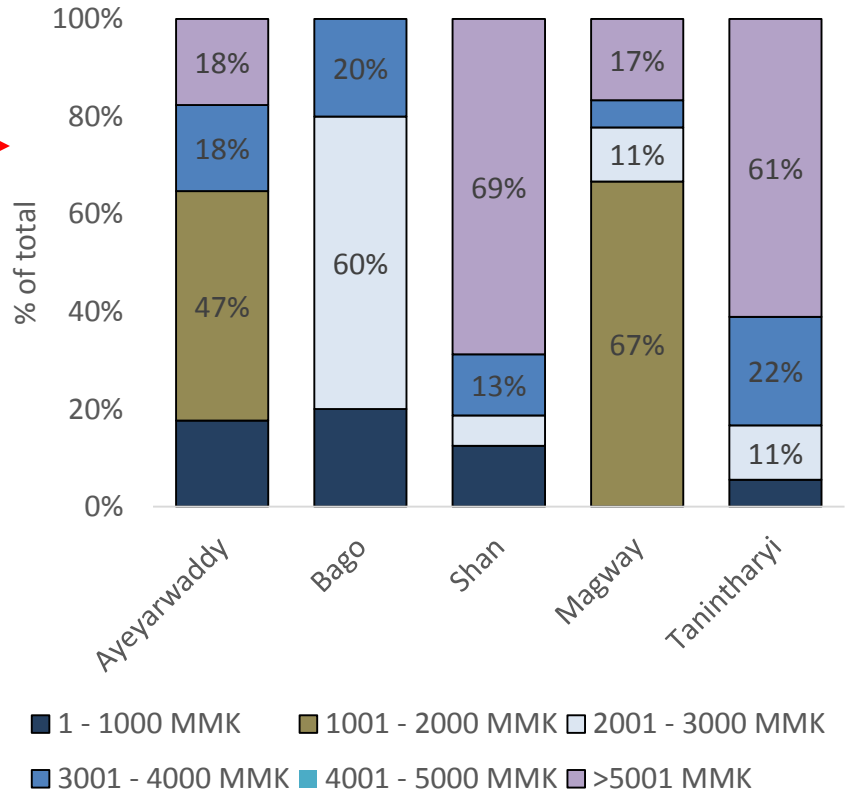
Fuels – Fuel overview – Transport Cost

Transports costs for the majority of fuel users is negligible with the exception of firewood. Analyzing the regional differences for this fuel source, these costs are the highest for Shan, Tanintharyi and Bago

Transport costs – Primary fuel (% of total)



Transport costs per region (% of wood users)



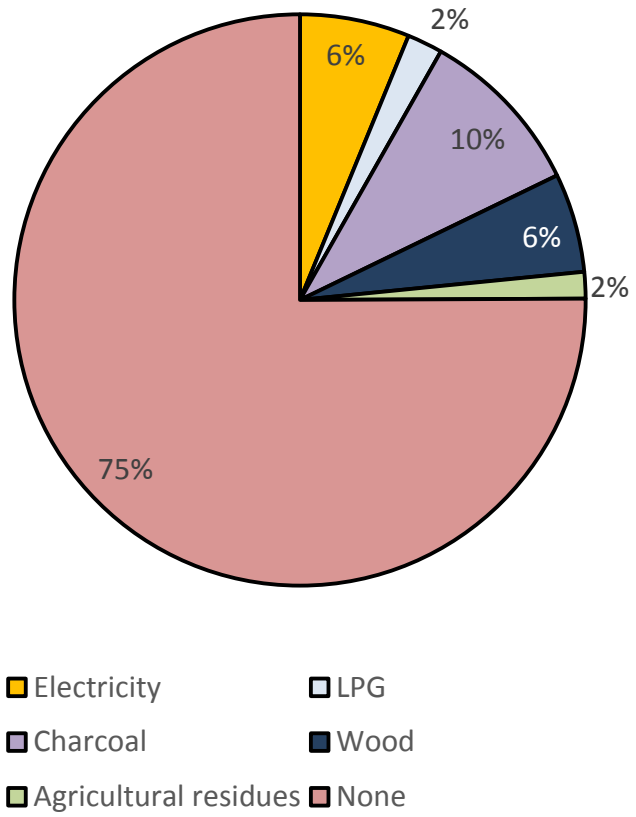
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above visuals. The base of the above visuals is 104.

Fuels – Fuel overview – Secondary Fuels

The majority of respondents (75%) do not use a secondary fuel for cooking purposes. If they do, charcoal seems to be the preferred option for primary users of electricity and wood, while electricity and wood appear the be the preferred option for primary charcoal users

Secondary fuel use (% of total)



Primary vs. Secondary fuel utilization (# of households)

		Primary fuel				
		Electricity	*LPG*	*Charcoal*	*Wood*	*Agricultural residues*
Secondary fuel	*Electricity*	0%	50%	53%	20%	0%
	LPG	11%	0%	12%	0%	0%
	Charcoal	75%	50%	0%	57%	8%
	Wood	13%	0%	35%	0%	92%
	Agricultural residues	2%	0%	0%	24%	0%

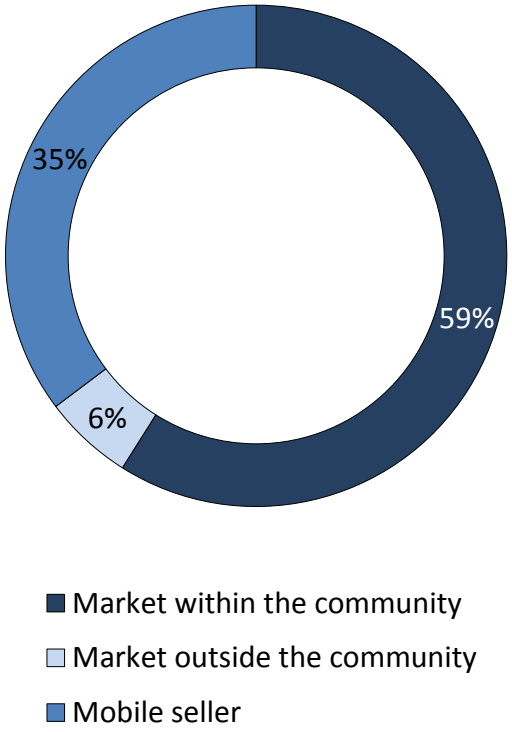
Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Please Note: Small sample size in some of the cells presented in the above visuals. The base of the above right visual is 200.

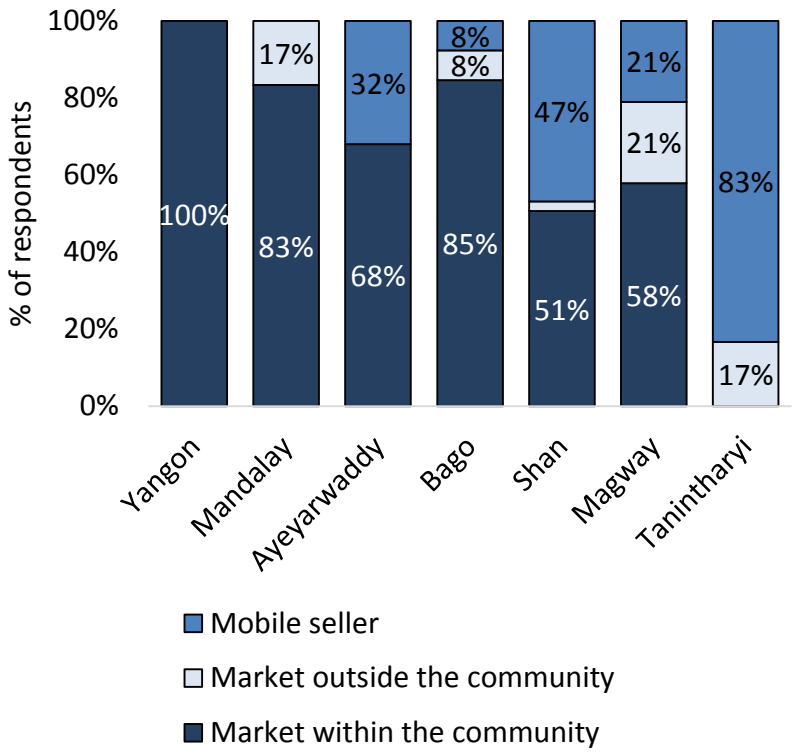
Fuels – Fuel overview – Purchase Location

At the national level, the majority of respondents (59%) purchase their primary fuel from a market within their own village/town. Shan, Tanintharyi and Ayeyarwaddy appear to have higher percentages of purchases from mobile sellers

Purchase location, National (% of total)



Purchase location, Regional (% of total)



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

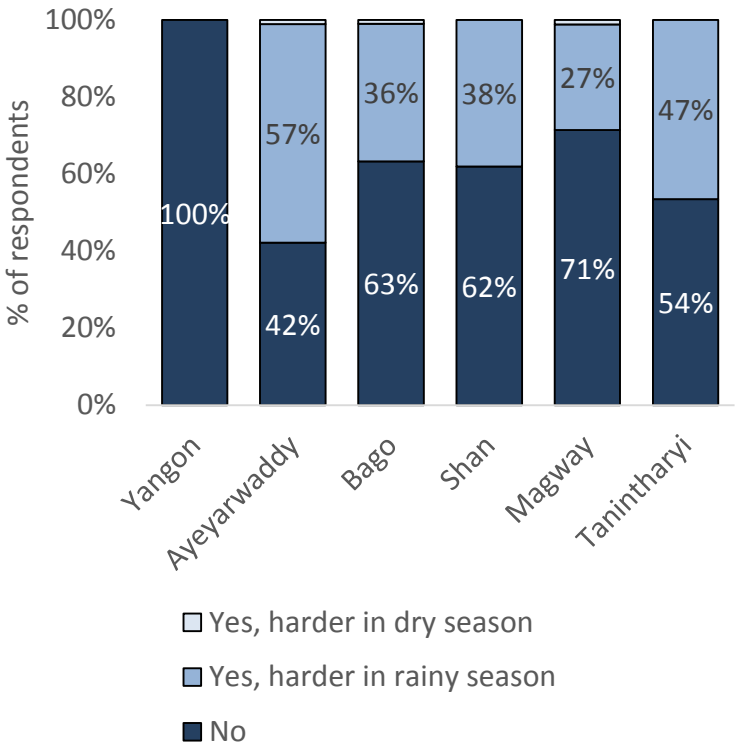
Fuels – Fuel overview – Fuel Seasonality

There does not appear to be a relevant seasonal switch in the type of fuels used, with the exception of a small amount of primary wood users. In every region except for Yangon, wood fuel collection becomes more difficult during the rainy season (41% of HH)

Fuel utilization matrix, Rainy vs. Dry season

		Main fuel – Dry season				
		Electricity	*LPG*	*Charcoal*	*Wood*	*Agricultural residues*
Main fuel – Rainy season	*Electricity*	107	0	1	0	0
	LPG	0	5	3	0	0
	Charcoal	6	2	179	17	0
	Wood	1	0	2	450	2
	Agricultural residues	0	0	0	3	7

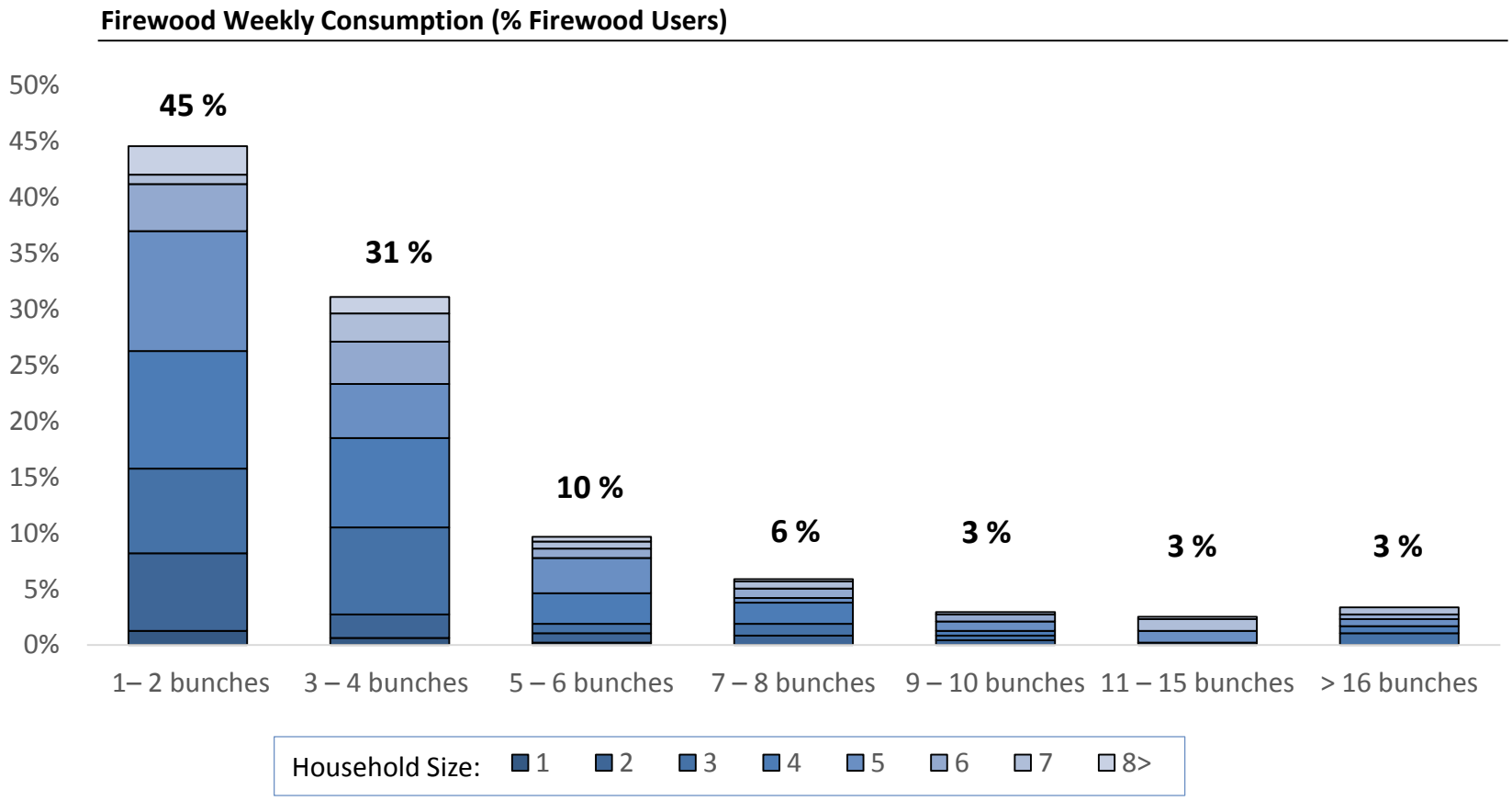
Seasonal collection difficulty (% of total)



Firewood

Fuels – Firewood – Average HH consumption

The majority of households consume between 1 and 4 bunches of wood per week, regardless of household size

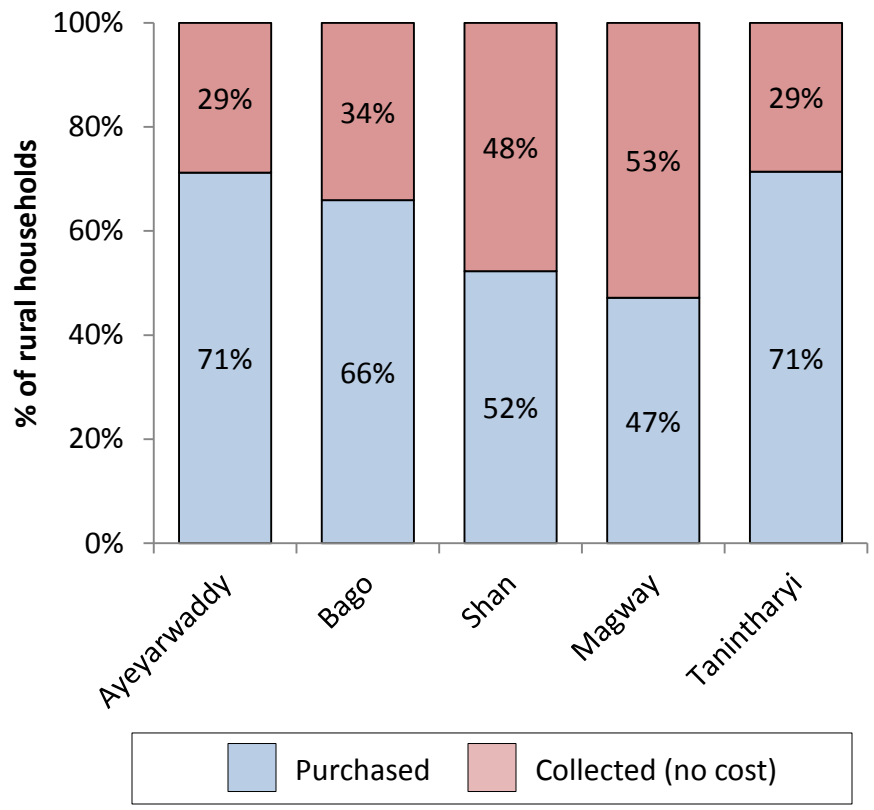


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

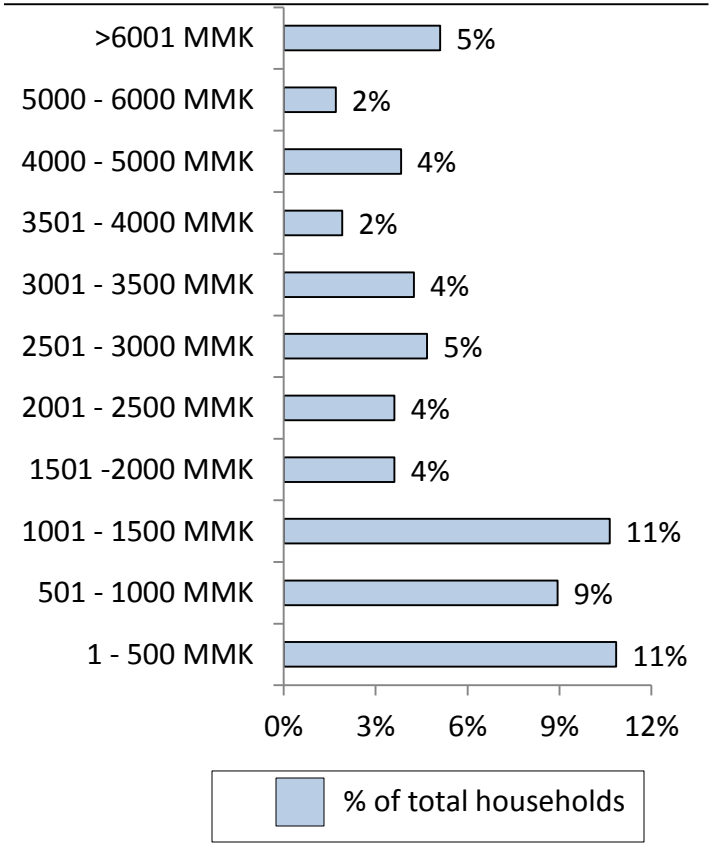
Fuels – Firewood – Purchase vs. Collection

Over 50% of households tend to purchase their firewood for consumption. This number is relevant in regions such as Ayeyarwaddy and Tanintharyi (71%) due to high deforestation levels. Also, there seems to be great variance in cost levels for this type of fuel

Purchase vs. Collection (% of rural HH)



Declared Firewood weekly expense, in MMKs (% HHs)

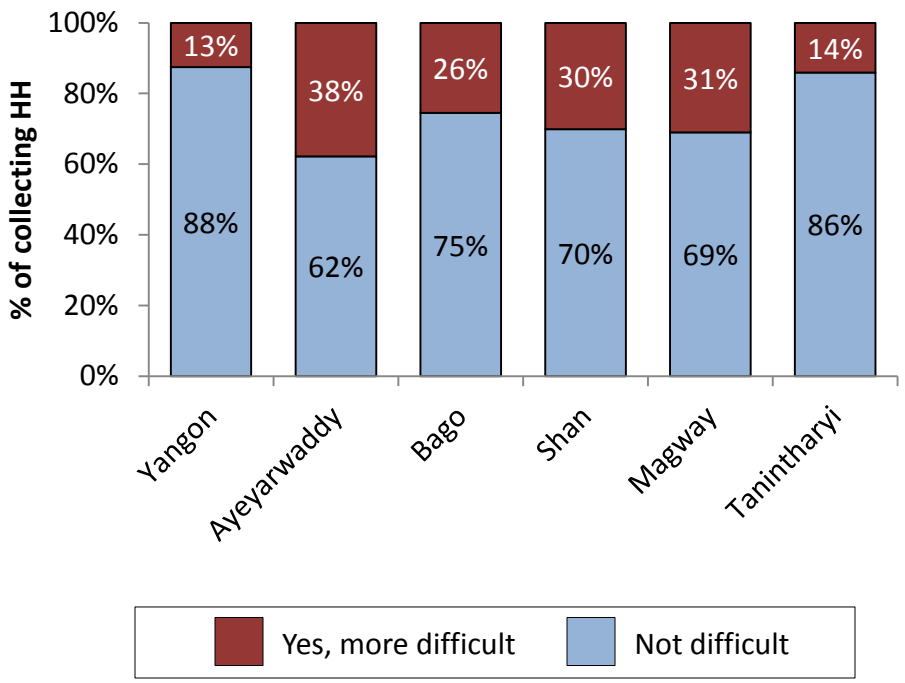


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Fuels – Firewood – Difficulty of collection

Around 28% of collecting households consider that this activity has become more difficult in recent years with Ayeyarwaddy having the highest percentage (38%). The great majority cite reduced availability (78%) as the main reason, with the main collection places being plantations (22%) and non-forest lands (22%)

Perceived difficult collection (% of collecting HH)



Stated reason for increase difficulty	% of "Yes" respondents
Reduced availability	78%
Longer distances	28%
More time required	20%
More dangerous	6%

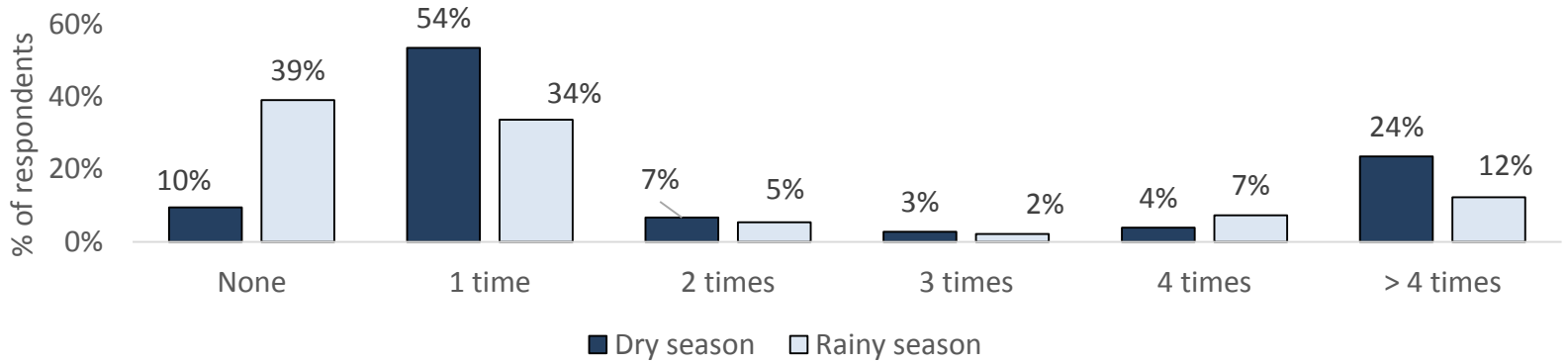
Where does collection occur?	% of total Respondents
Non-Forest lands	31%
Plantations	30%
From home/compound	20%
Natural forests	15%
Others	4%

Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Fuels – Firewood – Collection Dynamics

The majority of primary fuel collecting HH carry out this activity once per week. Nonetheless, this number decreases by 20% during the rainy season. Also, women tend to carry out this activity with a higher tendency than men

Fuel collection per week, Dry vs. Rainy season (% of total respondents)



Responsible person for fuel collection vs. Type of fuel collected (female respondents only)

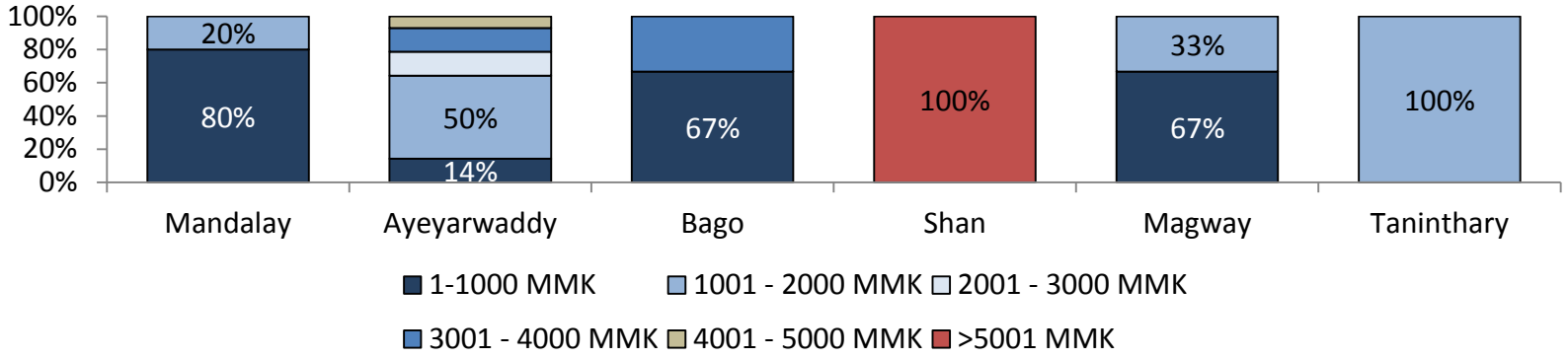
	Respondent	Spouse of respondent	Other female HH member	Other male HH member	Others
LPG	0%	0%	100%	0%	0%
Charcoal	74%	15%	6%	5%	0%
Wood	42%	39%	3%	10%	6%
Agricultural residues	61%	28%	0%	11%	0%

Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

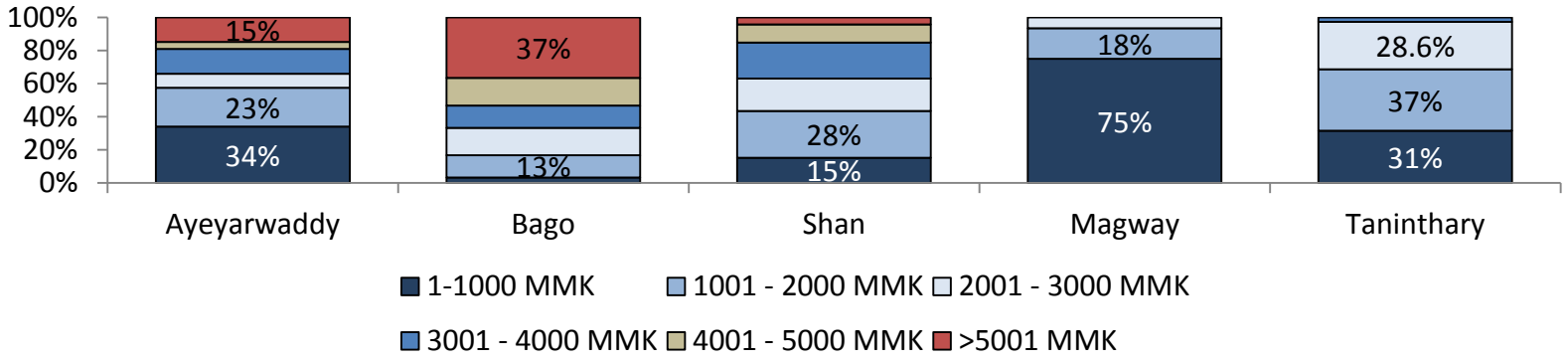
Fuels – Firewood – Wood Expense

Firewood purchase is more expensive in the peri-urban areas of Shan and Ayeyarwaddy, while significantly less costly in areas like Magway and Taninthraryi. The situation is similar in rural areas but with higher expense for Bago

Wood expense – Urban (% of wood buyers)



Wood expense – Rural (% of wood buyers)



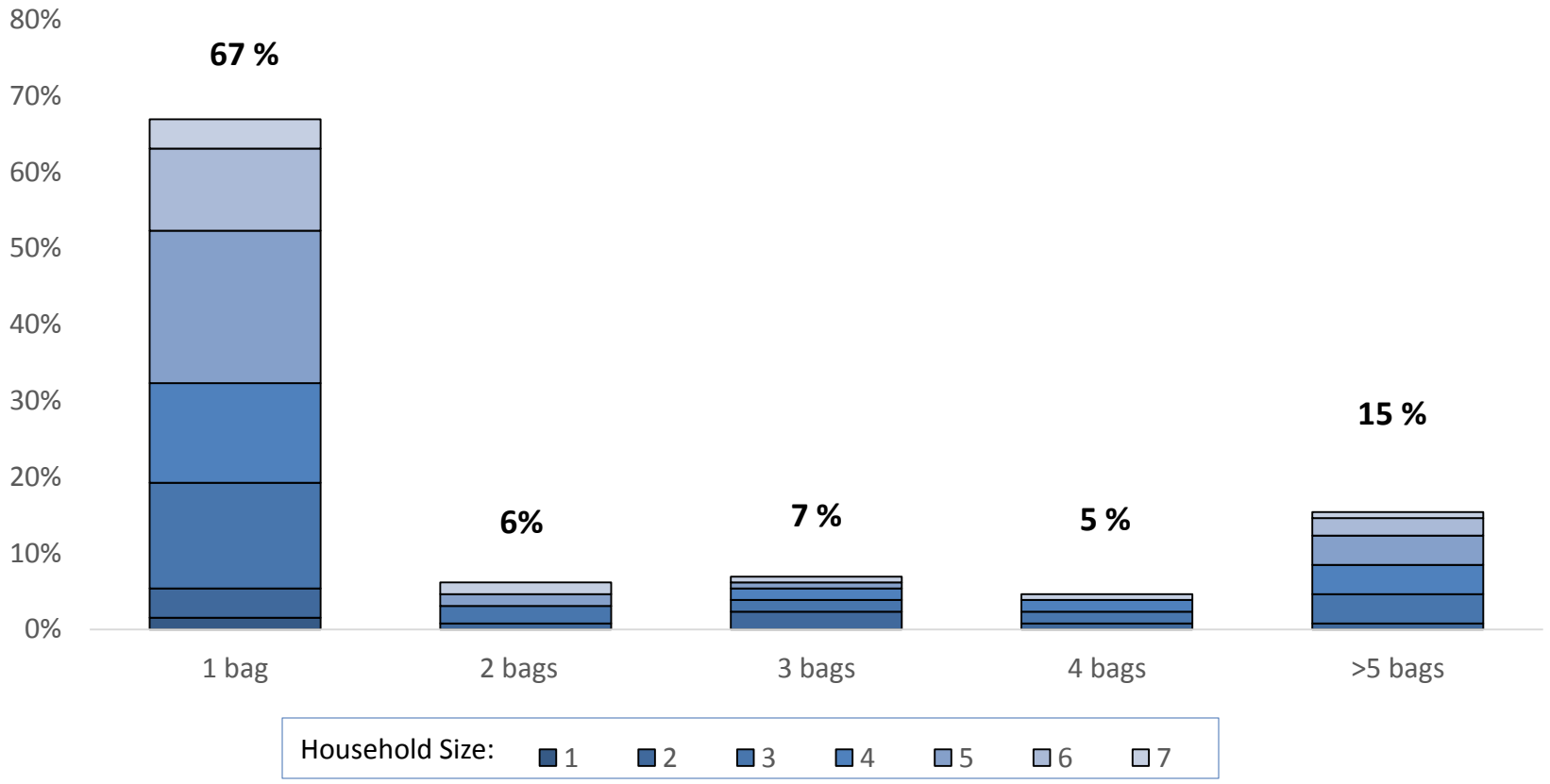
Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Charcoal

Charcoal – Average HH consumption

The average household in Myanmar consumes 1 bag of charcoal per week as fuel for cooking purposes. This figure seems to be consistent across regions regardless of household size

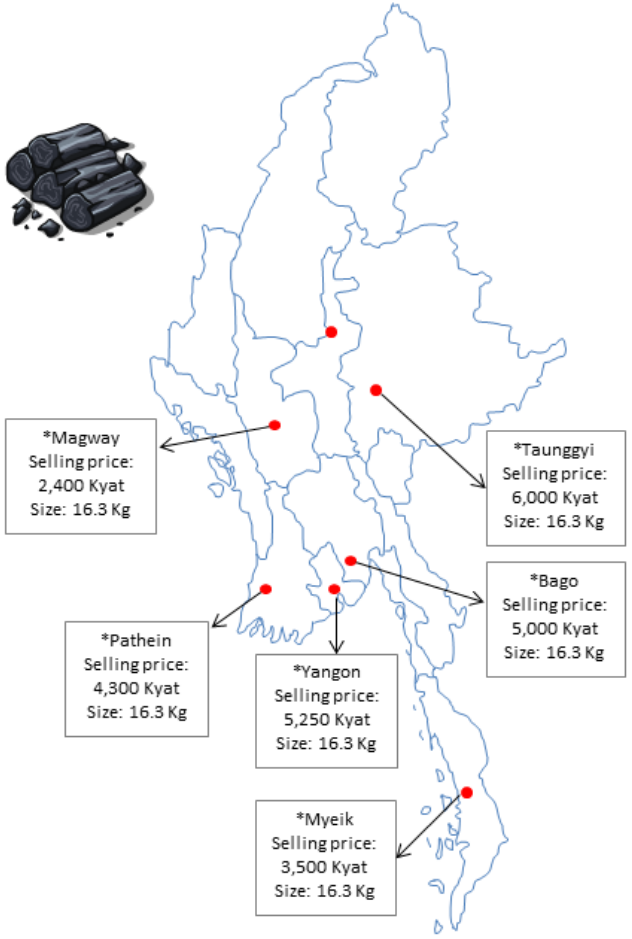
Charcoal Weekly Consumption (% Charcoal Users)



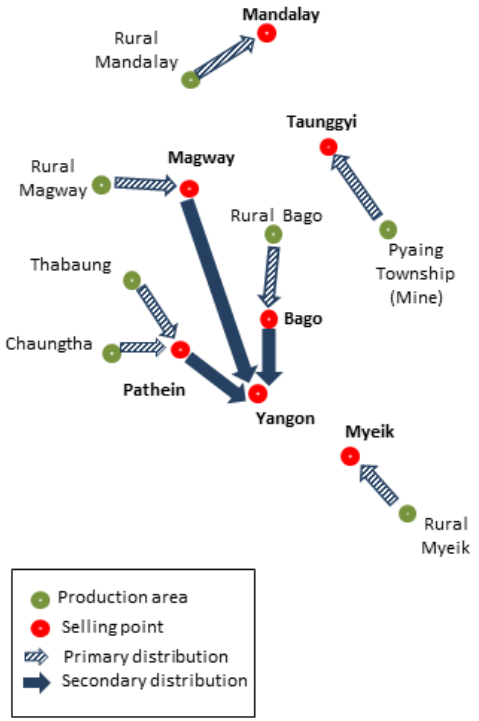
Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis
Note: 1 bag of charcoal is estimated to weight 16.3 Kgs

Charcoal – Cost per region

The selling price of charcoal in most regions lies between 2,500 – 7,000 MMK for a 10 viss bag (16.3Kg). Magway and Tanintharyi have the lowest prices due to closeness to production areas, while Shan State and Yangon show the highest prices



Supply chain mapping, Charcoal



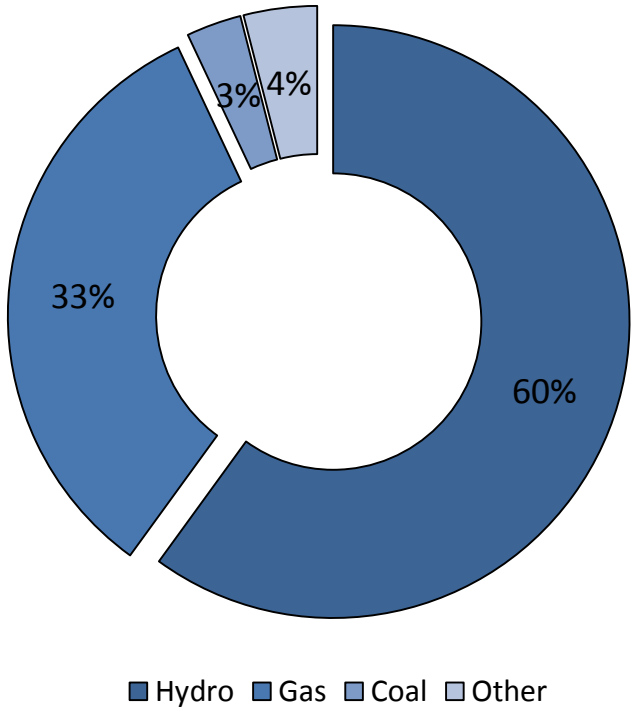
Source: EMC's Supply Chain Analysis and expert interviews

Electricity

Fuels – Electricity – Electricity Fuel Mix

The majority of power for the existing electricity grid come from hydropower dams, which are inconsistent in the dry season as water levels fall. Prices for electricity are rising, as the government expands and extends the grid

Electricity Fuel Mix for Myanmar, 2010



Myanmar Electricity Prices, (MMK / kWh)

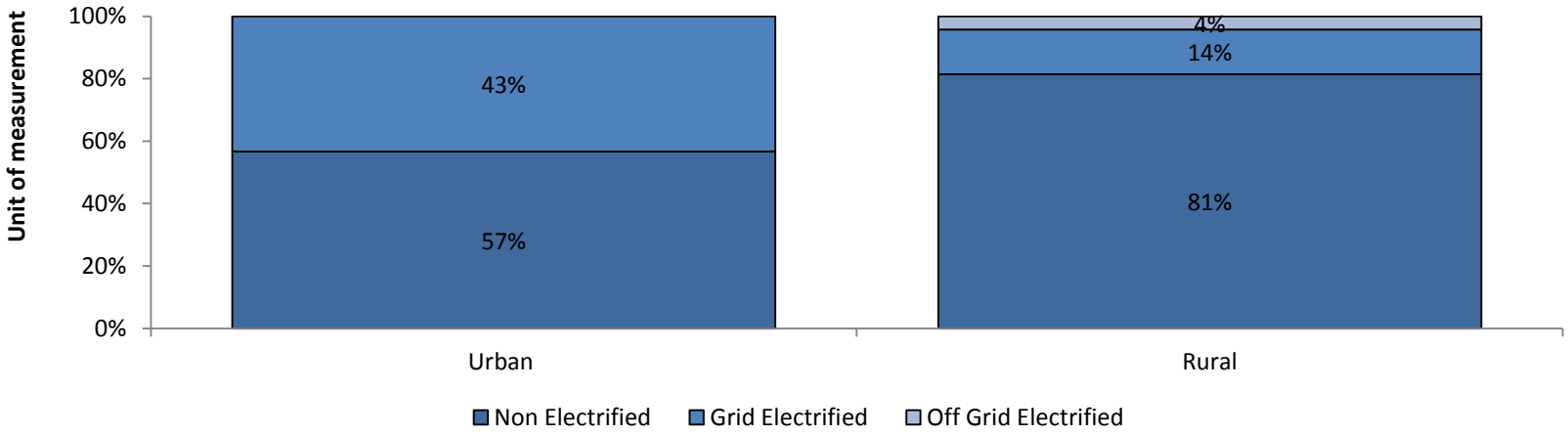
	2006	2012	2015 Estimate
Domestic	25	35	• 100 kWh hours: 35 MMK • 200 kWh hours: 40 MMK • >200 kWh hours: 50 MMK
Industrial & Commercial	50	75	• <500 kWh hours: 75 MMK> • 500 kWh hours: 150 MMK
Foreigner	82	123	Unknown

Source: Accelerating Energy Access for All in Myanmar (2013); Energy for Development – Energy Scoping Myanmar (2012); *From on-site interviews

Fuels – Electricity – Access

Myanmar has one of the lowest electrification rates in South East Asia with approximately 26% of households connected to the main grid. In rural areas 4% of total households obtain their electricity from sources such as mini-hydro, biomass, PV systems and generators

Electrification Rates (2012)



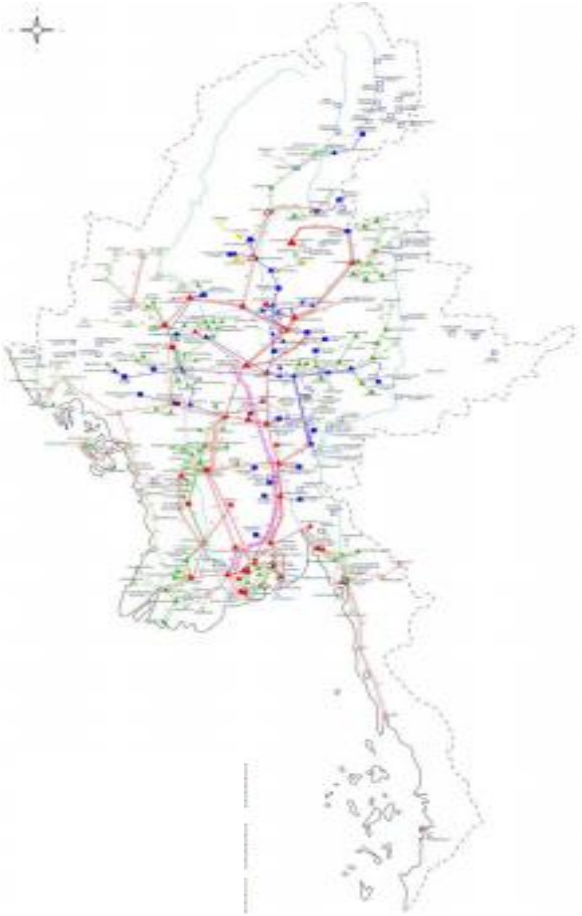
- With a population of over 50 million people, total electricity demand in the country is 2075MW.
- Of the 64,436 villages in Myanmar:
  a) 3,802 are electrified by grid
  b) 13,752 are electrified by off-grid systems such as mini-hydro, biomass (rice husks), diesel generators.
  c) The remaining do not have electricity access

- An alternative viable source are photovoltaic systems with mini-grids since the country possess higher than average solar irradiation. They can also be easily connected into the main grid, which gives it an advantage when compared to other systems into the future.

Source: "Demand Projection for Rural Electrification in Myanmar" (2014), Policy Alternatives Research Institute

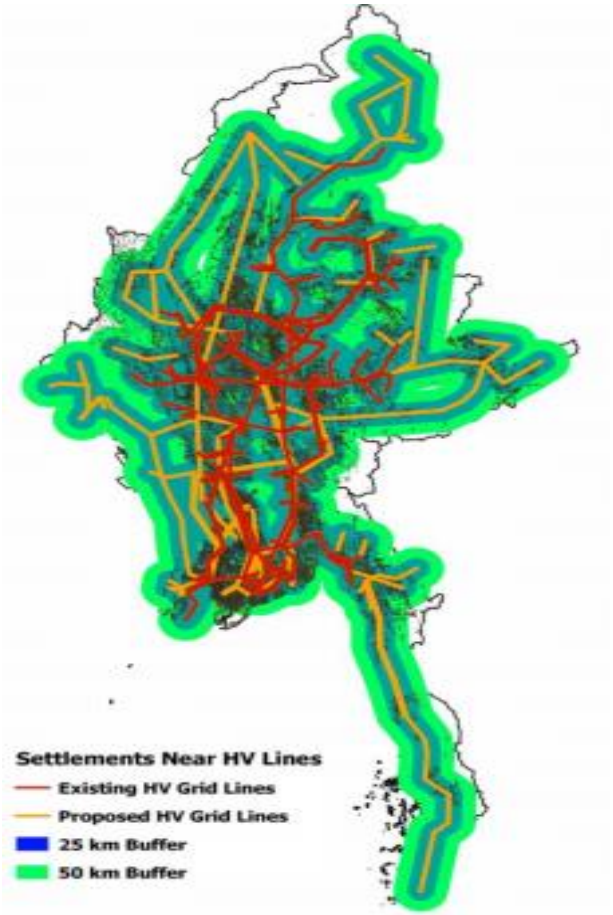
Myanmar has a goal for 100% access to electricity by 2030

Electrification Road Map to 2013



To achieve that goal, over USD 5 billion is required. World Bank, IFC, ADB, UNDP are all working to support this goal.

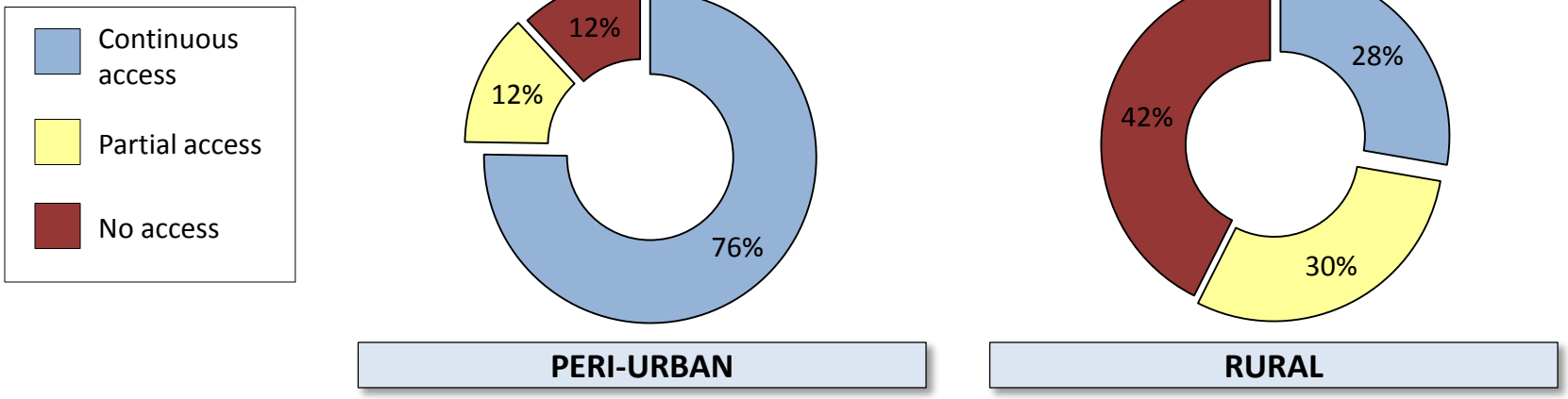
Settlements Near Electricity Lines

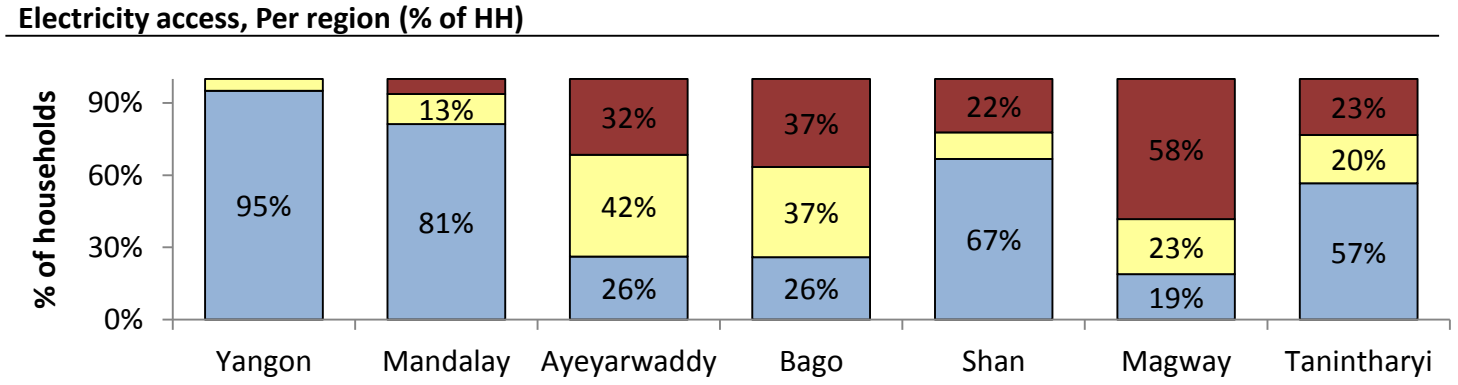


Source: "Myanmar National Electrification Plan (NEP): Least-Cost Geospatial Electrification Planning Results

Fuels – Electricity – Peri-Urban/Rural and regional access

Over 70% of rural households do not have continuous access to electricity. The most underserved regions are Magway, Bago and Ayeyarwaddy



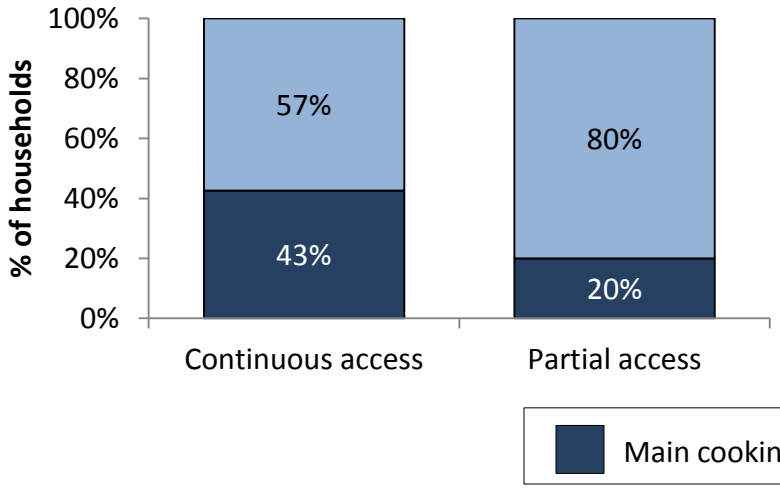


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

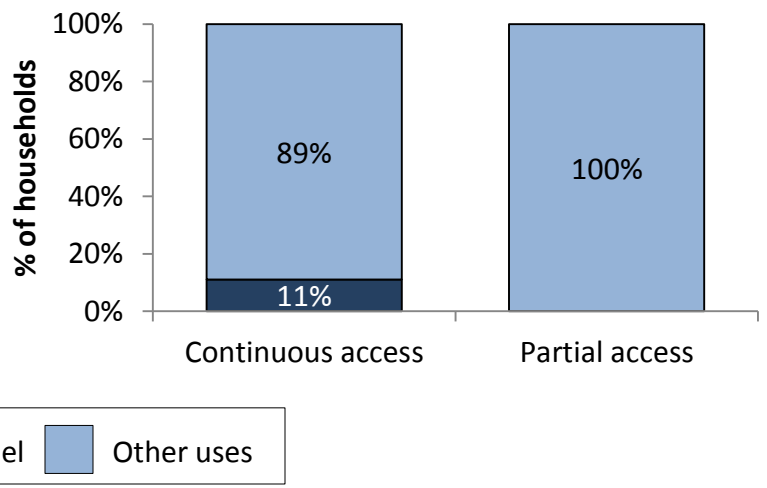
Fuels – Electricity – Sources and use as cooking fuel

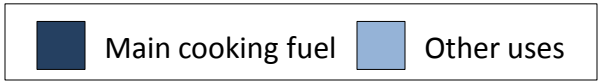
Only 11% of rural households with continuous access to electricity and 43% of urban ones use it as main cooking fuel. This can be attributed to a preference for cooking using traditional methods and the utilization for other activities such as electronic equipment recharge

Electricity as cooking fuel vs. Access to electricity (Peri-Urban)



Electricity as cooking fuel vs. Access to electricity (Rural)





Electricity source	All day access	Partial access
National grid	**90%**	10%
Solar panels	29%	**71%**
Village Diesel generators	8%	**92%**
Batteries	2%	**98%**

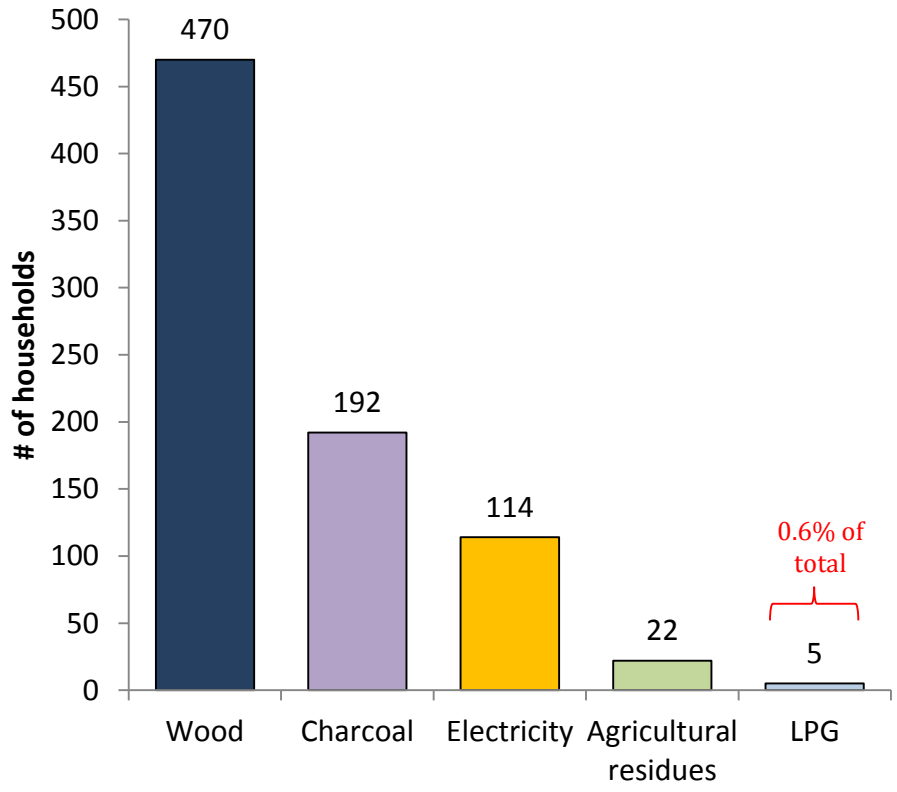
Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

LPGs

Fuels – LPG – Prices and usage

Only 0.6% of total households state LPG as their main cooking fuel, with all respondents located in peri-urban areas. Most of this fuel comes from Thailand (Thai Gas brand) with an average selling price above 20,000 MMK for a 16 Kg tank

Main fuel utilization, National (# of HH)



Location	Size	Cost
Yangon	16.3 Kg	22,400 MMK
Yangon	16 .3 Kg	21,600 MMK
Mandalay	16.3 Kg	26,000 MMK
Shan	16.3 Kg	27,000 MMK
Ayeyarwaddy	16.3 Kg	25,000 MMK
Bago	16.3 Kg	24,000 MMK
Tanintharyi	16.3 Kg	17,000 MMK

*10 viss = 16.3 Kg

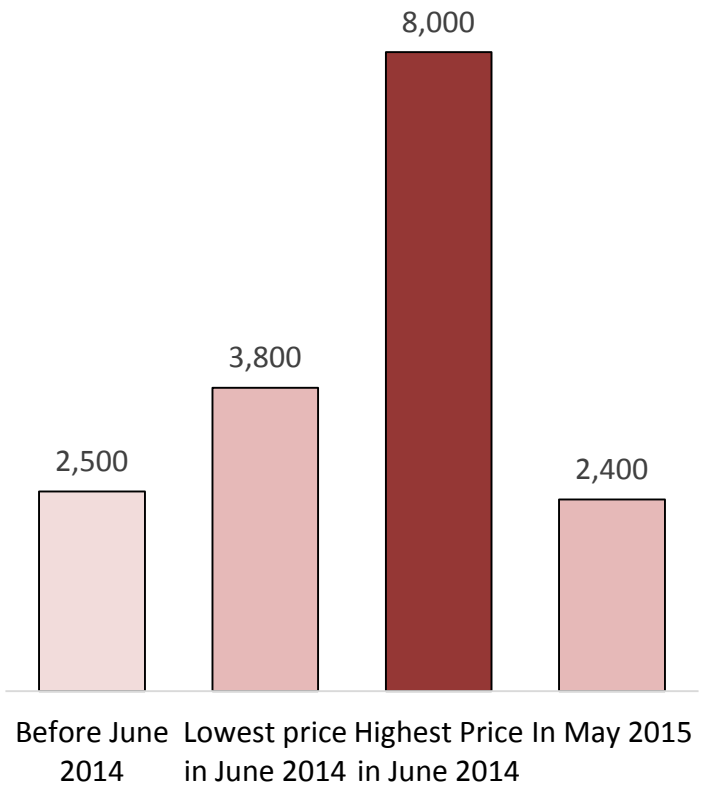
*Container weight may vary between 1-3 viss more than the LPG weight depending on the quality of the container. For example, 10 viss of LPG would be placed in a tank weighting between 12-13 viss.

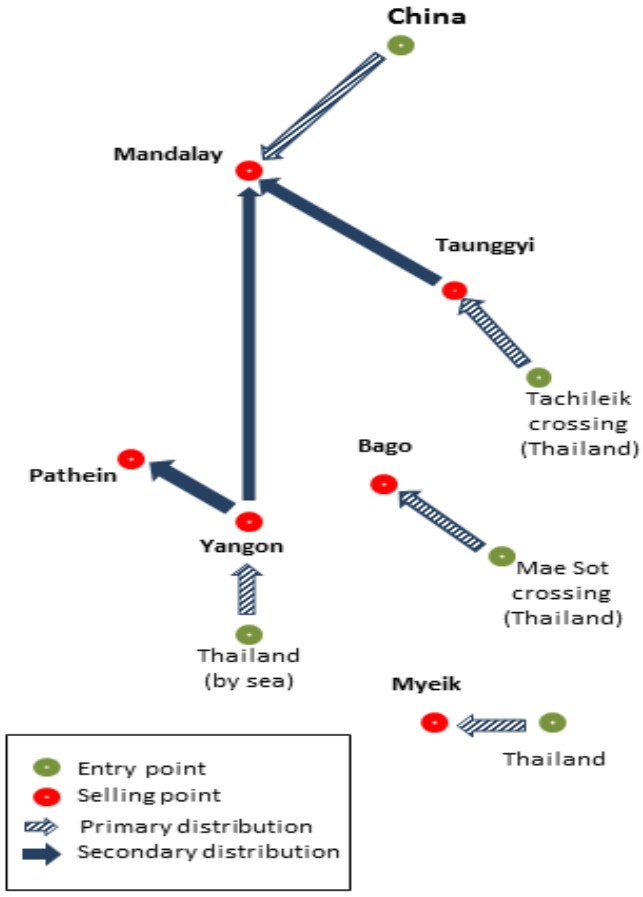
Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Fuels – LPG Origin and Price Spikes

LPG in Myanmar is mostly imported from Thailand, and in June 2014, around the time of the military coup in Thailand, prices spiked by almost 4 times

LPG Prices, MMK per viss (1.6 KGs of LPG)

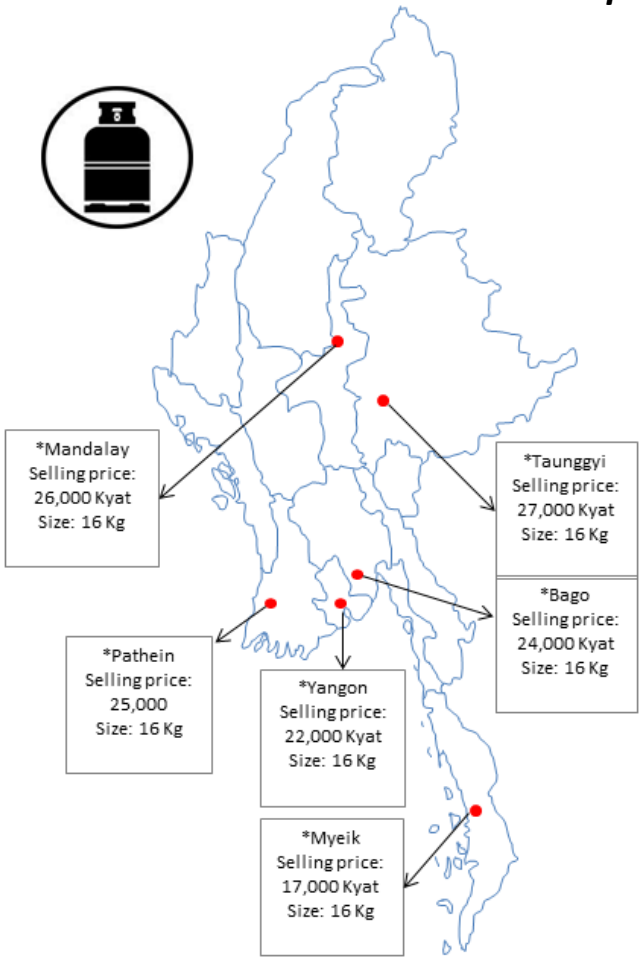




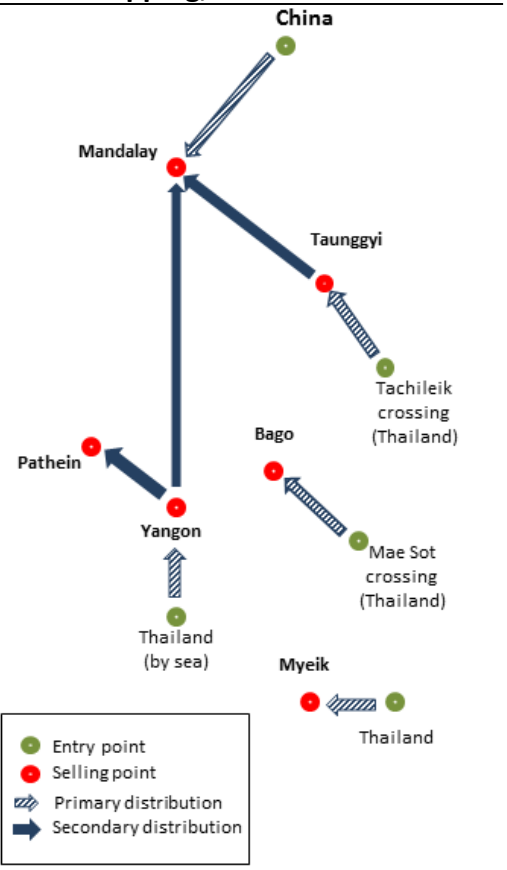
Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis and Key Expert Interviews

Fuels – LPG – Cost per region

The selling price of LPG in most regions lies between 20,000 – 25,000 MMK for a 10 viss cylinder (16.3Kg). Since most of the LPG currently comes from Thailand (ThaiGas), regions closer to main land borders show lower prices than the rest of the country



Supply chain mapping, LPG



Source: EMC's Supply Chain Analysis and expert interviews

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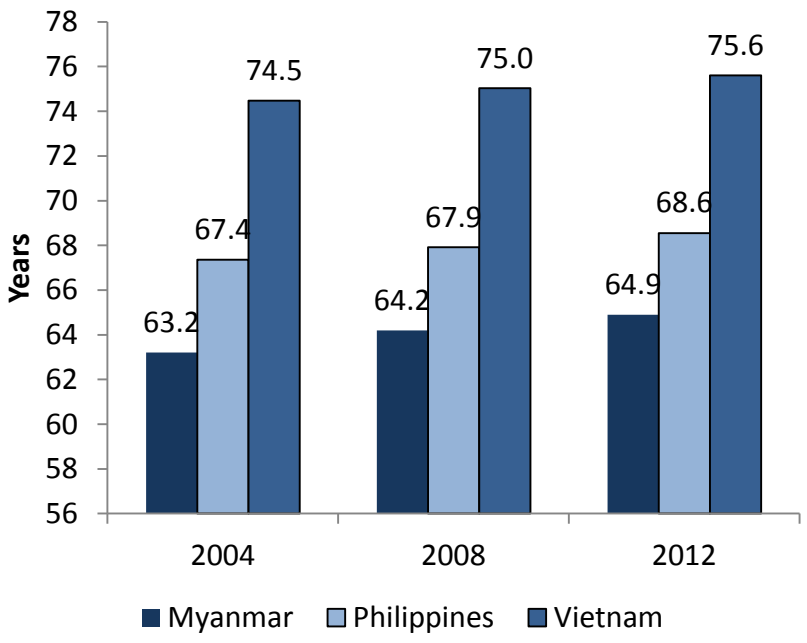
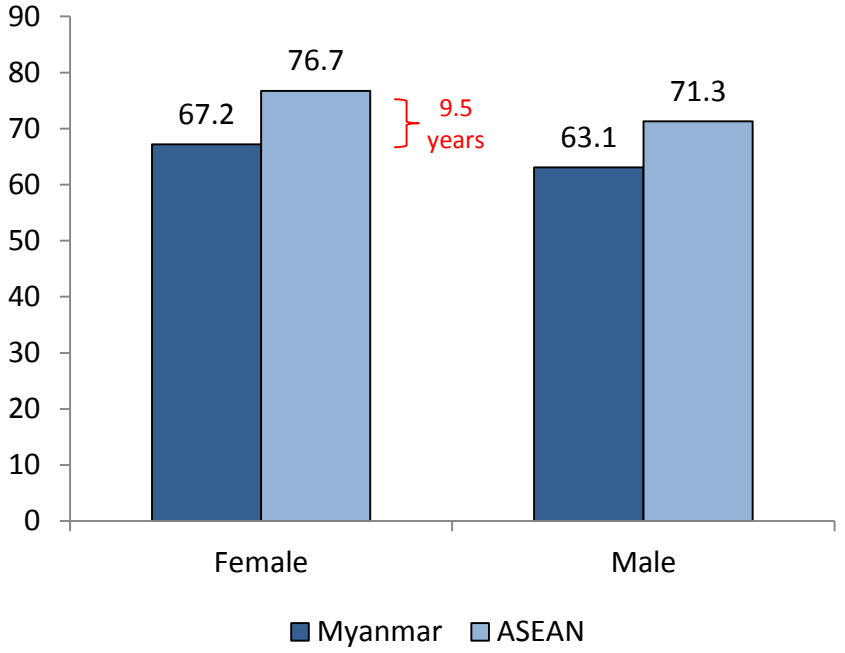
Health – Life expectancy

Overall life expectancy in Myanmar (64.9 years) has seen moderate improvement since 2004 and now is ranked 146 out of 196 countries. This difference is more pronounced for women who tend to live almost 10 years shorter than their regional counterparts

Life expectancy at birth (in years), 2012



Life expectancy at birth by gender, 2012



The high life expectancy differential between women in Myanmar and the rest of ASEAN is mainly due to :

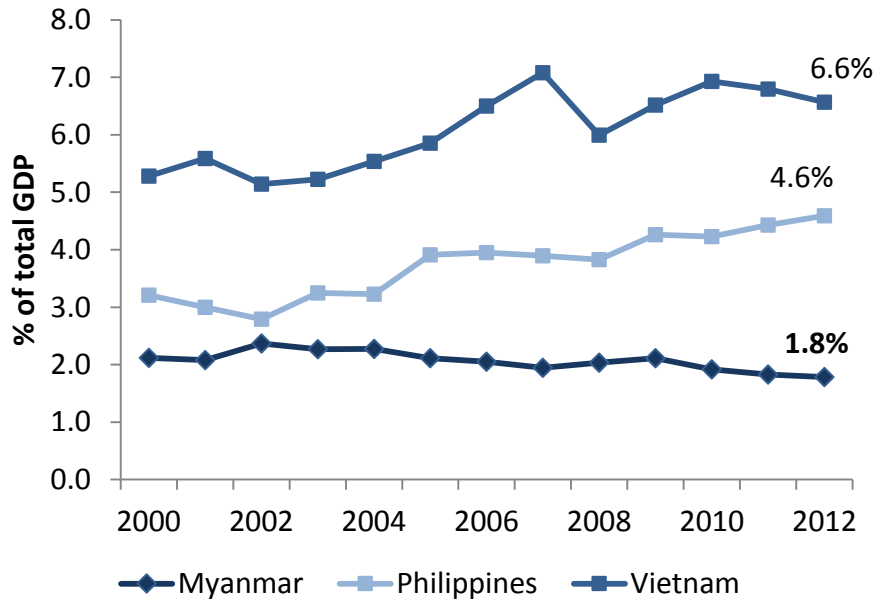
- High maternity mortality rates
- Lacking health system and infrastructure
- Inadequate disease control

Source: World Bank

Health – Health System

Poor governance and minimal investment has created a ineffective health system that forces the majority (80%) of its population to seek private health care. Myanmar's "overall health system performance*" was ranked last out of 190 countries in 2013

Health expenditure, total (% of GDP)



In 2012-2013 the government quadrupled budget commitments bring it up to 3.9% of total budget.

•Projected to double again in 2014 bringing it closer to the 7-10 % of its neighboring countries.

* The recent National Health Plan (2011-2016) sets priorities and methods for monitoring progress. Yet reports suggest the weak strategic planning and coordination is a real threat to its success.

• Lack of data on trends of disease burden, health spending and performance has previously hindered progress. However several large studies by government and multinational agencies will be published in 2015 including the USAID supported Demographic and Health Survey and the first national census to be completed in 50 years.

Sources: World Health Organization, World Bank, CSIS Global Health Policy Centre (2013)

Note: (*)The health system performance is an index of national health systems' performance in trying to achieve three overall goals: good health, responsiveness to the expectations of the population, and fairness of financial contribution.

Health – Regional differences in health

There are considerable regional disparities on disease rate and access to health care- with the ethnic states and rural poor significantly disadvantaged

Ethnic states, are often outside the national health system

Their health needs and capacities are poorly understood

Ethnic and religious conflicts often occur in the same regions where " infectious diseases flourish, including dangerous resistant forms of malaria and tuberculosis, where the greatest needs reside in terms of maternal and child health and where official capacities are weak"

110 of 330 townships within Myanmar had minimal MOH presence for many years- most of these are located in ethnic states.

Recent study by LIFT demonstrated considerable regional differences in livelihoods and food security which subsequently lead to increase health risks. The Giri-affected area[1] stood out as the most disadvantaged in many measures.

Numbers of doctors, nurses and midwives are particularly low in the rural areas.

Sources: CSIS Global Health Policy Centre (2013, Livelihood and Food Security Trust Fund baseline study (2012)

1. An estimated 177,000 people and 71 villages in Rakhine State were affected by Cyclone Giri [http://www.undp.org/content/undp/en/home/presscenter/articles/2010/10/27/myanmar-more-than-170000-people-affected-by-cyclone-giri/]
2. The ethnic states include Chin, Rakhine, Mon, Kayin, Kayah, Shan, Kachin.

Health – Disease Burden

The health needs in Myanmar are significant and complex. The priority diseases for the major multilateral institutions such as WHO and World Bank are malaria, HIV/AIDS and tuberculosis. Other diseases, including non-communicable ones are now starting to appear in the top causes of years of life lost.

Malaria

Incidence per 100,000
Country rate: **2743**
Regional average:1462
Global average: 3752

The country has the highest rate of malaria in Asia

High incidence of resistant malaria in the boarder areas of the ethnic states.

HIV

Prevalence per 100,000
Country rate: 371.
Regional average:185.
Global Average: 511

HIV/AIDS stabilized since 2000 but surveillance is poor and 'hot spots' of high transmission remain in some areas.

TB

Prevalence per 100,000
Country rate: 489
Regional average: 264
Global Average: 169

Designated a high-burden TB and multi-drug resistant TB country

TB prevalence is almost 2X regional average and 3x global average.

The top six causes of premature death in Myanmar as measured by years of life lost (YLL)[1] are shown below (2010).

1. Lower respiratory infections
2. Stroke
3. HIV/AIDS
4. Diarrheal diseases
5. Tuberculosis
6. Malaria

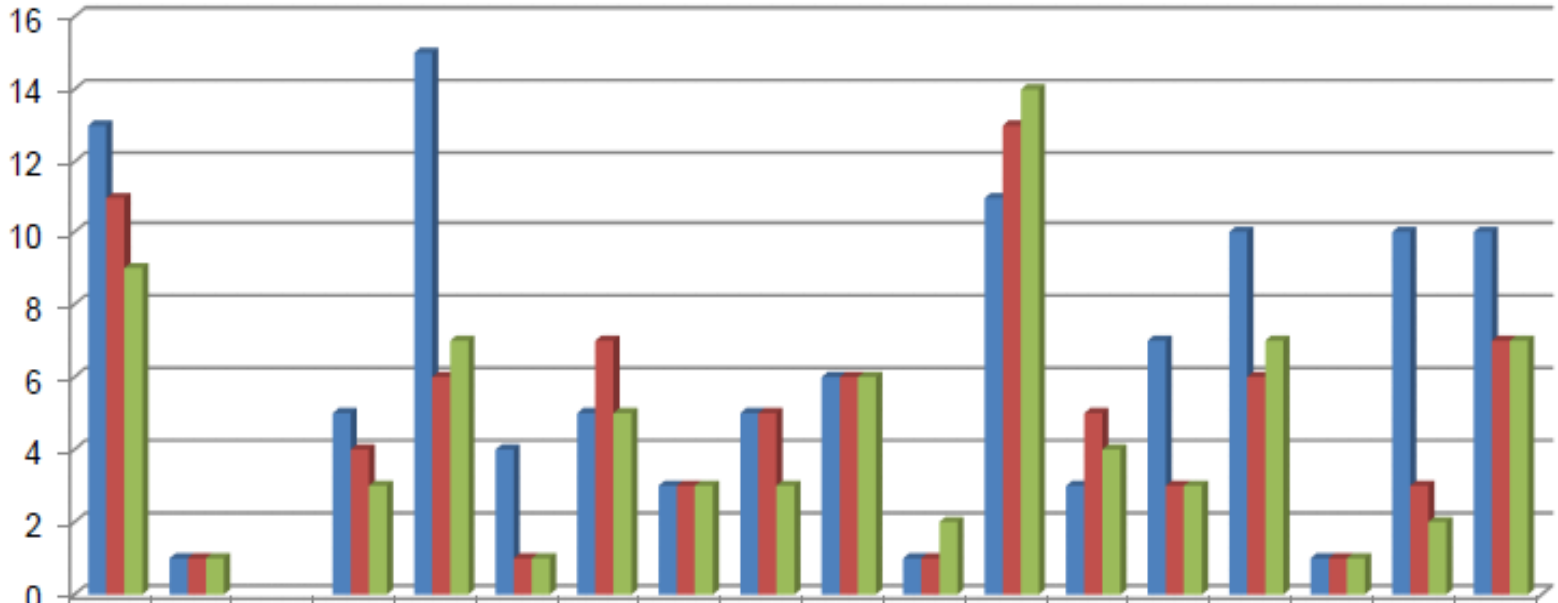
Lower respiratory infections accounted for 7.86% of total YLL's in Myanmar during 2010 which is higher than the WHO priority diseases (Malaria 6.44%, HIV 6.69% and TB 6.44%).

Sources: World Health Organization, Institute for Health Metrics and Evaluation (Global Burden of Disease) and World Bank

Health – Health Care Programs in Myanmar (1/2)

There are ~82 Basic Health Care programs currently implemented in Myanmar. Most of them are being carried out by INGOs (40), NNGOs (24) and Donors

Basic Health Care Programs by State / Region, # of organizations



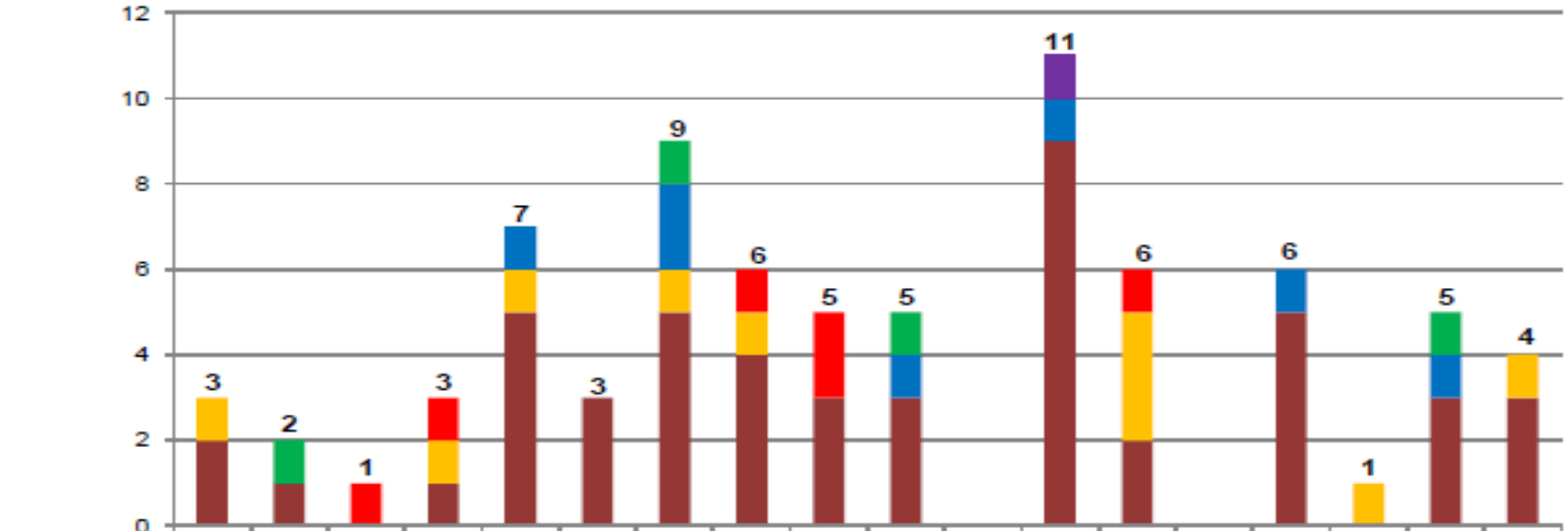
	Aye	BgE	BgW	Chn	Kch	Kyh	Kyn	Mgw	Mdy	Mon	NPT	Rkn	Sag	ShE	ShN	ShS	Tan	Ygn
No. of Tsp.	13	1		5	15	4	5	3	5	6	1	11	3	7	10	1	10	10
No. of Projects	11	1		4	6	1	7	3	5	6	1	13	5	3	6	1	3	7
No. of Org.	9	1		3	7	1	5	3	3	6	2	14	4	3	7	1	2	7

Source: Myanmar Information Management Unit,2014.. Tsp = township

Health – Health Care Programs in Myanmar (2/2)

There are 44 organizations active in WASH programs in Myanmar. 32 of these are INGOs, 6 are NNGOs while the remaining are supported by donors

WASH Organizations by State / Region, # of organizations



	Aye	BgE	BgW	Chn	Kcn	Kyh	Kyn	Mgw	Mdy	Mon	NPT	Rkn	Sag	ShE	ShN	ShS	Tan	Ygn
BBO*		1					1			1							1	
CBO*												1						
Red Cross			1	1				1	2				1					
UN					1		2			1		1			1		1	
NNGO	1			1	1		1	1					3			1		1
INGO	2	1		1	5	3	5	4	3	3		9	2		5		3	3
Total	3	2	1	3	7	3	9	6	5	5		11	6		6	1	5	4

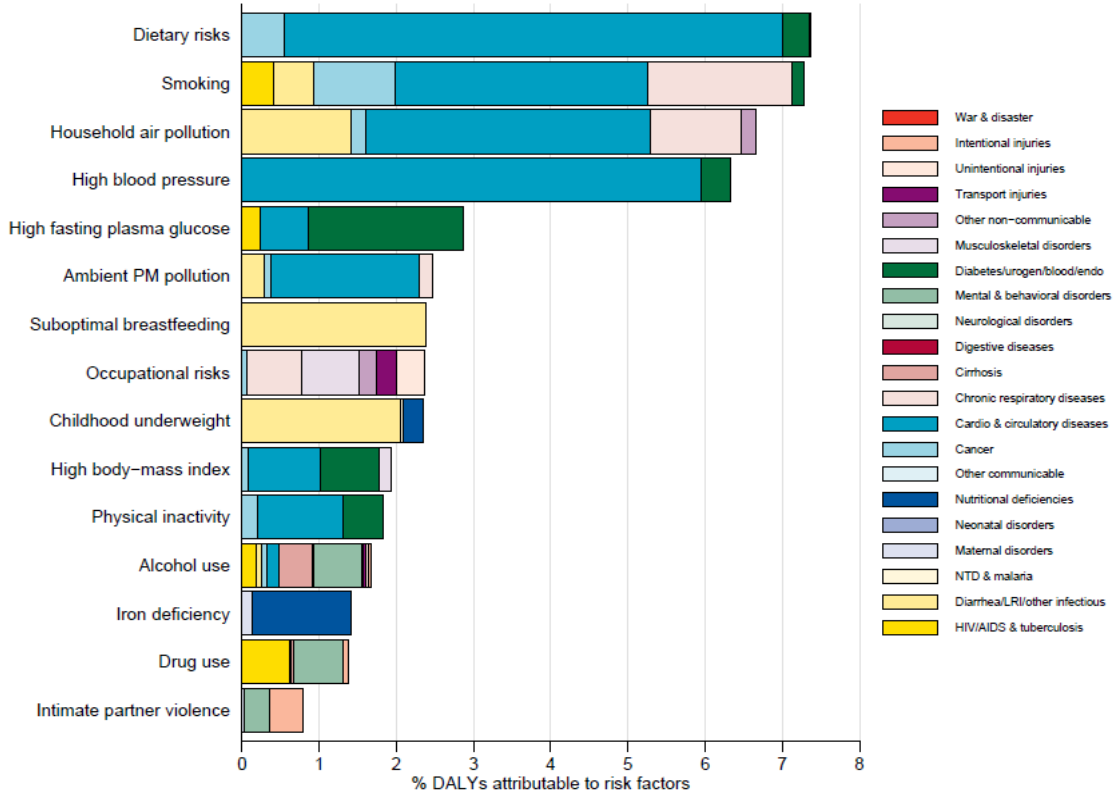
Source: Myanmar Information Management Unit,2014

Note: BBO= Border – Based Organization, CBO= Community Based Organization

Health – Risk factors for disease burden

The Global Burden of Disease comparative risk assessment (CRA) showed that overall, the three risk factors that account for the most disease burden in Myanmar are dietary risks, tobacco smoking, and household air pollution from solid fuels

Burden of disease attributable to 15 leading risk factors in 2010, %DALYs)



Leading risk factors for **children under 5** in Myanmar:
1. Childhood underweight
2. Sub optimal breast feeding
3. **Household air pollution**

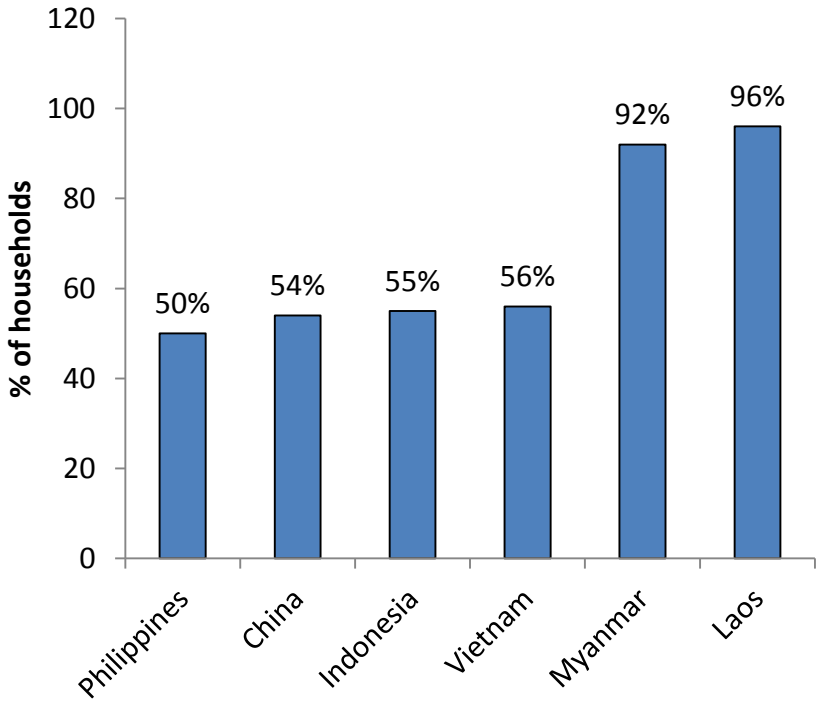
Leading risk factors for women 15-49 in Myanmar:
1. Dietary risks
2. **Household air pollution**
3. Intimate partner violence

Sources: Institute for Health Metrics and Evaluation [https://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_myanmar.pdf]

Health – Household Air Pollution (HAP)

The burning of solid fuels such as wood and charcoal on traditional cookstoves releases smoke that contains a complex mix of health damaging pollutants, such as particles with a diameter of less than 2.5µm (PM2.5) and carbon monoxide (CO). Myanmar ranked 151 out of 178 countries for population weighted exposure to PM2.5

Reliance of solid fuels for cooking. (2010)



Environmental Performance index: Myanmar (2014)	*Indicator Score (Out of 100)*	*Country Rank (Out of 178)*	*10 year change (%)*
Overall air quality	47.68	171	-25.89
Household Air quality	8	157	42.86
Air pollution average exposure to $PM_{2.5}$	78.56	151	-21.44
Air pollution PM2.5 exceedance	56.47	148	-35.4

Sources: Environmental Performance Index (EPI) [http://epi.yale.edu/epi/country-profile/myanmar] and World Health Organization

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Health –Diseases associated with HAP

There is now substantial evidence on the detrimental health effects of chronic exposure to $PM_{2.5}$ from household solid fuel combustion. Effects include an increase risk of severe and fatal acute lower respiratory infections (ALRI)in children and an increase risk of chronic obstructive pulmonary disease (COPD), lung cancer and cataracts in adults [WHO 2014]

Traditional Wood Burning Stoves/fires

Emissions from traditional wood burning stoves are characterized by high levels of PM2.5 and lower but still substantial levels of CO.

Traditional Charcoal Burning Stoves

Emissions from traditional charcoal burning stoves are characterized by high levels of CO and lower but still substantial levels of PM2.5.

There is also an established relationship between long term exposure to the high levels of carbon monoxide (CO) associated with daily cooking on inefficient charcoal stoves and cardiovascular morbidity [WHO 2010[2]]

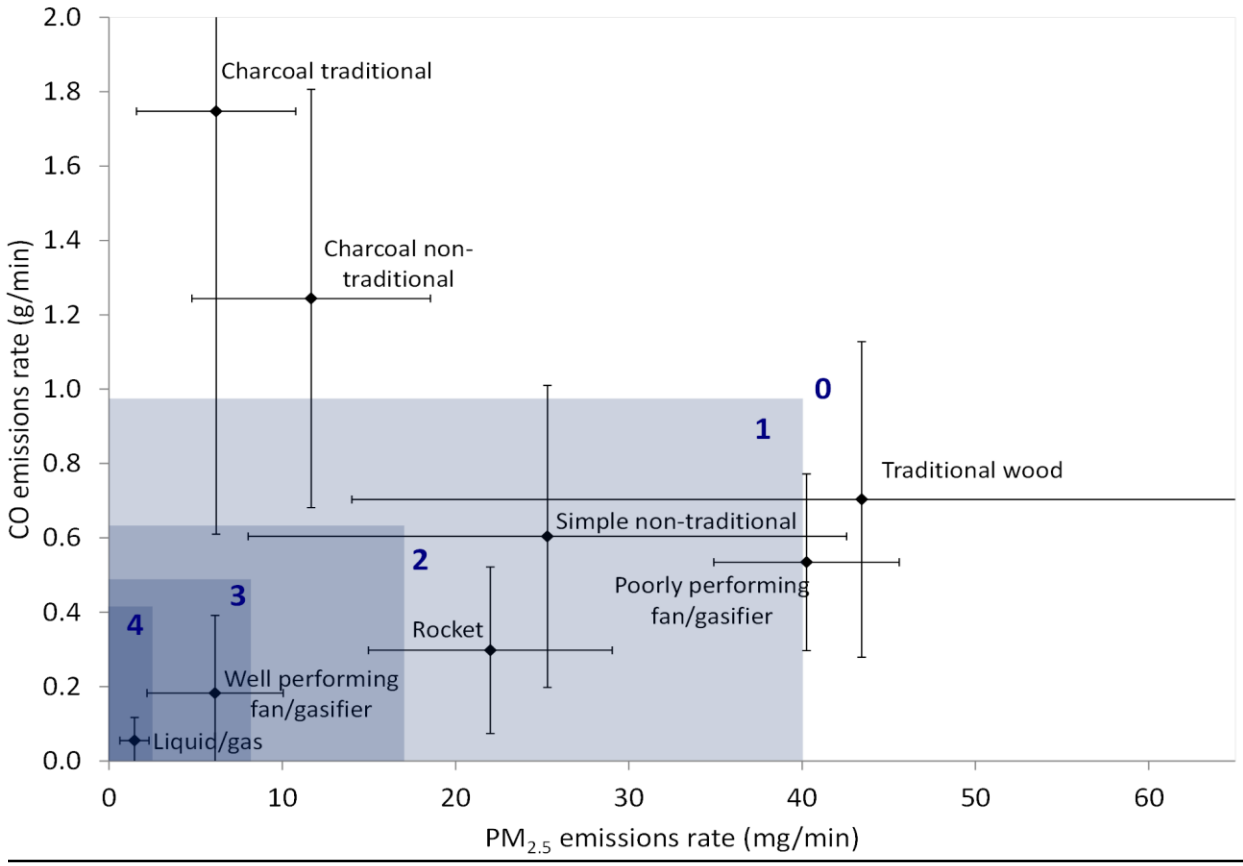
1. http://www.who.int/indoorair/guidelines/hhfc/FAQs_Nov2014.pdf

2.. http://www.euro.who.int/__data/assets/pdf_file/0009/128169/e94535.pdf] 2010

Health – Stoves and fuels' impact on health

The IWA on Cookstove Standards set out tiers of performance for efficiency, safety and emissions. Ranging from 0-4, only fuels such as LPG and electricity meet the health related targets associated with tier 4 stoves

Stove CO and PM emissions, g/min and mg/min



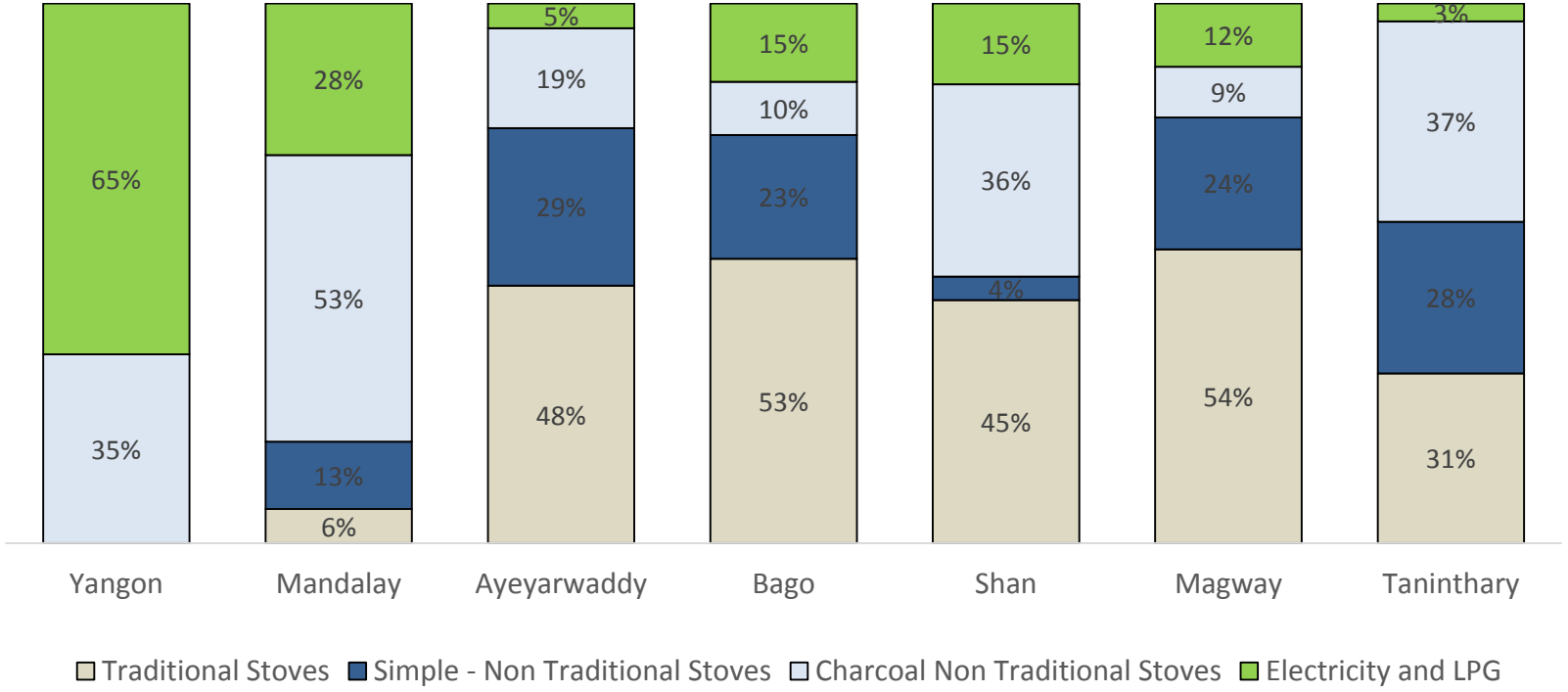
The figure shows indoor emissions performance for key stove/fuel classes across the IWA Tiers based on results from water boiling tests (WBT)

Source: IWA, The International Workshop Agreement . Figure reproduced with permission from Berkeley Air Monitoring Group.

Health – Prevalence of clean stoves and fuels.

Yangon showed a significant proportion of households that have transitioned to stoves using modern fuels with over 60% using electrical or LPG stoves as their primary cooking device. However this transition is mostly partial with a widespread usage of charcoal burning stoves as a secondary cooking device. The use of stoves using modern fuels as the primary cooking device is scarce in most other regions – significantly so in Tanintharyi and Ayeyarwaddy

Stove Efficiency Reclassification, % of primary stoves



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Local awareness of HAP and health

Key stakeholder interviews revealed a growing awareness within the government about the health impact of HAP but this is yet to led to any policy or campaign to address the issue. There is a very low level of awareness among health professionals and certain sections of the pollution in Myanmar

Government	WHO	Public Health	Population
•There is awareness and 'concern' within the government. However, no studies have done by the Department of Health. • There is currently no government campaign or policy targeted to address HAP/ health •Government/ World Health Organization (WHO) collaboration has trained personnel in HAP monitoring with the hope of future monitoring within Myanmar •No HAP/ health studies were known to exist.	•In response to publication of the recent WHO guidelines for Indoor Air Quality[1]. WHO will work together with the Ministry of Health to tackle the issue on the indoor house pollution. •Their role will focus on giving technical guidance in monitoring air quality Government role will be to carry out awareness campaigns and implement policy changes.	•Level of awareness among health professionals in Myanmar about the health impacts of household air pollution was reported to be low. •No past or on going public health campaigns related to HAP/health. •Midwife or health workers in rural areas have no mandate or obligation to carry out awareness on the household air pollution.	•Reported higher level of awareness on the health implications of exposure to cooking smoke in dry zone areas which are closer to urban areas, have easier access to health workers and NGO programs. •Lower awareness in hilly and remote areas. Less access to health professional and where entrenched traditional cooking practices remain unchanged for centuries.

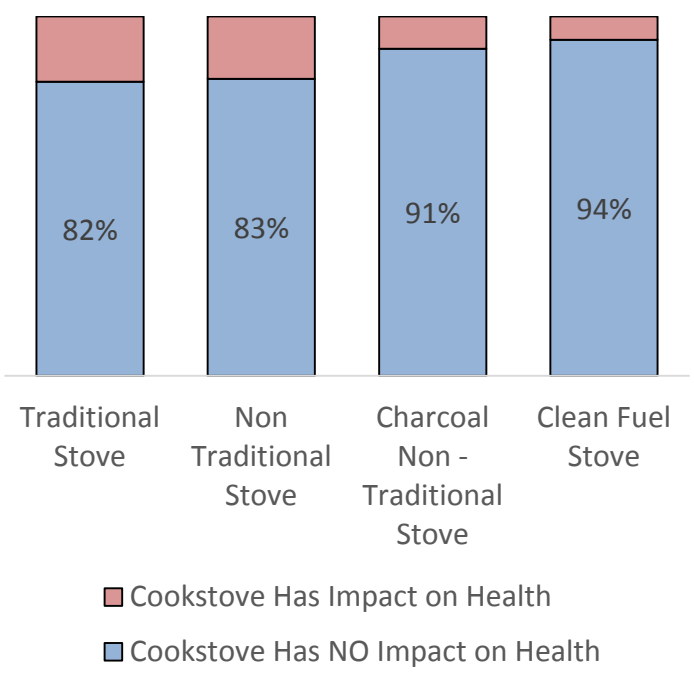
Source: Information from KI interviews. Key stakeholders for health included Dr. Kyi Lwin Oo, Deputy Director, Occupational and Environmental Health Division. Dr. Myo Myint Naing , NPO, WHO and Thet Aung, Health Department Manager, World Vision International Myanmar,

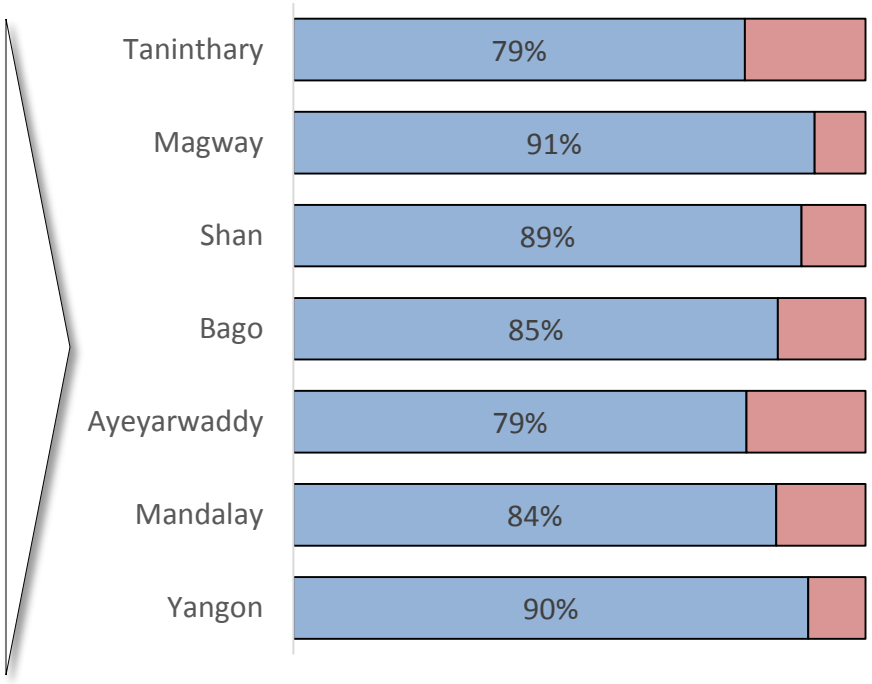
1. WHO guidelines for Indoor Air Quality: household fuel combustion (2014)

Health – Perceived Impact of Cooking Methods

Awareness of of the detrimental health impacts of traditional cooking methods is very low across all regions and cooking groups (as shown by the red areas in the figures below). Although, as expected, the reporting of detrimental impacts is low in groups using clean fuels it does not increase significantly in groups using traditional cooking methods. Very little variation is seen across regions

Perceived Health Impact of the Stove, % respondents



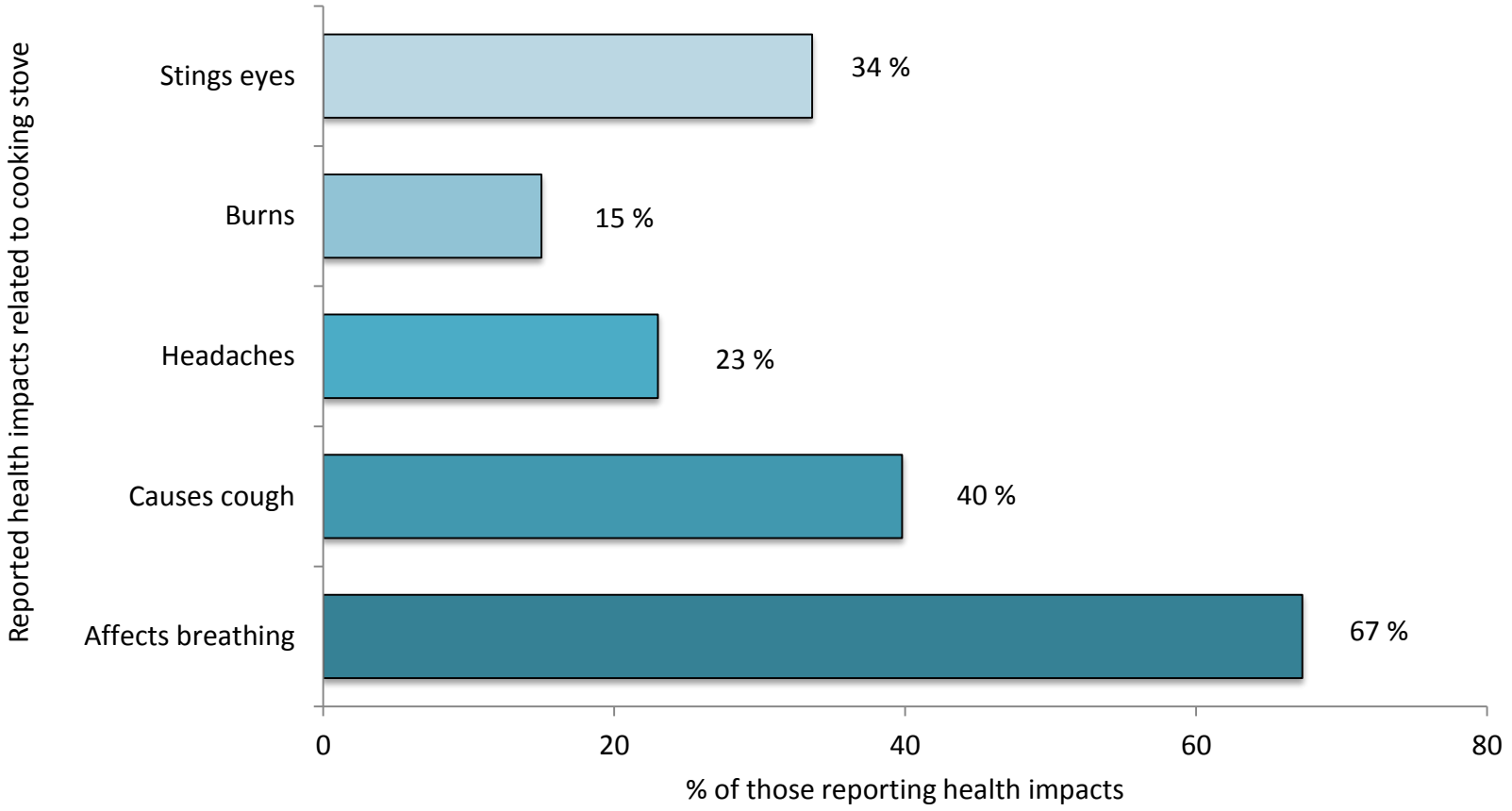


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Reported Cooking Related Health Impacts

Where the health impacts of cooking practices were recognized, most were respiratory related, with cough and breathlessness being the primary reported symptoms

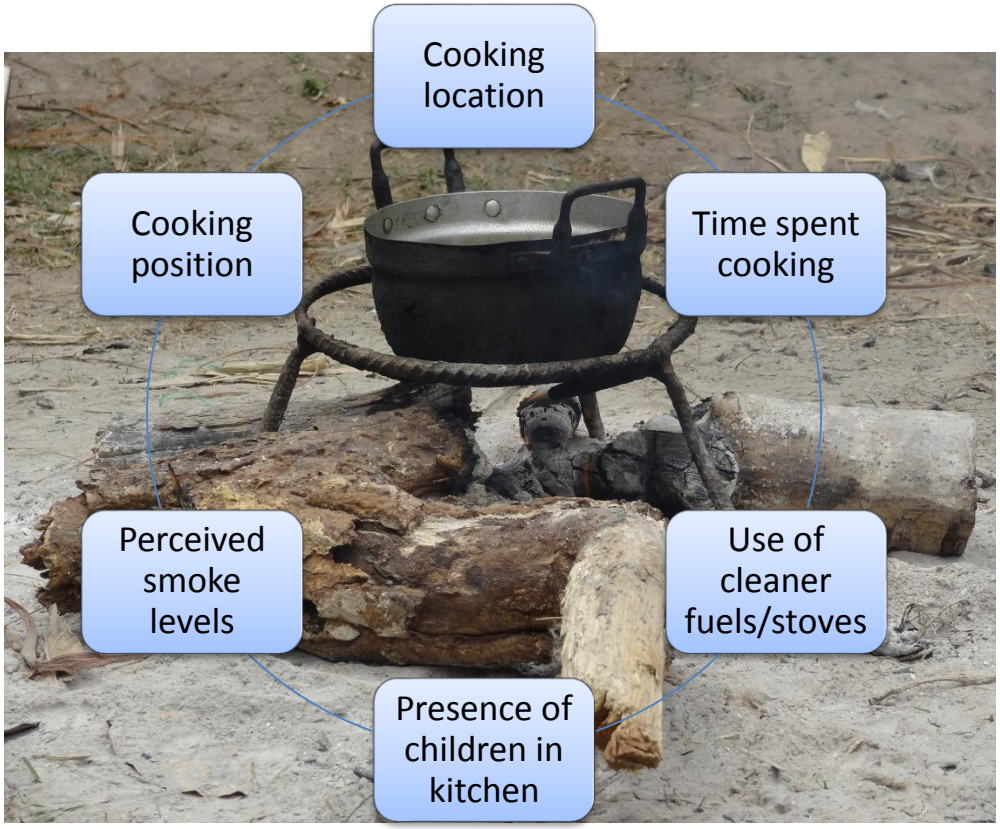
Perceived Health Impact of the Stove, % respondents



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Exposure to Cooking Emissions

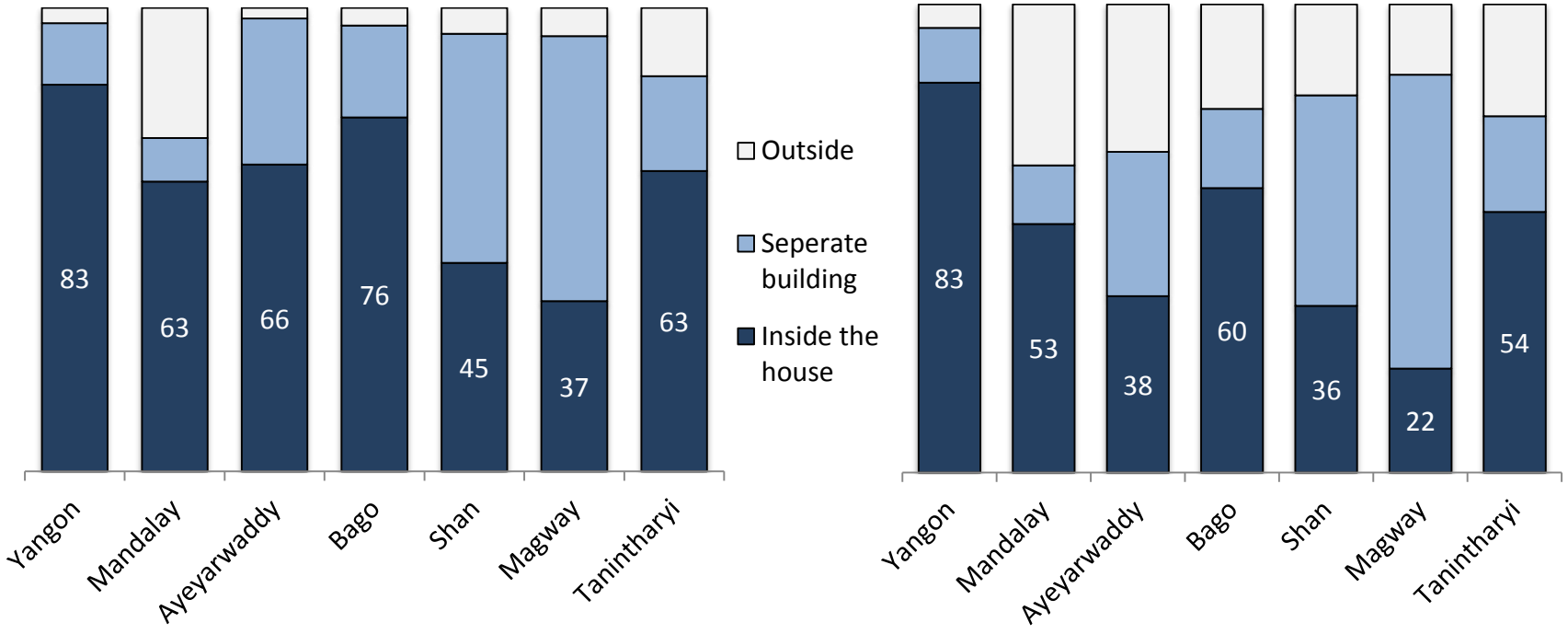
Levels of personal exposure to cookstove emissions is difficult and expensive to measure and outside the capacity of the field survey. As a proxy measure of personal exposure, an exposure profile has been created for each region, based on the cooking related behaviours shown in the figure below. The data contributing to the exposure profiles is presented in the following slides



Health – Cooking Location

Except for the Shan and Magway states most cooking is carried out inside the main house during the wet season leading to significant levels of exposure for all family members. There is a move to cooking outside during the dry season in several regions but indoor cooking remains the prominent practice in most areas

Cooking Location, % respondents

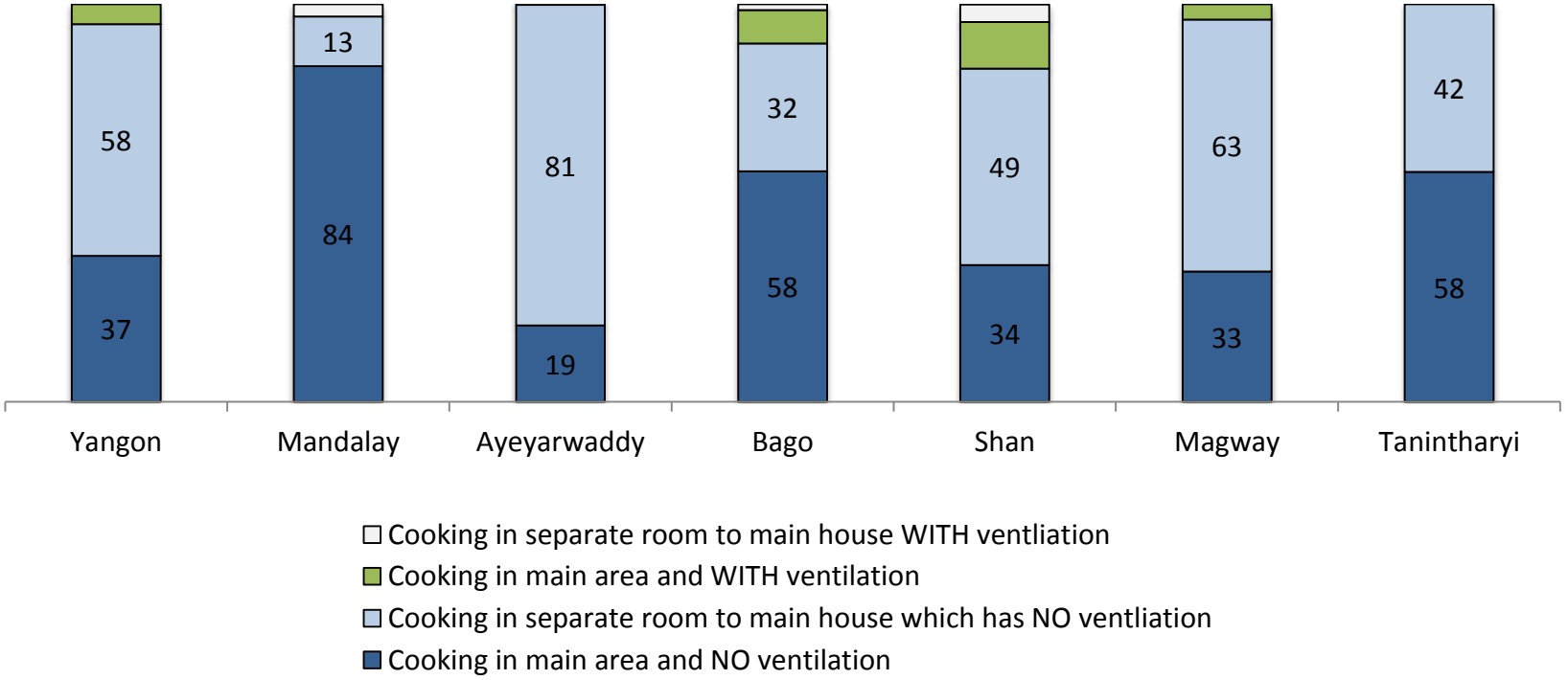


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Ventilation in Cooking Areas

The use of ventilation to decrease exposure to HAP is rare in all states. Nearly 90% of households in Mandalay cook within the main area of the house in a space where there is no ventilation such as windows near to the stove or chimney. The use of ventilation is most frequent in the Shan state but even there is it only used by ~15% of the population

Cooking Location and ventilation, % respondents

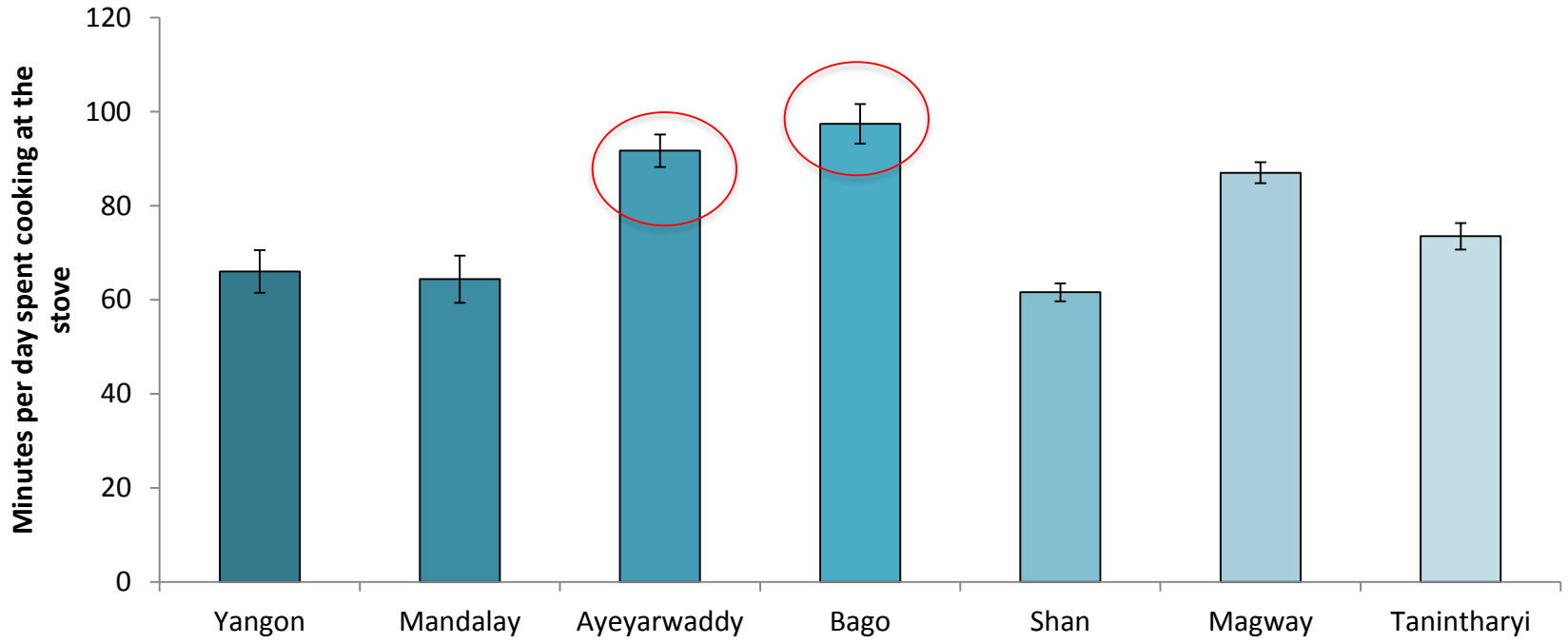


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Time Spent Next to the Cookstove

Prolonged periods spent next to an inefficient solid fuel fire significantly increases the cooks vulnerability to several diseases associated with exposure to cooking smoke. Average time spent next to the stove per day varies significantly by region- it is particularly noteworthy that the regions with the highest proportion of traditional wood burning stoves are also the ones with the longest time spent next to the fire

Time Spent on the Stove, Av. number of minutes / day

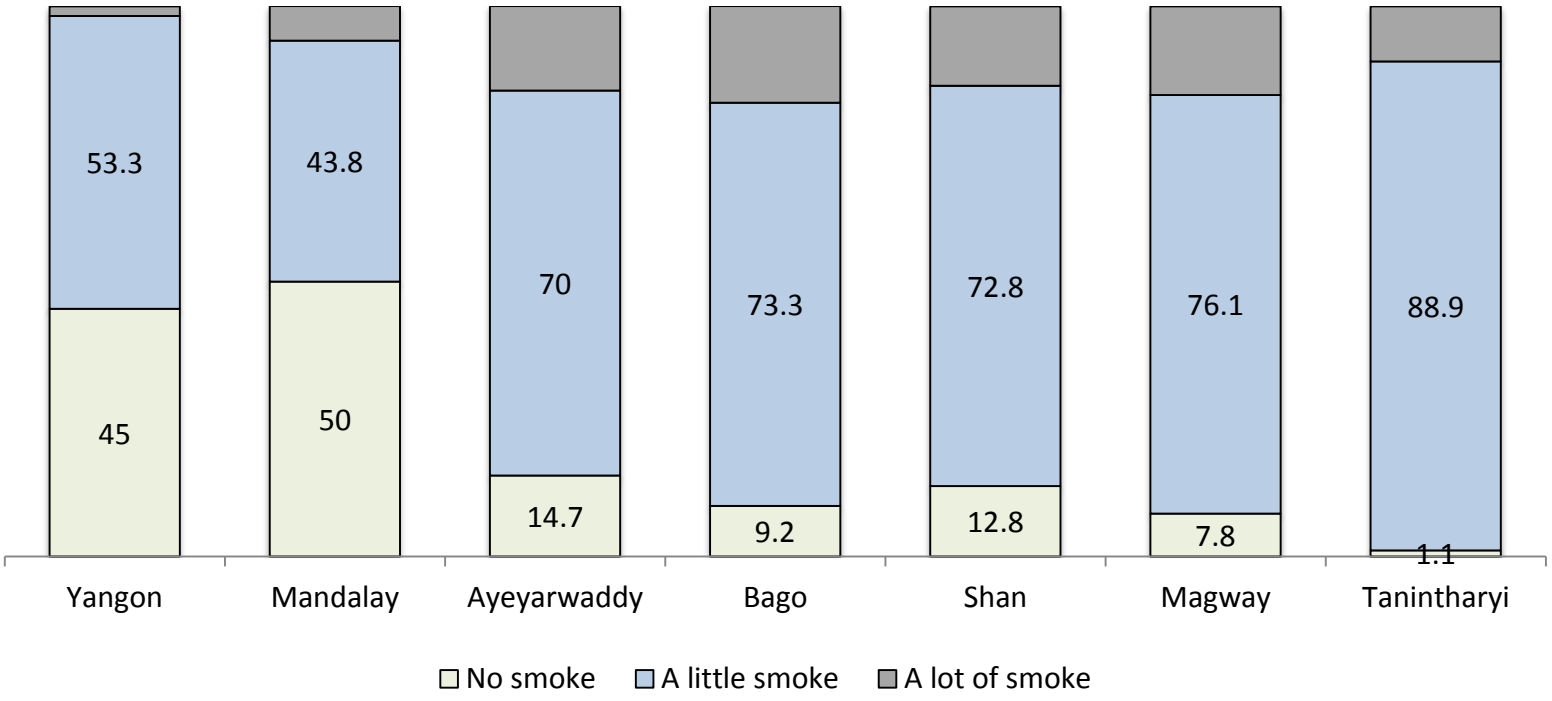


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Perceptions of smoke in cooking area

Cooking areas or kitchens in most regions have the presence of a little or a lot of smoke during cooking. The exceptions occur in just under half of the kitchens in Yangon and Mandalay where cooks report the absence of smoke. This is probably a reflection of the higher use of clean fuels as the primary cooking fuel in these regions

Perception of Stove Smoke, % of respondents



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Who is exposed?

Most cooks are alone during cooking. ~15% of household in Tanintharyi and Shan have children near to the stove during cooking. Approximately the same proportion of elders in Yangon and Ayeyarwaddy are in the kitchen during cooking

Household Members Exposed to Cooking, % of respondents

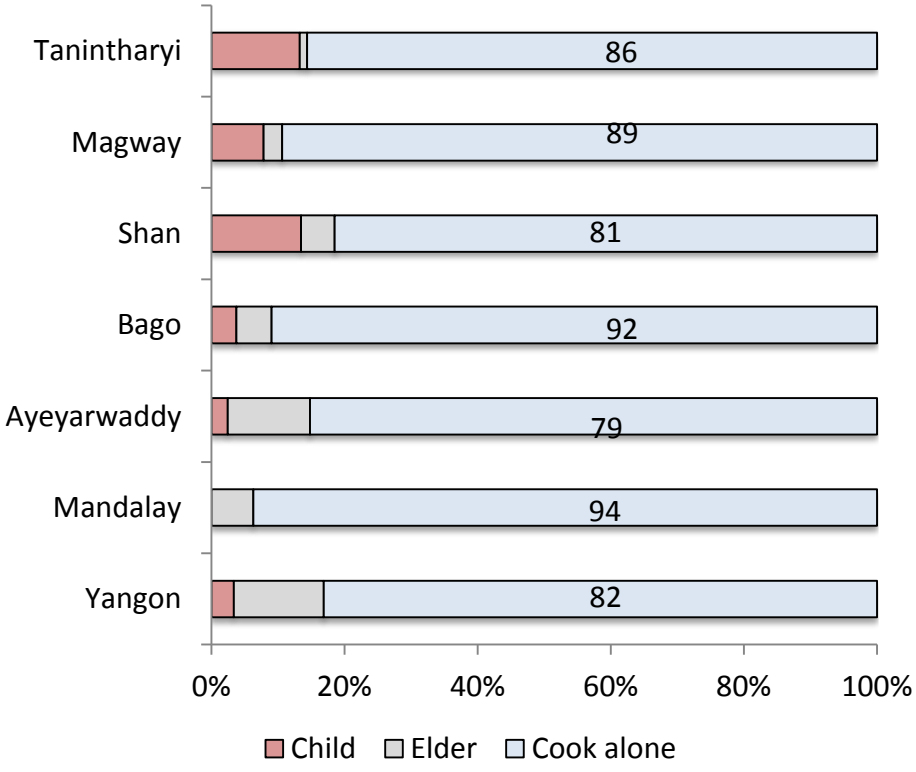
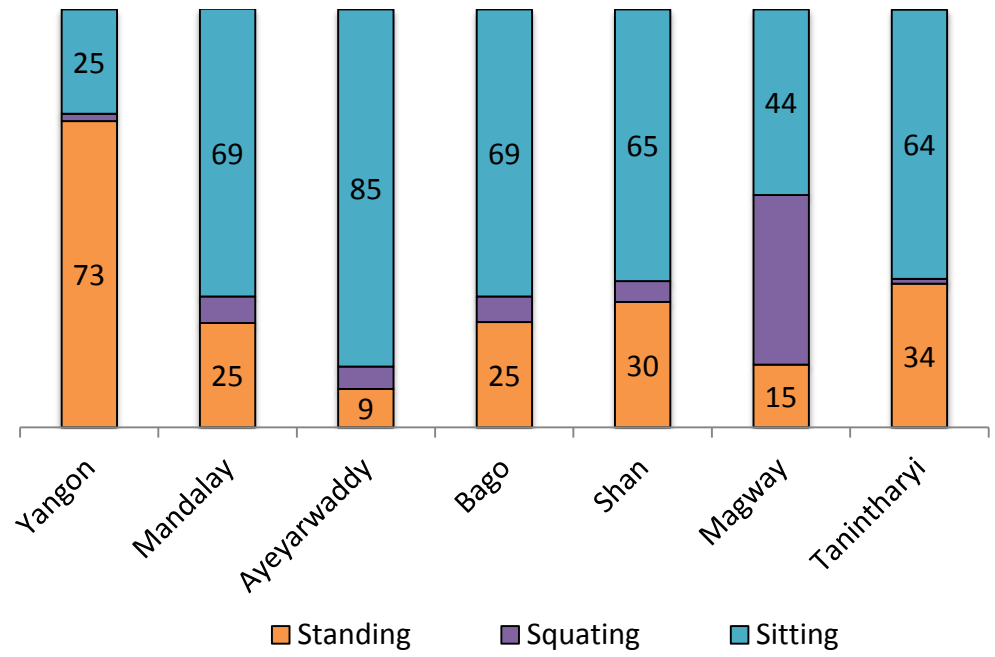


Photo 1: Simon Soe/Burma taken from [http://blogs.voanews.com/photos/2012/08/10/send-us-your-photos-blog/]. Photo 2: Soe Zeya Tun/Reuters [http://www.theguardian.com/news/2013/jan/17/picture-desk-live-the-best-news-pictures-of-the-day]

Health – Position While Cooking

Although the evidence is limited, some studies have shown exposure from cooking emissions changes with cooking position. Kandpal et al. (1995b) found values of 425 µm/m3 for SPM at a squatting position and 810 µm/m3 for SPM at a standing position suggesting a protective effect provided by a lower position although this will depend greatly on the height of the stove cooked on

Cooking Position, % of respondents



Cooks in Yangon are most likely to stand during cooking, which might be reflective of the higher use of LPG and electricity as fuels which usually sit on counter tops and the Ayeyarwaddy cooks are most likely to sit.

Participants reported to find their cooking position uncomfortable regardless to which position they adopted.

Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Health – Other sources of HAP

Desk review and key informant interviews revealed several other sources of household air pollution (HAP) in Myanmar homes in addition to cooking. These additional sources to the cooking stove need to be considered if the overall HAP levels are to be reduced to levels deemed to be 'safe' in terms of health impacts by the 2014 WHO recommendations

Source	*Regional/ Cultural differences*
Space heating	People in the northern and eastern parts of the country (particularly in the Shan and Kayah States) burn firewood for heating purposes throughout the cold season (Nov-end Feb). Open fires and traditional stoves are often left burning in poorly ventilated homes to keep the building warm.
Lighting	There is strong evidence to suggest that kerosene lamps emit high levels of health damaging pollutants, increase the risk of fires and is a cause for poisoning due to ingestion by children. The 2012 LIFT baseline survey revealed 64% of households in the delta/coastal region used kerosene lamps for their source of lighting, 2.3% in the dry region and 15.5% in the hilly areas.
Tobacco smoke	The 2011 WHO estimate for tobacco use in men (15+) in Myanmar was 38% (regional average 34%) and in women (15+) 7% (regional average 4%). The 2010 global burden of disease report placed tobacco use the second highest risk factor for disease burden Myanmar. Rates of tobacco use are reported to be higher in rural than urban areas but recent surges in marketing by large tobacco companies in the larger urban areas might change that trend in the next few years.
Mosquito coils	It is well established that mosquito coils produce high levels of health damaging pollutants. All health KI stated that the use of mosquito coils is widespread within Myanmar but more frequently used in hilly wooded regions such as Kachin State, Mandalay Division and Tanintharyi Division .

Sources: KI Interviews WHO National Professional Office, and Deputy Director Occupational and Environmental Health Division. LIFT Baseline Survey 2012, FAO 2009

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EMC Emerging Markets Consulting

Health – Relative Exposure Profile by State

Region	Significant reliance on lower tier stoves	Children near to cooking	High prevalence of unventilated indoor cooking	Long periods of time next to the stove	Standing position adopted during cooking	Reported high level of smoke in cooking area
Yangon						
Mandalay						
Ayeyarwaddy						
Bago						
Shan						
Magway						
Tanintharyi						

 High

 Moderate high

 Moderate

 Moderate low

 Low

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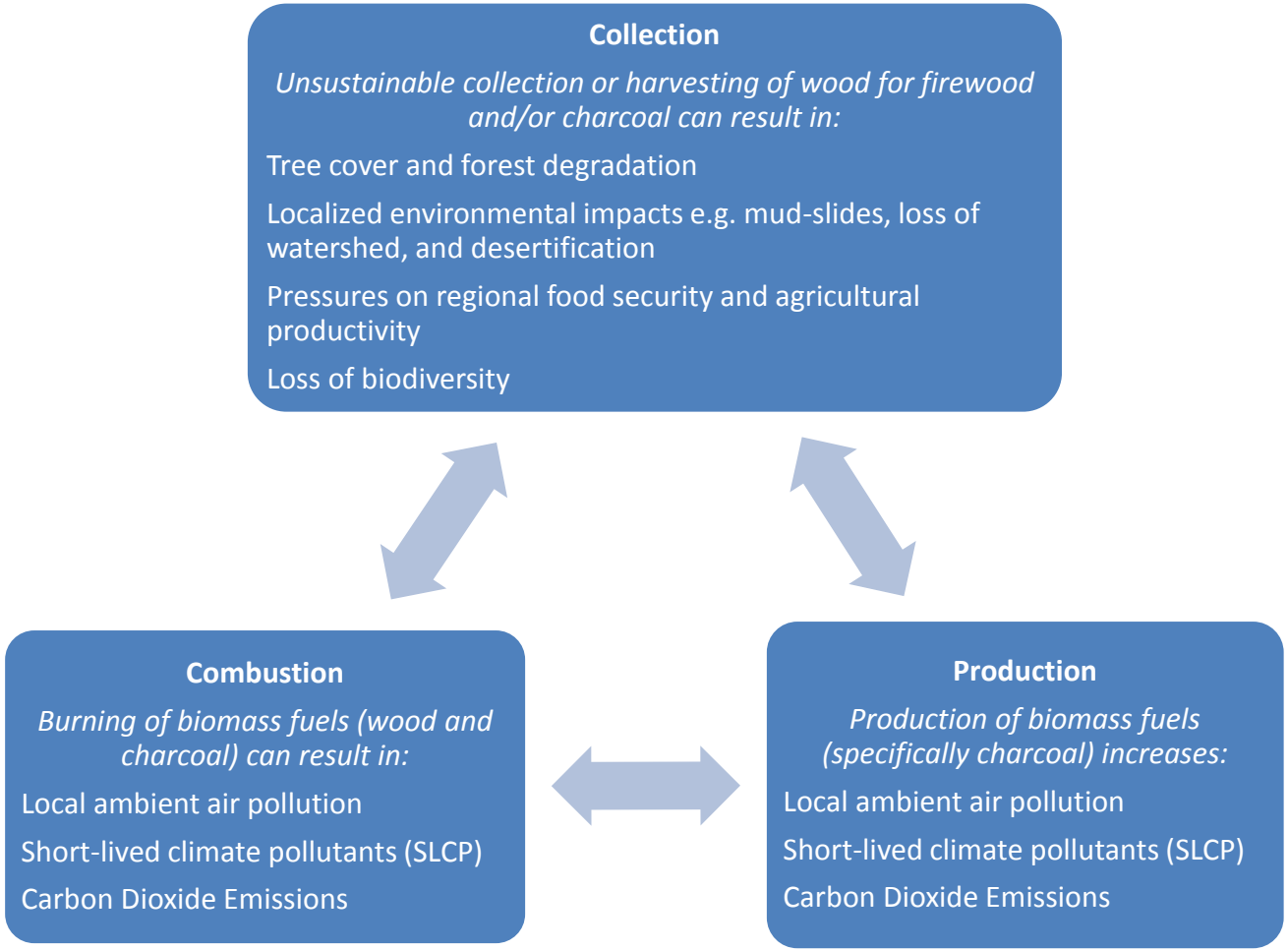
Environmental Impact – Impact Overview

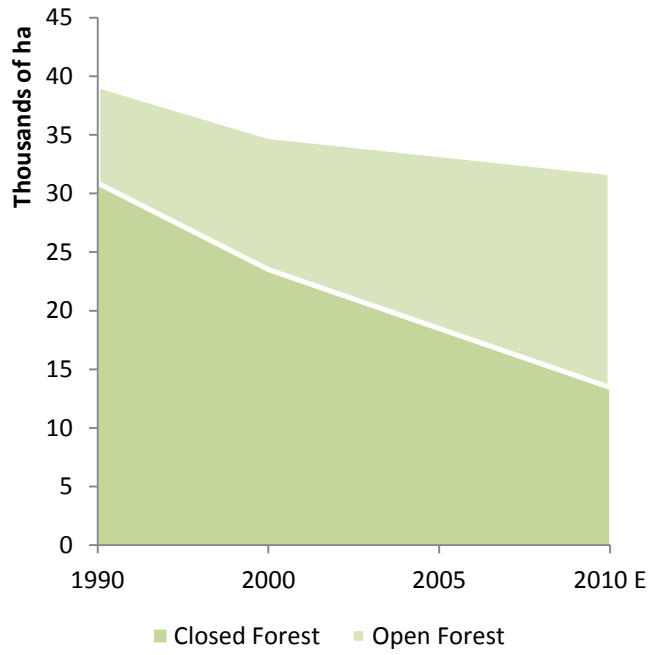
Cooking with solid biomass fuel has impacts throughout the supply chain



Environmental Impact – State of Forests (1/3)

Myanmar remains well endowed with forest cover yet the country has experienced some of the highest rates of forest loss on Earth: 1.17% (1990 to 2000), 0.9% (2000 to 2005) and 0.95% (2005 to 2010). A 2015 Forest Trends report argues that the expansion of commercial agriculture loss in Myanmar as the main cause of forest loss from 2010 to 2013 citing a 170% increase in the number of agricultural land concessions.

Myanmar Forest Cover, ha 000s



* At the time of independence in 1948, total forest cover in the country was estimated at 70%. As of 2012, that figure stands at roughly 47%

* According to the latest Global Forest Resources Assessment (2010) this loss has reduced the total "carbon stock in living forest biomass" from 2040 million tones in 1990 to 1654 million tones in 2010

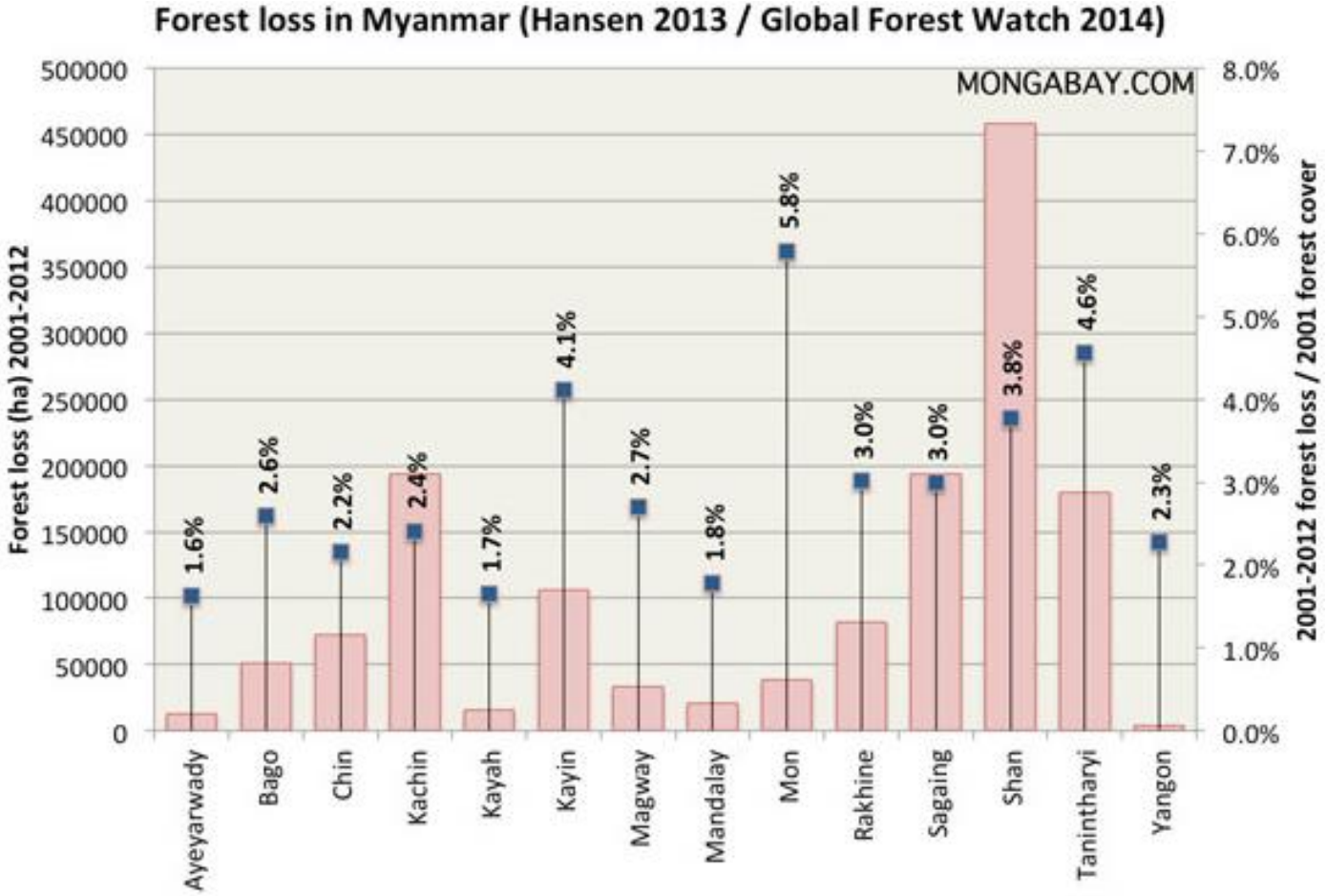
Main Drivers of Forest Loss according to ***Forest Trends***

1. Clearing for expansion of commercial agriculture
2. Legal and illegal logging
3. Clearing for infrastructure, including dams and roads

Sources: GLOBAL FOREST RESOURCES ASSESSMENT 2010 , FAO, 2010
Woods (2015) http://forest-trends.org/releases/uploads/Conversion_Timber_in_Myanmar.pdf

Environmental Impact – State of Forests (2/3)

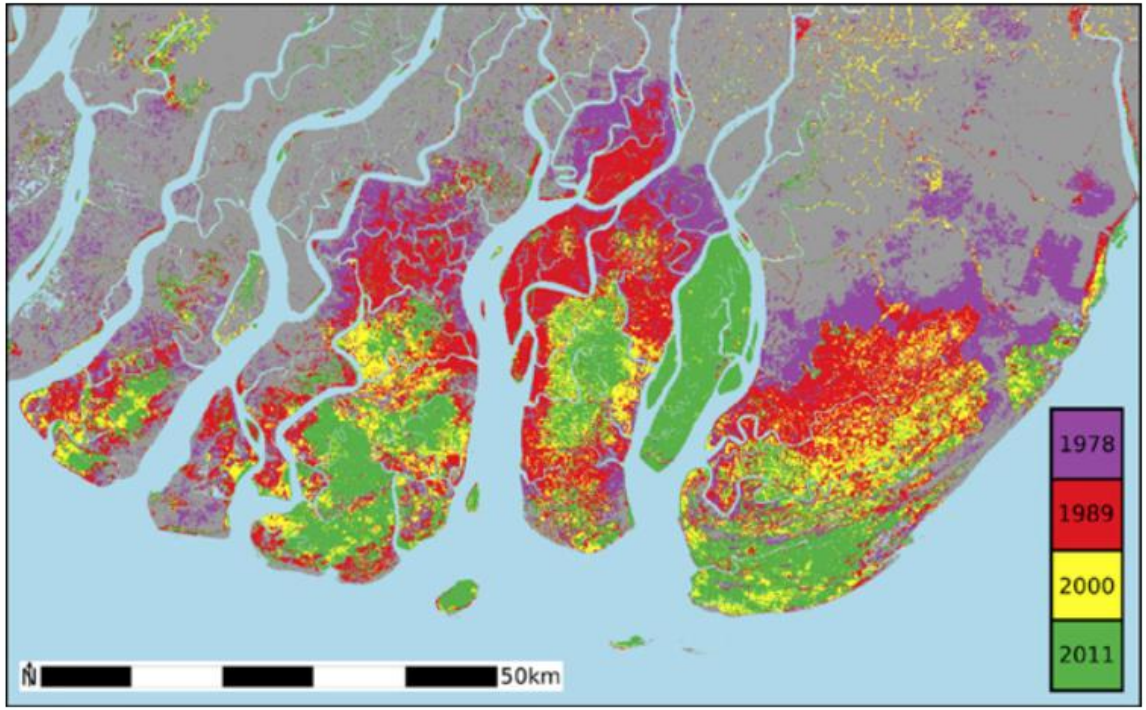
Data from the past 15 years shows heavy percentages of forest loss in Mon, Tanintharyi, Kayin, and Shan states. Shan, Kachin, Sagaing, and Tanintharyi states have the highest forest loss in terms of forest extent (hectares).



Source: http://rainforests.mongabay.com/20myanmar.htm

Environmental Impact – State of Forests (3/3)

Stakeholder interviews and recent research indicates that historically the Mangroves in the Ayeyarwaddy Delta suffered heavy deforestation from years of widespread conversion to charcoal, cyclones, and agricultural expansion. However, this may have slowed in the past 15 years as more households in Yangon switched from charcoal to LPG and electricity for cooking



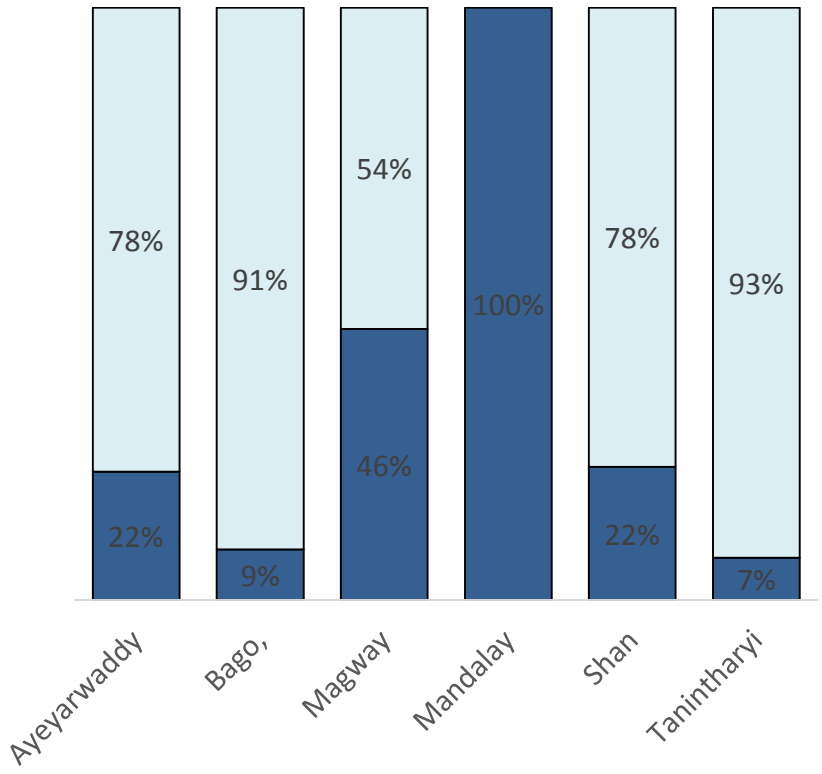
Map showing mangrove land cover in the Ayeyarwady Delta, Myanmar, in 1978, 1989, 2000 and 2011. The large island that has remained completely forested is the Meinmahla Kyun Wildlife Sanctuary.

Source: MongaBay.com http://news.mongabay.com/2013/1126-myanmar-mangroves.html; from Webb et al (2013) Deforestation in the Ayeyarwady Delta and the conservation implications of an internationally-engaged Myanmar. Global Environmental Change (2013)

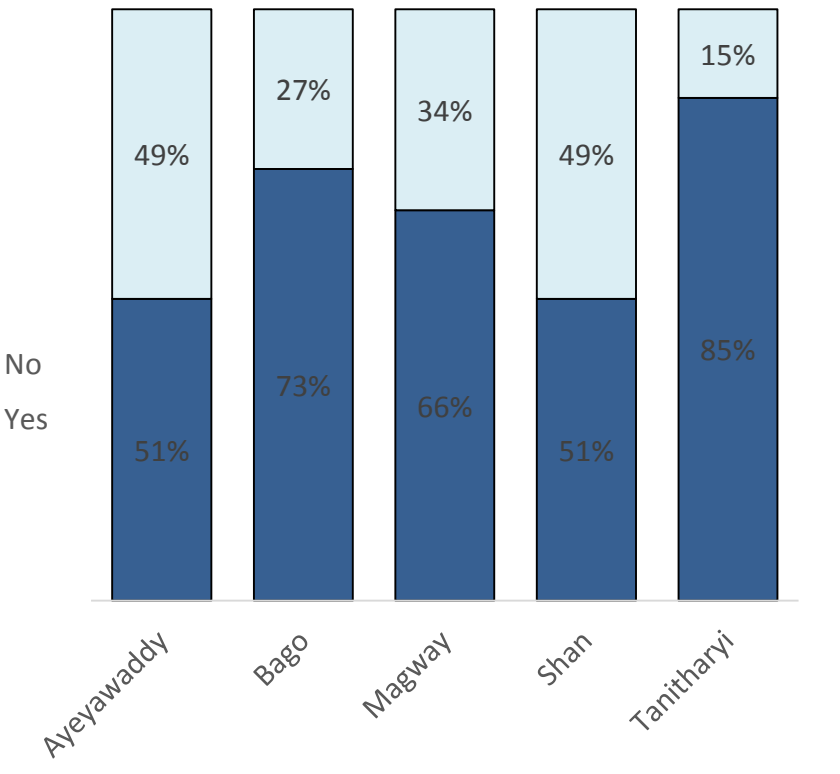
Environmental Impact - Collection

Primary wood fuel users reported high rates of collecting wood fuel, especially in rural states, but only Ayeyarwaddy, Magway, and Shan states showed relatively high reports of increasing difficulty in collection

Wood Users Reporting Collection, % of respondents



Wood Users Reporting Increased Difficulty, % of respondents

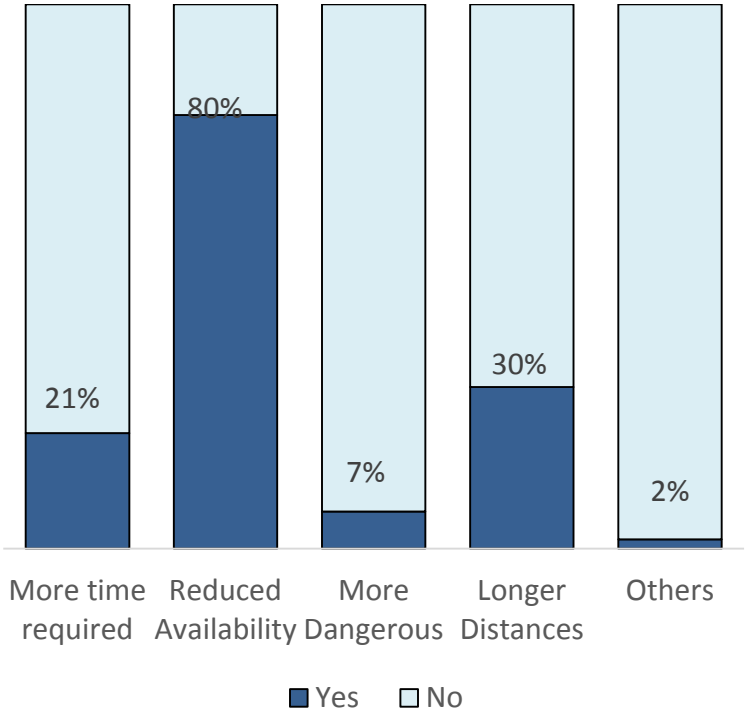


Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

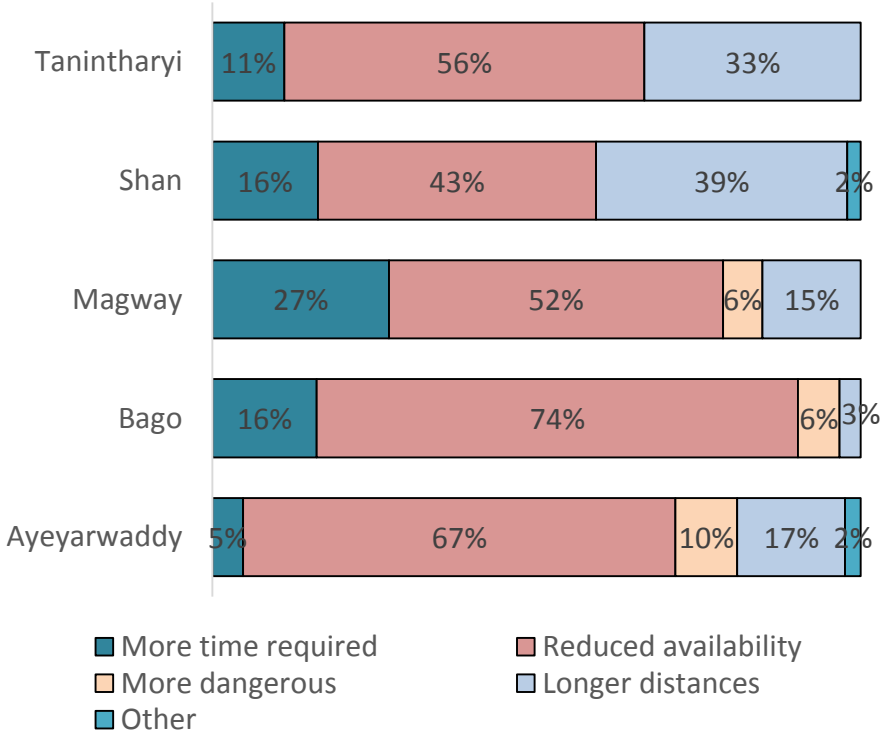
Environmental Impact – Increased Difficulty of Collection

Overall, primary wood users cited reduced availability as the main reason for increasing difficulty of collection, indicating increasing pressure on local wood resources. Reduced availability remains the most common reason across the states as well, indicating that wood collection could be reducing availability of wood fuels

Reason for Increased Difficulty, % of respondents



Reason for Increased Difficulty, % of respondents per region



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Environmental Impact – Collection Location

Survey results indicate that more fuel-wood is collected from plantations than indicated in the Forestry Master Plan, and far less from community forests and natural forests, indicating that fuel-wood collection may have less of an impact on forest degradation

Predicted Supply of Fuel Wood as Indicated in the National Forestry Master Plan, (Million Cubic Meters and %)

	2002		2030	
	Cubic Meters	%	Cubic Meters	%
Plantations	1.06	3.36	1.26	4.23
Non – Forest Land	7.89	25.01	7.44	25.00
Community Forestry	0.06	0.19	7.44	25.00
Natural Forests	22.54	71.44	13.63	45.77
Total	31.55	100	29.37	100

Location of Wood Collection, % of respondents

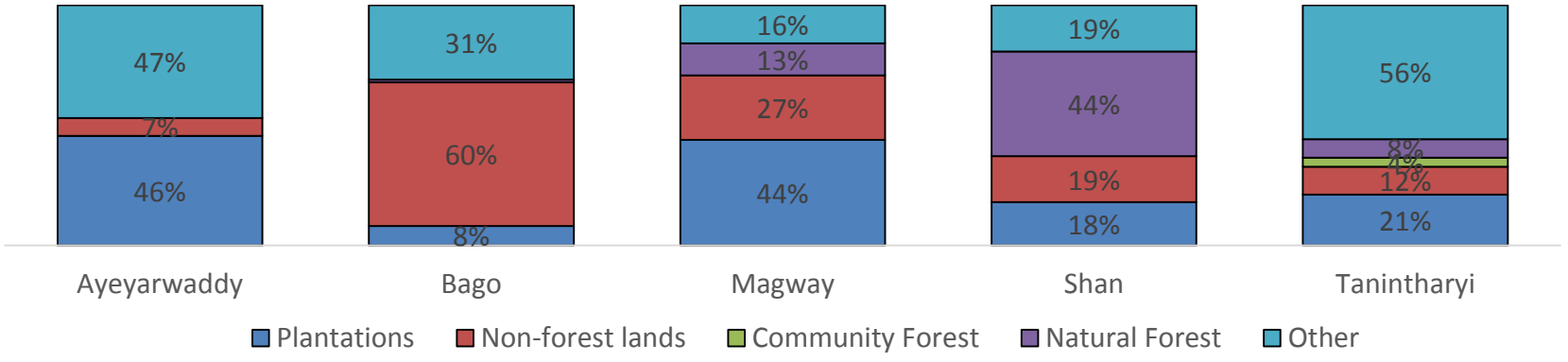


Table Source: "Energy Sector Initial Assessment", Asian Development Bank, October 2012

Chart Source: Myanmar Household Survey –TNS (N=803); EMC Analysis

Note: The amount of respondents of some of the cells of the visuals presented in the slide might be small due to segmentation of the data into the sub categories.

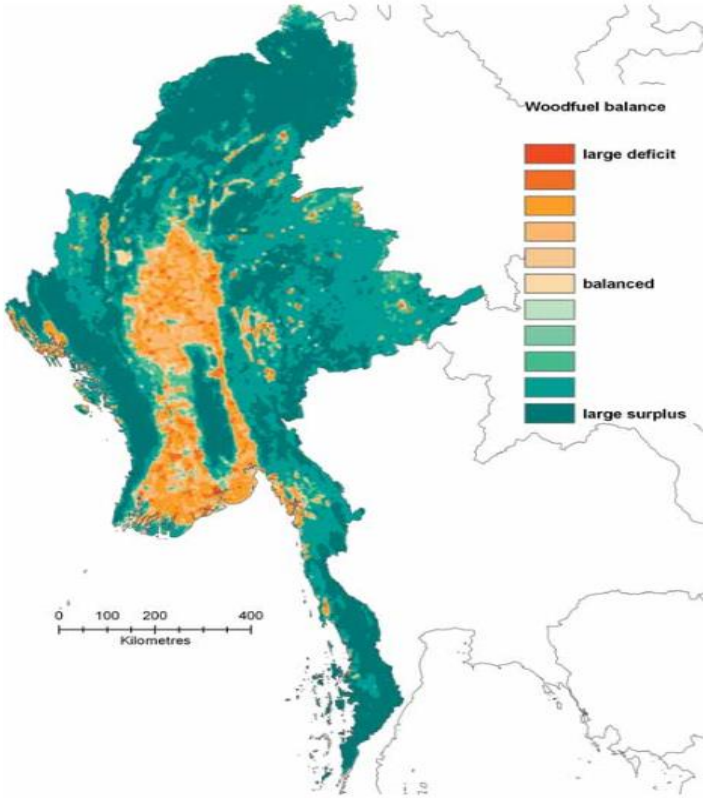
Environmental Impact – Woodfuel flows

Overall, some 2/3 of the rural populations live in areas with wood fuel deficit conditions, indicating that wood fuel likely flows from rural surplus areas into peri-urban and urban deficit areas

Rural populations living in different wood fuel supply/demand balance categories, (%)

Supply Demand Balance Category	%
High Deficit	32.1
Medium – High Deficit	22.6
Medium – Low Deficit	12.4
Balanced	4
Medium – Low Surplus	6.4
Medium – High Surplus	4.9
High Surplus	17.4

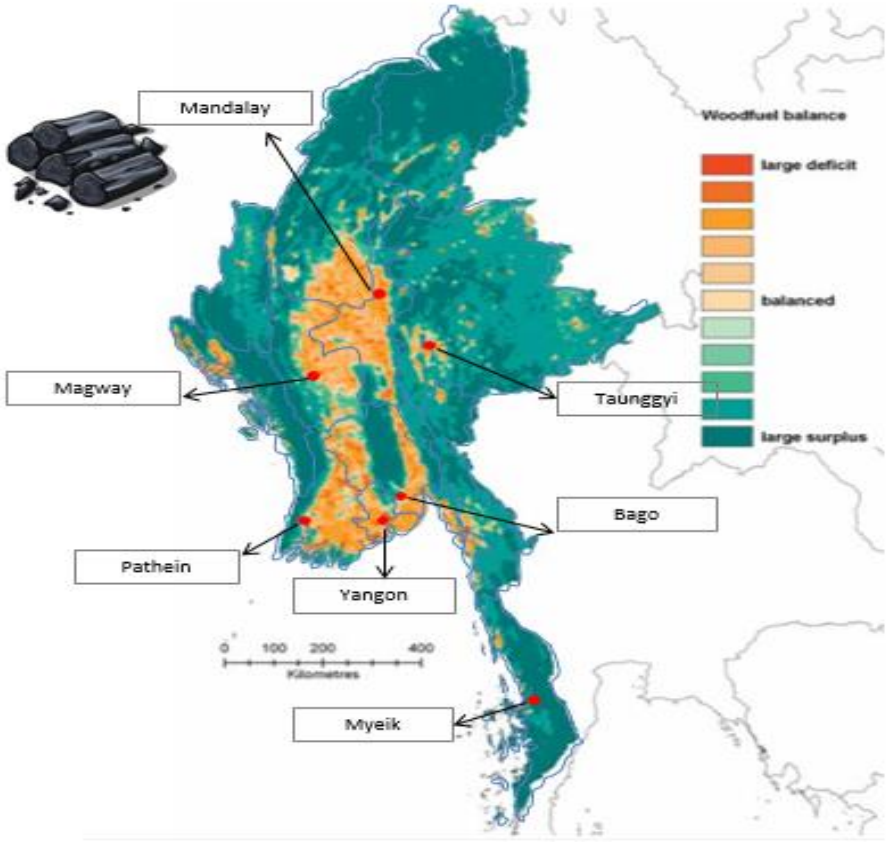
National data set for Myanmar Demand/supply balance and poverty based on 30 arc-sec data set.

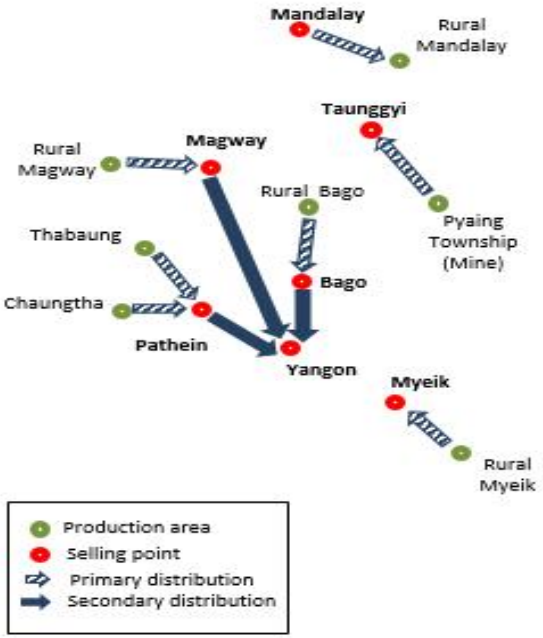


Sources: Wood-energy supply/demand scenarios in the context of poverty mapping (FAO)

Environmental Impact – Charcoal Production

The charcoal supply chain analysis[1] shows that charcoal production is occurring in wood fuel surplus areas which feed into the dry zone and peri-urban and urban areas. Information on the type of land where wood for charcoal was sourced was not included in the analysis

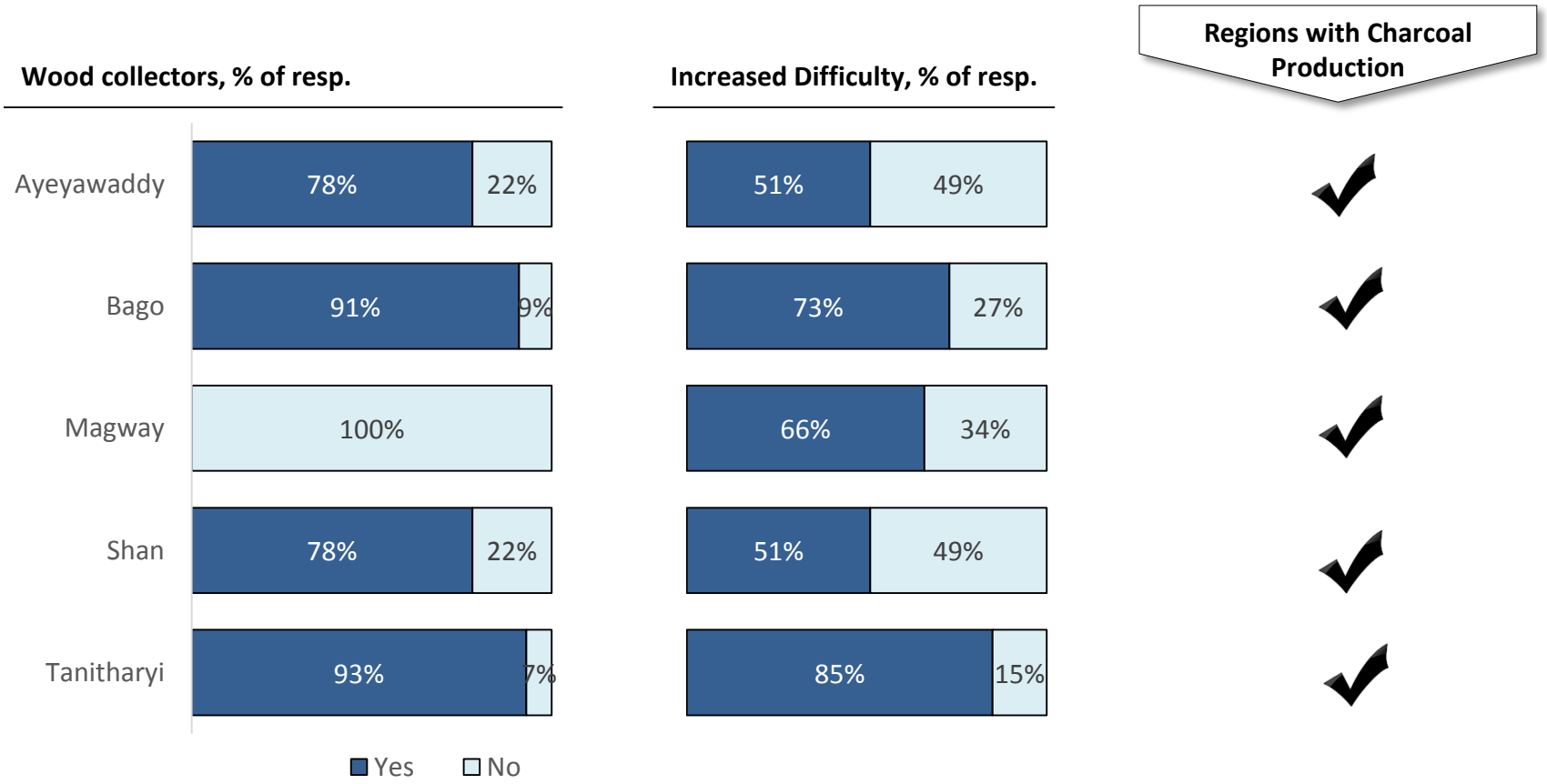




Source: Supply Chain Analysis of Charcoal, EMC interviews with charcoal resellers

Environmental Impact – Biomass Impact

The states in Myanmar with reported charcoal production and reductions in the availability of wood fuels, indicate that biomass could contribute to forest degradation or loss in these states.



Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Environmental Impact – Biomass Impact

Recent study (Bailis 2015) on the carbon footprint of woodfuels using FAO data from 2009 argues that the woodfuel collection may be mostly considered renewable for Myanmar overall due to high plantation production; however this could vary significantly from state to state, with higher non-renewability in Rakhine, Chin, Kachin, and eastern Shan states. This argument should be verified with more recent and reliable wood and charcoal consumption data.

Bailis (2015) Expected fraction of Non-Renewable Biomass (NRB) with high plantation productivity estimates, (%)

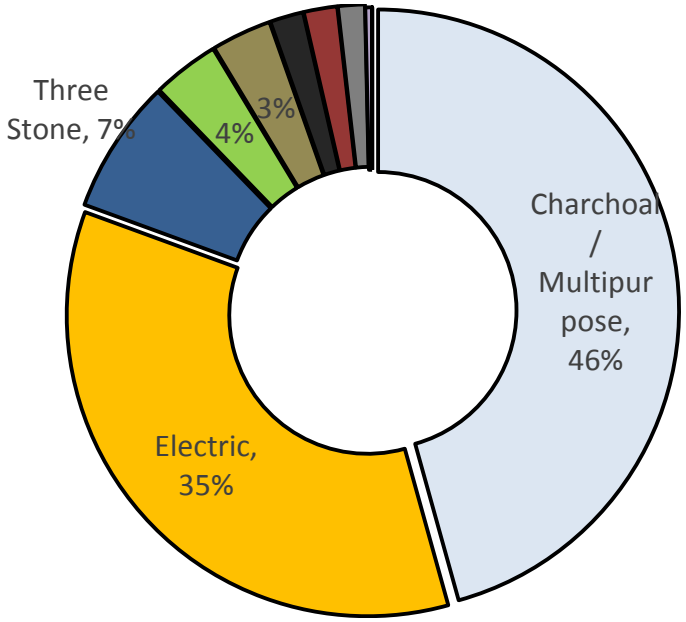
Rakhine	Chin	Ayeyawaddy	Kachin	Kayin	Kayar	Magway	Mandalay	Mon	Sagaing	Taninthayi	Yangon	Bago (E)	Bago (W)	Shan (E)	Shan (N)	Shan (S)
100	31.7	2.7	13.7	4.5	4.1	0.4	1.4	2.1	2.4	8.9	2.6	1.7	1.3	14.3	5.5	4.3

Sources: Bailis, R., Drigo, R., Ghilardi, A., & Masera, O. (2015) The carbon footprint of traditional woodfuels. *Nature Climate Change,* 5, 266-272. doi: 10.1038/nclimate2491

Environmental Impact - Stoves

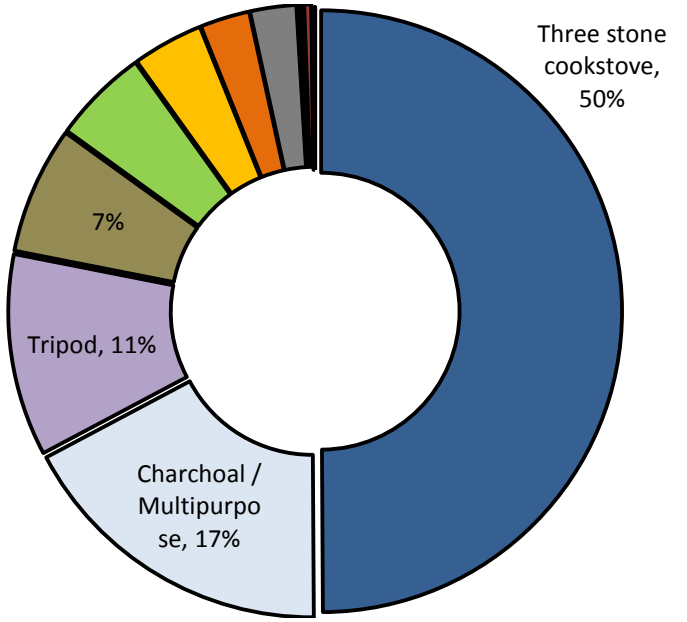
The vast majority of the population of Myanmar rely on biomass fuels as a primary fuel (83%) and use inefficient cookstoves, with 61% of rural populations using 3-stone stoves or tripods, and over 50% of peri-urban populations using charcoal stoves or 3-stone stoves

Primary Stoves, % of respondents



PERI - URBAN

Primary Stoves, % of respondents



RURAL

High potential exists for efficiency gains by switching rural 3-stone fire users to an efficient stove and by switching peri-urban charcoal stove users to a more efficient stove. An improved cookstove program which provided quality assurance of cookstoves would likely achieve high efficiency gains which would translate to significant, verifiable emissions reductions.

Source: Myanmar Household Cooking Survey – TNS (N=803); EMC Analysis

Overall, the environment to develop carbon finance is suitable. The country has an existing voluntary Programme of Activity, an appointed DNA, baseline data available, with a high rate of use of inefficient stoves. As an LDC, projects receive automatic additionally for small-scale projects and can benefit from the use of Clean Development Mechanism default values

	Designated National Authority (DNA) & Programs of Activities (PoA)	Stove & Program Accreditation	Carbon Baseline	Country Classification	Scale of Program	Monitoring & Evaluation
Most Suitable Environment	**Pre-existing DNA & related GS PoA**	Pre-existing CDM-accredited stove program in country	**Previous cookstove projects to leverage for baselining**	**Least Developed Country**	Estimated income will significantly outweigh costs of registration & monitoring	**Approved cookstove monitoring methodology in use in country**
	Pre-existing DNA; No PoA	**Pre-existing GS-accredited stove program in country**	Similar projects (e.g. Biomass) to use as proxy for baselining	Developing country	**High potential market for improved cooking technologies**	Approved monitoring methodology in use in country
	Clear organizational candidate for role of DNA	Stoves programs under development but not accredited	No previous projects to use as reference	Advanced developing country	Low potential market for improved cookstoves	Clear monitoring partnership opportunities and capabilities
Least Suitable Environment	No clear candidate or competing agencies	No accredited stoves or stove programs in country	No evidence of non-renewable biomass	Developed Country	Costs of registration & monitoring will likely outweigh income generated by carbon credits	Lack of monitoring capabilities or partnership opportunities

One Cookstove Program of Activities (PoAs) is underway, registered under the Voluntary Gold Standard, and another will be registered under the Clean Development Mechanism (CDM) with Gold Standard add-on

	Myanmar Stoves Campaign	DIFFER Group PoA
Description	• Aims to deliver positive health and environmental impacts through replacing traditional 3 stone fires with high efficiency modern stoves (the technology is not specific) • Gold Standard Voluntary Micro-Scale Programme of Activities • 1 registered Voluntary Project Activity in Pyawbwe Township	• Aims to distribute a suite of household energy efficiency products, including solar lanterns, solar home systems, water filters, and improved cookstoves • Currently developing a PoA for household energy efficiency in Myanmar and Timor Leste • Prime Cookstove promoted through PoA • Funded by UNDP
Participants	• Orbis Analytics (Carbon Consultant) • MercyCorps (Project Implementer) • SLOW LIFE	• DIFFER Group • Prime Cookstoves • Unidentified local Myanmar solar company • UNDP (Funder)
Progress	• Listed (Stakeholder Consultation complete)	• Stakeholder Consultation for PoA complete • No Letter of Approval yet • Feasibility study to be conducted

Environmental Impact – Carbon Financing (3/3)

Several organizations are involved in providing carbon technical expertise in Myanmar, but most of these are relatively new. One local company provides advisory services mainly in the agricultural sector

orbis Development Partners

- Orbis is a profit for purpose company which collaborates globally with responsible investors, companies and the not-for-profit sector to create market based solutions for pressing environmental and social challenges
- Orbis has provided the technical capacity for MercyCorps to develop the Gold Standard Myanmar Cookstove Campaign Program of Activities

DIFFER

- Differ helps scale up small-scale carbon reduction technologies in developing countries through: investing in start-ups, developing companies, advising project developers, and market analysis
- DIFFER is developing a CDM PoA for household energy in Myanmar

nexus Carbon For Development

- A cooperative of development organizations that support vulnerable communities by scaling up successful climate-friendly projects.
- Members share expertise and services, access technical assistance and international funding opportunities such as carbon finance.
- Nexus is developing a rice-husk gasification PoA for Myanmar, Lao PDR, and Cambodia

Myanmar Agri-Tech Carbon

- A local Myanmar business providing technical advisory services on sustainability, especially in the agricultural sector

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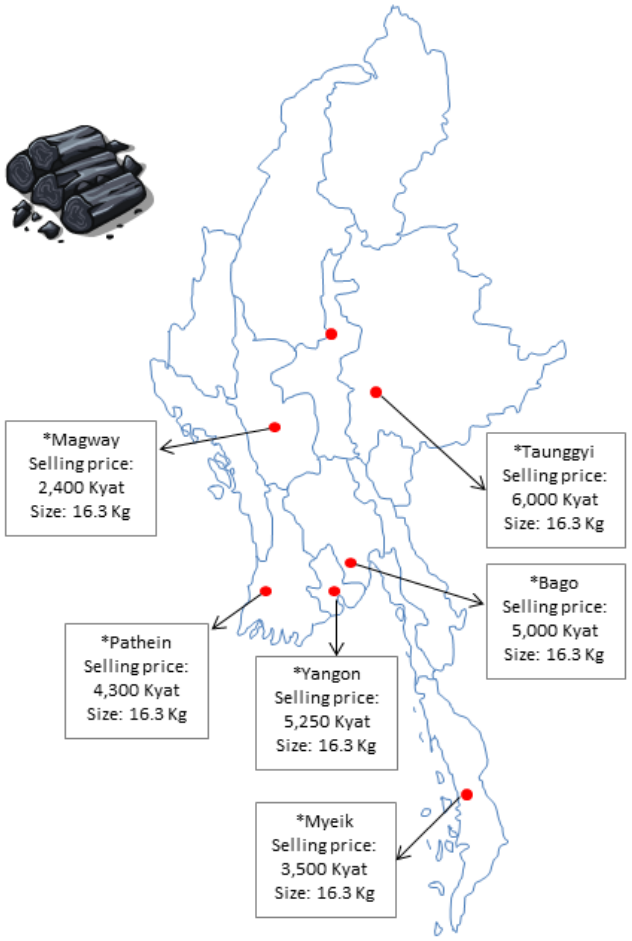
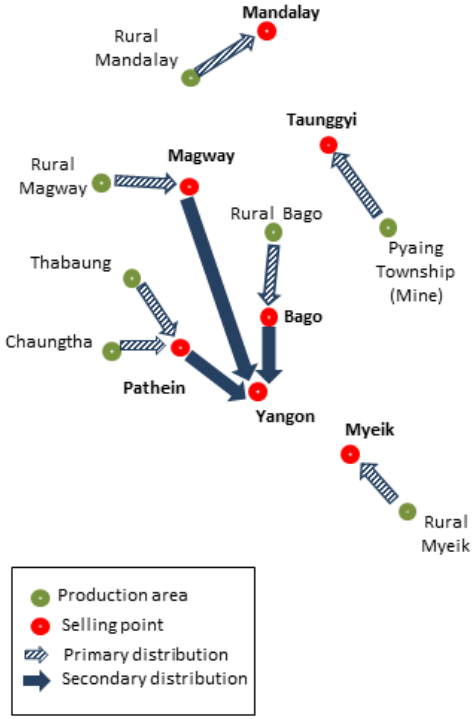
Sector Mapping – Charcoal Supply Chain

Magway and Tanintharyi have the lowest prices due to closeness to production areas, while Shan State and Yangon show the highest prices



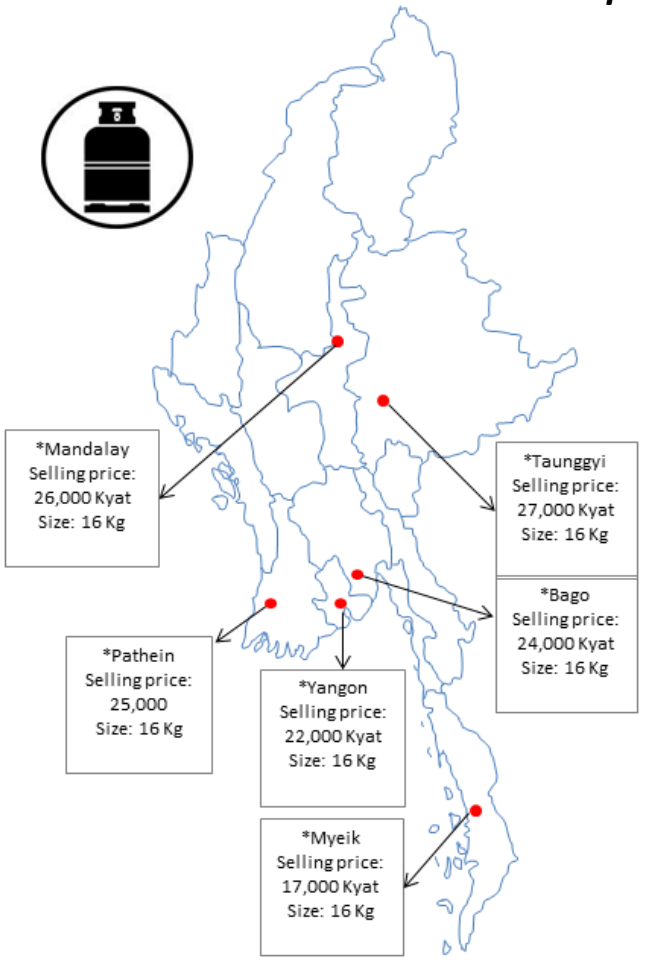
Supply chain mapping, Charcoal



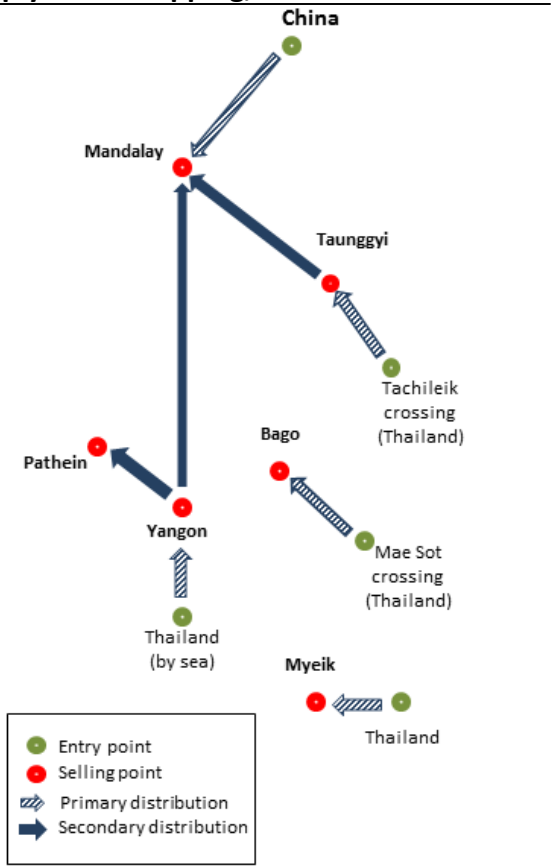
Source: EMC's Supply Chain Analysis and expert interviews

Sector Mapping – LPG Supply Chain

The selling price of LPG in most regions lies between 20,000 – 25,000 MMK for a 10 viss cylinder (16.3Kg). Since most of the LPG currently comes from Thailand (ThaiGas), regions closer to main land borders show lower prices than the rest of the country



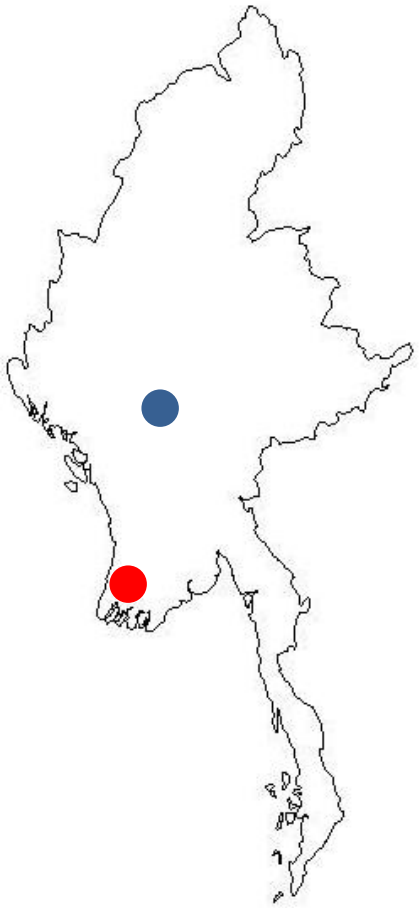
Supply chain mapping, LPG



Source: EMC's Supply Chain Analysis and expert interviews

Sector Mapping – Cookstoves Production

Most of the clay stove production of Myanmar is located in Pathein, while production of A1 models has been identified in Magway



- The main production hub of clay stoves in Myanmar seems to be located in **Pathein***. The availability of clay allowed the development of a pottery industry and later of the production of stoves.

- The main production hub of A1 stoves in Myanmar seems to be located in **Magway**.

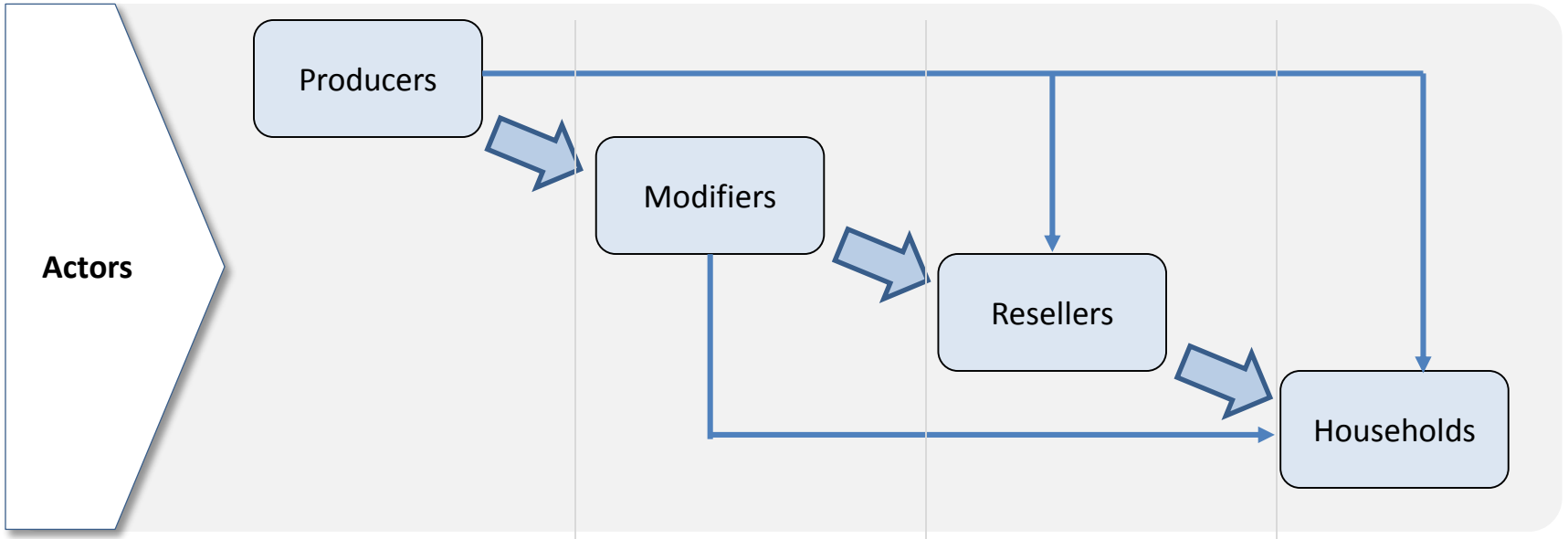
- Stove producers sell their stoves through different **channels**:
  - Retailers, on consignment
  - Door to door through a network of agents
  - Through government and / or NGO programs

- Customer **sales** tend to happen directly, with the customer paying the full stove price upfront, while wholesale and reseller sales can happen on consignment, once the business relationship is established.

Source: EMC's Supply Chain Analysis and expert interviews

Sector Mapping – Cookstoves Production Steps

The research divided distributors of cookstoves into three major groups: Producers, modifiers, and resellers



Activities

- Original producers, producing stoves from raw materials

- Modifiers purchase clay stoves, mostly from Pathein and apply modifications to improve its quality.
- Modifications include adding a concrete ring around the clay, and either a metal ring around the concrete, or metal strips around the clay.

- Physical shops in cities or towns, as well as mobile sellers

Source: EMC's Supply Chain Analysis and expert interviews

Sector Mapping – Cookstoves Production Actors

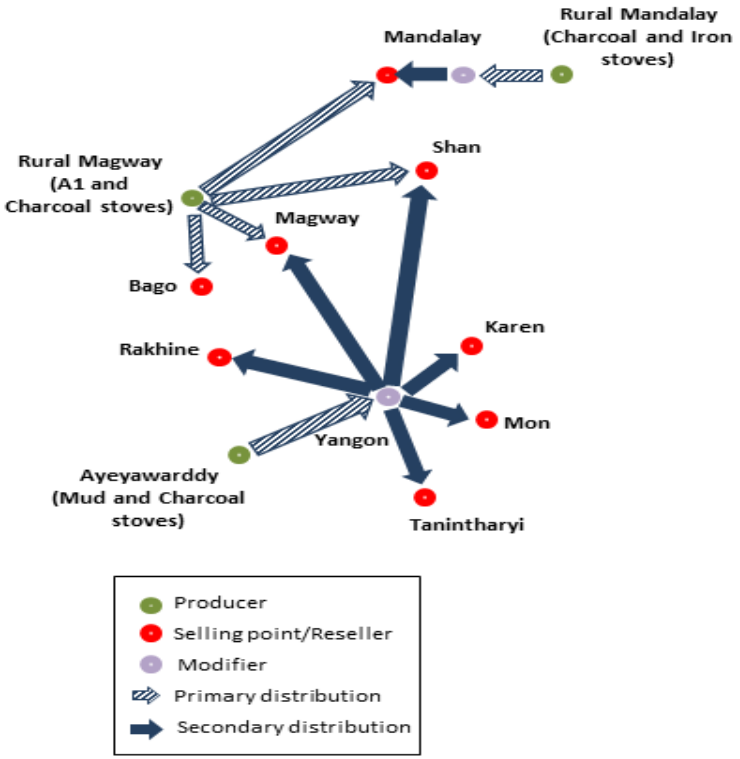
Production is focused in certain areas, while modification and resale is spread out across the country

Actor	Locations	Activities	Details
Producers	Production in Myanmar mostly revolves around clary stoves in Pathein and A1 type stoves in Magway, as well as Mandalay for Iron and Charcoal stoves.	Purchase of clay (from Pahein mostly, and from Magway to smaller extent), sand, metal and chemicals locally. Producers are satisfied with the inputs available, less so with the skills of the labor.	The largest identified A1 (5,000 stoves / month) producers in Myanmar was identified in the Myanmar Myae factory. The factory has been a key partner of UNDP since 1997, and since then has contributed to the production and distribution of over 25,000 stoves for the Dry Zone Greening Department, 40,000 stoves for UNDP, 15,000 stoves for ECODEV. There are 4 or 5 more producers in Magway with a much lower production capacity.
Modifiers	Purchase of stoves from other suppliers and application of improvements identified in multiple locations.	Purchase of unimproved stoves from original producers, and addition of materials to improve its quality, resistance and value. Modifications include applying a concrete ring around a clay stove, application of metal bucket around the cement, or alternatively the application of metal bars around a clay stove.	The largest identified stove modifier was identified in Yangon, the Shwe Ya Min- Stove stove factory (5,000 stoves / month). There are 4 main cookstove modifiers in Yangon (That is Ya Min, Ma Lat Yar, Na Gane and Thein Tayar)
Resellers	Across country, mostly concentrated in urban and peri-urban centers.	Direct purchase of stoves in large stock from producers and modifiers and resale either directly to the final customers or to regional agents.	Newly established resellers do not get to receive stock on consignment or credit, but have to pay the full value. Once the relationship is consolidated, producers are more favorable to giving stock on credit.

Source: EMC's Supply Chain Analysis and expert interviews

Sector Mapping – Cookstoves Production Map

The analysis confirmed Ayeyarwaddy's importance as producer of mud and charcoal stoves, followed by Magway and Mandalay. Yangon is the most important modification center from which stoves are distributed to most central and southern states

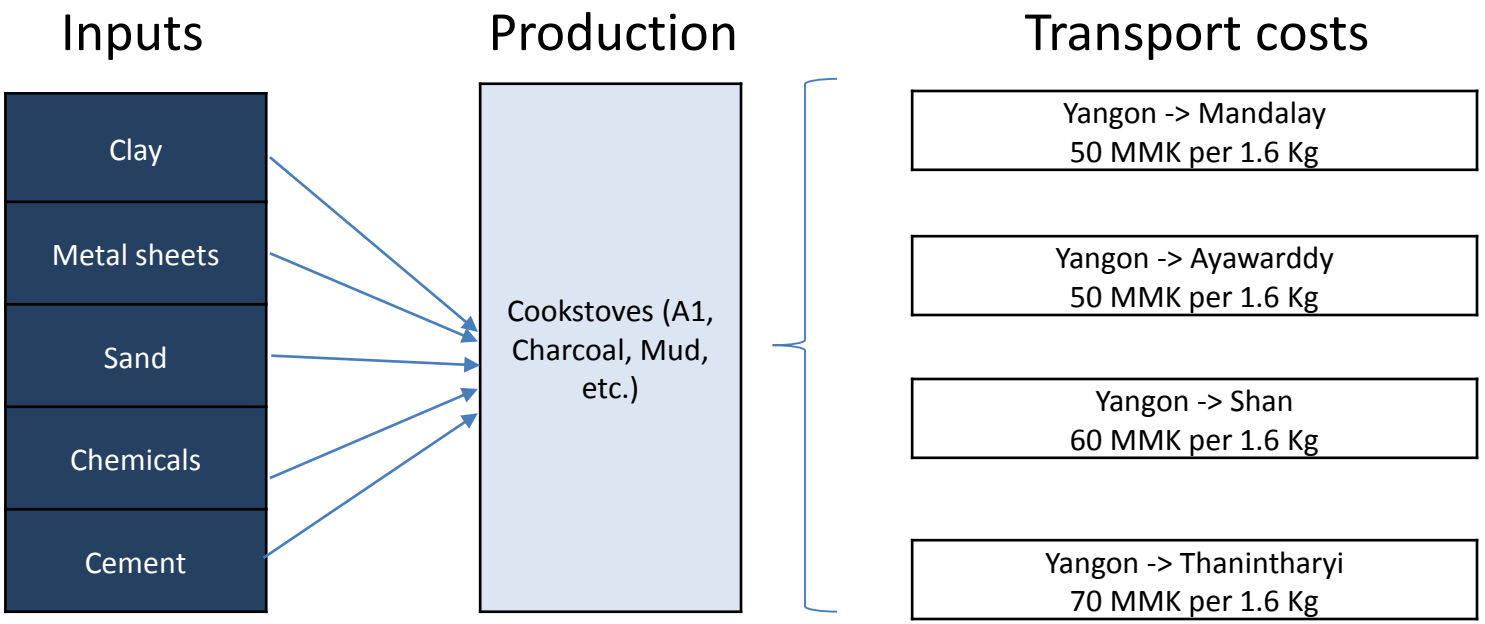


	Actor	Cost	Whole Sale price	Consumer Price
A1 Stoves	Producer	1,100	1,500	3,000 - 4,500
	Modifier	2,200	3,000	
	Reseller	2,800	3,000	
Charcoal Stove	Producer	1,650	2,600	3,500 - 5,000
	Modifier	2,200	3,100	
Iron stove	Reseller	2,100	2,500	3,000

Source: EMC's Supply Chain Analysis and expert interviews

Sector Mapping – Production Inputs and Transport

According to producers and modifiers, most inputs for the fabrication of cookstoves can be found within the country. Transport costs are generally paid by buyers with an average cost of 60 MMK per 1 viss (1.6 Kg)



Source: EMC's Supply Chain Analysis and expert interviews

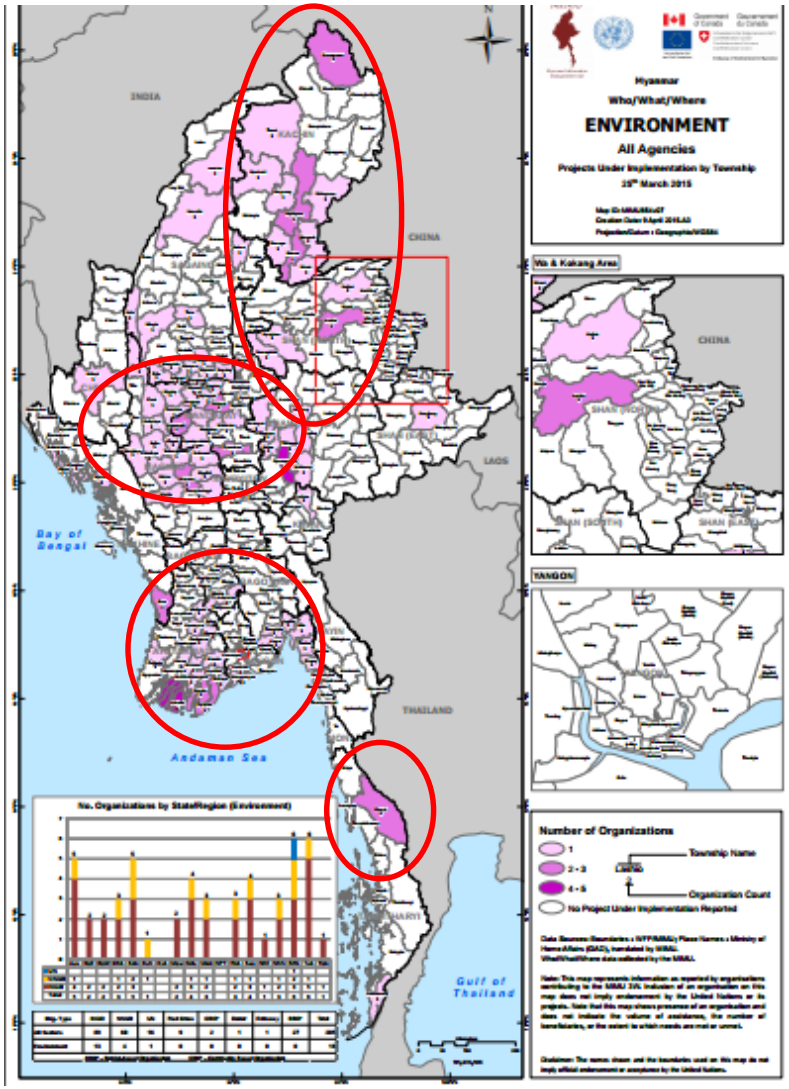
Sector Mapping – Cookstoves Programs in Myanmar

A variety of ICS programs have been launched in Myanmar since the 1990s

Organization	Location	Duration
Ecodev	Kachin State	2008 – Present
	Sagaing Division	1997 – 2001
	Magway Division	1997 – 2002
Ever Green Group	Shan State	2007 – 2009
	Ayeyarwady	2008 - 2009
Forest Resource Environment Development and Conservation Association	Sagaing Division	2000 – Present
	Southern Shan State	2004 – Present
	Ayeyarwady	2004 – Present
Mangrove Service Network	Rakhine State	2007 – Present
	Kachin State	2005 – 2006
	Chin State	2006 – 2007
	Mon State	2006 – 2007
United Nation Development Program	Ayeyarwady Division	2000 – Present
Metta Foundation	Kachin State	2008 – Present
	Shan State	2008 – Present
	Kayah State	2008 – Present
	Ayeyarwady Division	2008 – Present
	Mon State	2008 – Present

Source: MercyCorps

Sector Mapping – Environment Programs in Myanmar

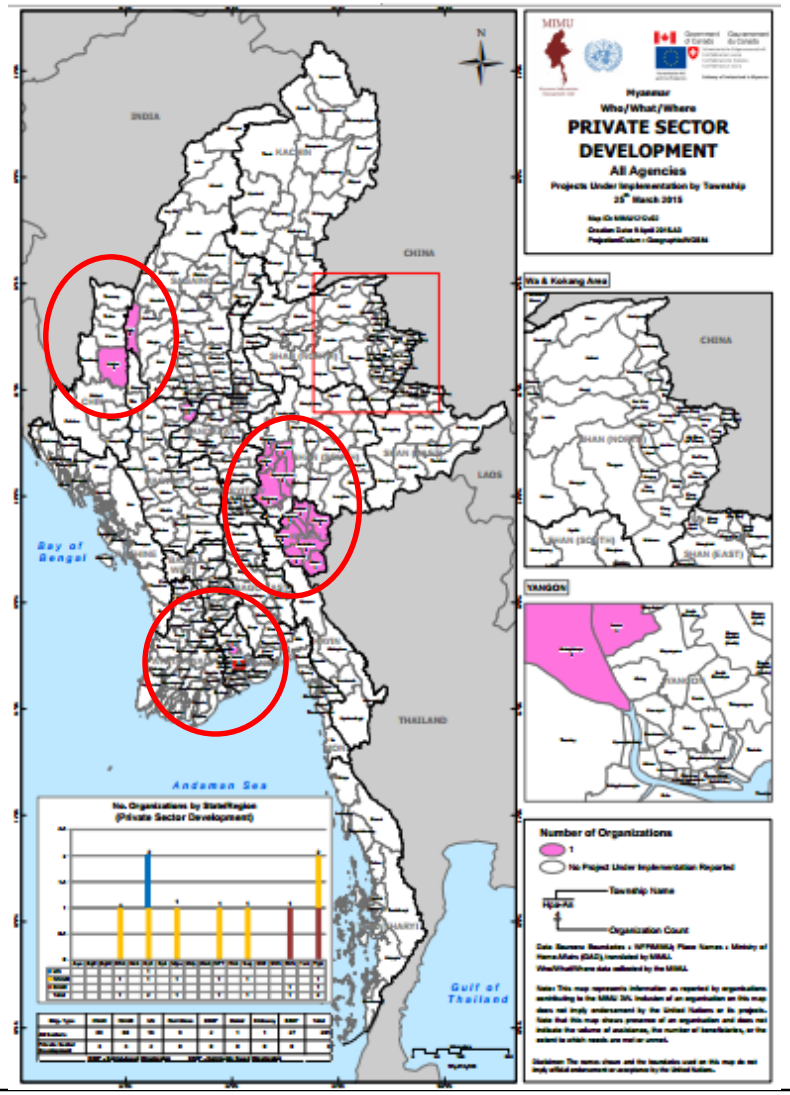


On-going environmental programs are concentrated in the Delta region, the Dry Zone near Mandalay, the extreme north in Kachin and Shan (North) and the southern state of Tanintharyi.

Source: http://www.themimu.info/3w-maps-and-reports

Note: The full list of the most relevant programs to the ICS sector can be found in ANNEX

Sector Mapping – PSD Programs in Myanmar



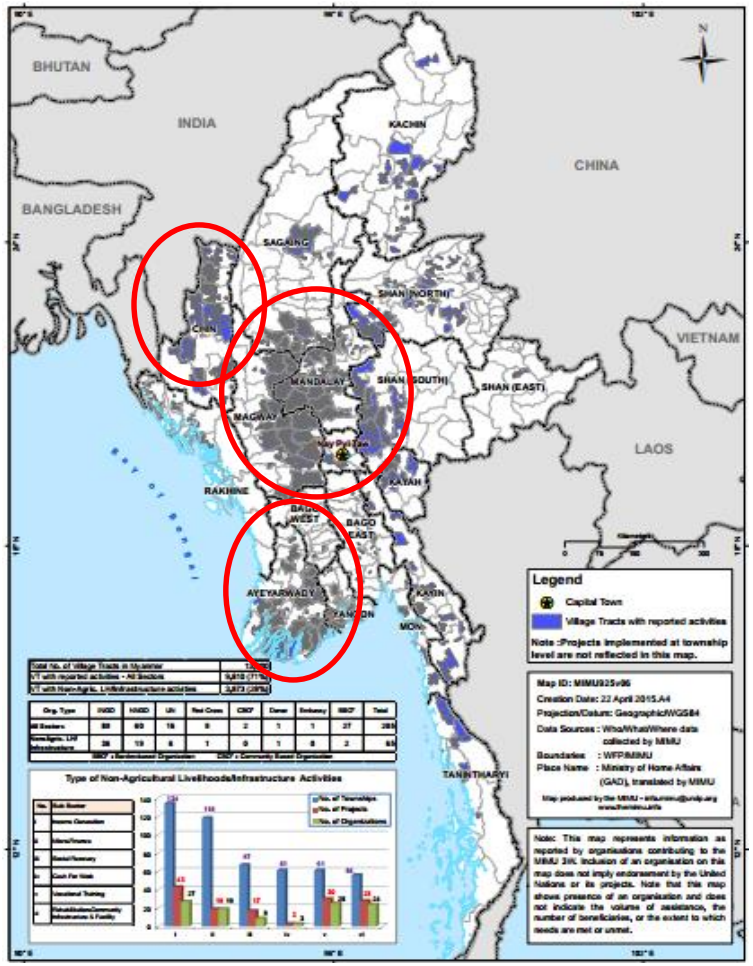
Most programs focusing on private-sector development are country-wide. Only a few programs are site specific and involve specific skills development including sewing, English training, and self-help.

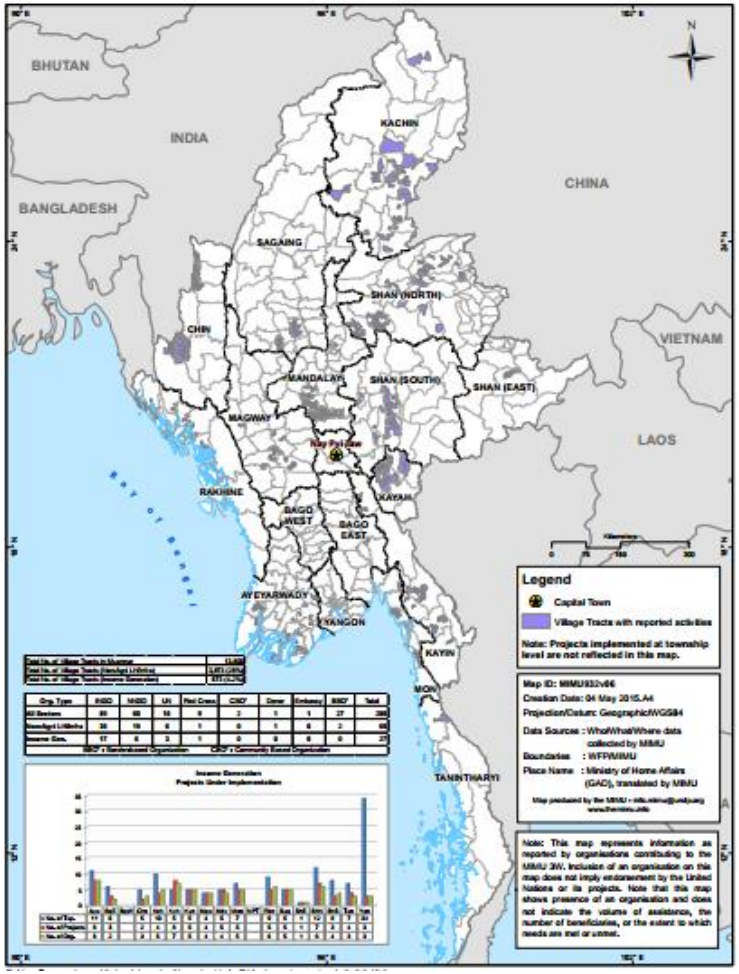
Source: http://www.themimu.info/3w-maps-and-reports

Note: The full list of the most relevant programs to the ICS sector can be found in ANNEX

Sector Mapping – Livelihoods Programs in Myanmar

Specific livelihoods programs are centered around Mandalay and in Ayeyarwady states. Meanwhile income generation programs are scattered throughout the country.

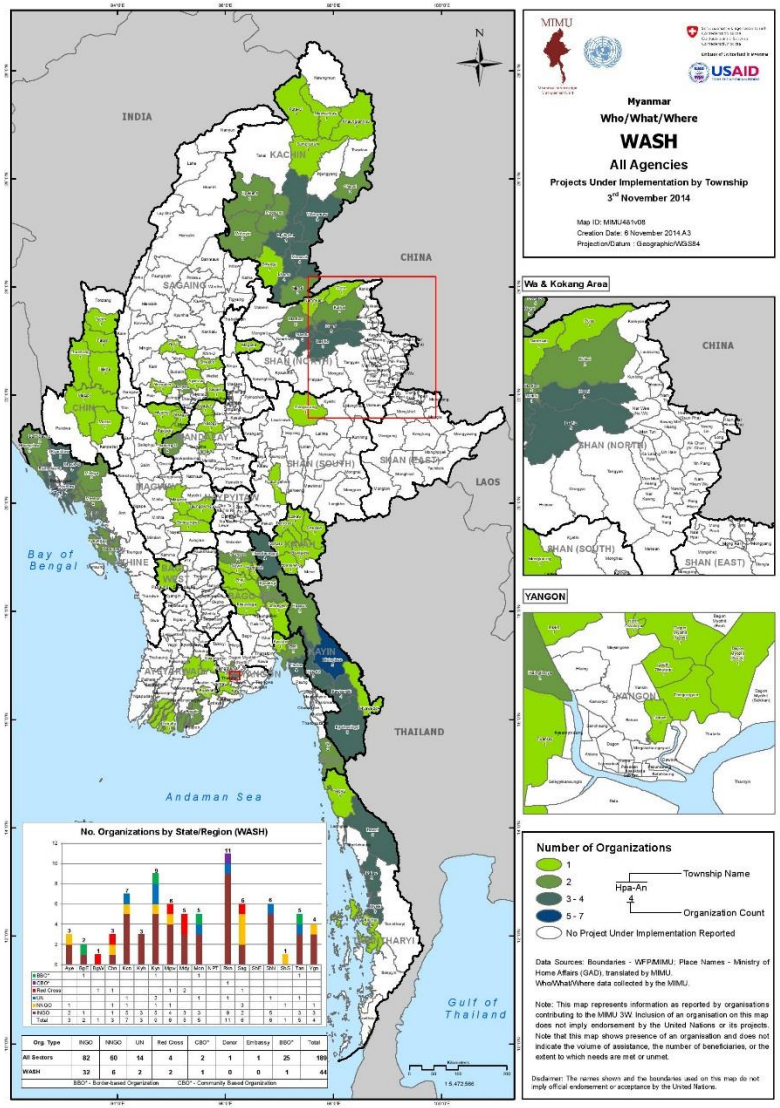




Source: http://www.themimu.info/3w-maps-and-reports

Note: The full list of the most relevant programs to the ICS sector can be found in ANNEX

Sector Mapping – WASH Programs in Myanmar



Most programs focusing in WASH activities are country-wide and cross-cutting in the issues to be tackled (e.g. construction & rehabilitation, environmental sanitation, hygiene promotion, water supply, etc.)

Source: http://www.themimu.info/3w-maps-and-reports

Note: The full list of the most relevant programs to the ICS sector can be found in ANNEX

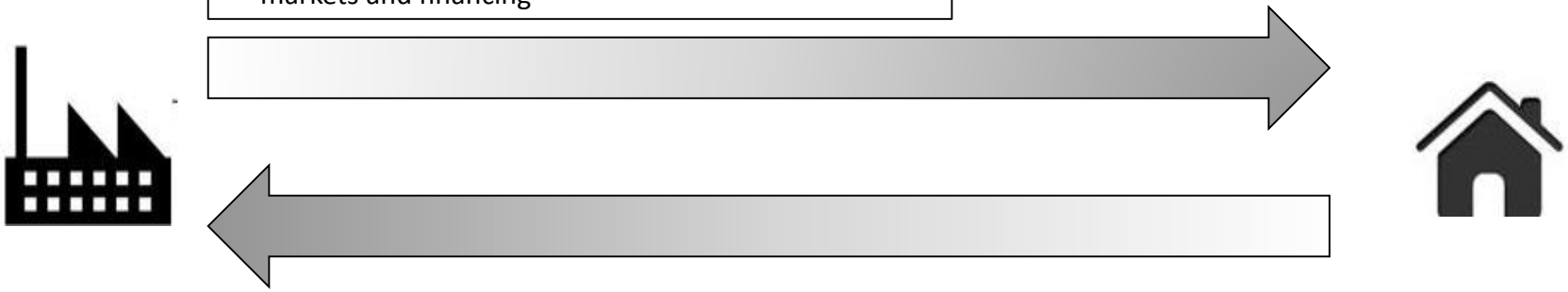
Table of Contents

Recommendations – Areas of Intervention

The following recommendations are structured into the two areas of intervention that should be targeted, the Supply and Demand Side

SUPPLY SIDE

- Interventions need to sustain the development and expansion of the currently existing stoves production in the country. Interventions should focus on quality improvements, access to finance and access to markets and financing



DEMAND SIDE

- Interventions need to improve the households' willingness to use improved stoves, by leveraging existing drivers (price, durability), as well as creating awareness about the health and environmental impact of inefficient cooking practices

Recommendations – Intervention Overview

Interventions on the supply side should focus on market based mechanisms to spur the growth of existing producers, while demand side interventions should revolve around research for market intelligence, marketing and awareness raising

Supply Side

- **Quality Assurance** interventions targeted at improving the standard of production of efficient stoves.
- Provision **Management, Marketing and Market Intelligence** to improve producers' market access.
- Partnerships with **Microfinance Institutions** to support producers in their expansion needs

Demand Side

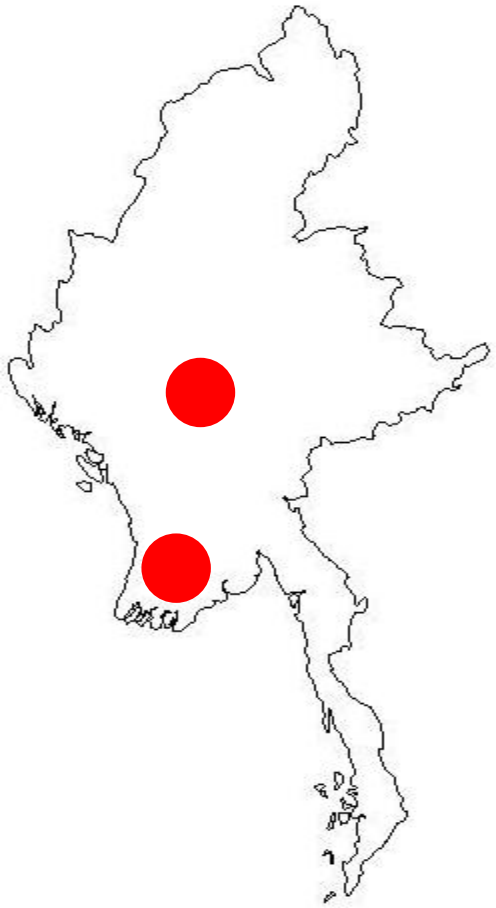
- **Marketing** activities in the areas with the highest number of potential ICS customers through TV, Radio, and Magazines.
- **Awareness campaigns** in rural areas to inform households of the benefits of improved cooking practices,
- Continuous **research** to track the evolution of households' preferred stoves and switching patterns.

Environmental Side

- A Carbon finance scheme can be designed and launched to financially support the program in the medium turn, when donor funding will expire.
- One of the components of the awareness campaigns should revolve around the impact of unimproved cooking practices on deforestation and the environment.

Recommendations – Supply – Models and Areas

GERES should focus on the main currently existing production hubs, especially in the areas of Magway and Pathein, where A1 and Clay stoves are respectively produced



- Myanmar is still extremely reliant on solid fuels for cooking.
- Electric stove is the aspirational stove for the population, but this could have been influenced by the recent LPG price spikes in 2014, and might switch in the near future.
- There is already a consolidated production of A1 and Clay stoves, respectively in Magway and Pathein.

- GERES should focus on supporting already existing producers of stoves by improving their quality of production, market knowledge and access to finance, especially in:
- Magway: focusing on producers of A1 stoves
- Pathein: focusing on producers of clay stoves

Recommendations – Supply – Standards

Creating national level standard of production is a key requirement to be able to standardize the quality levels, and to create a guaranteed product, that can be known on the market for its qualities

Standards

National level technical specifications of what constitutes an Improved Cookstove needs to be developed:

- Production materials and processes
- End product's efficiency, level of emissions, safety and durability

Models

GERES should initially focus on developing these standards for the:

- A1 models, whose current production appears to be based on the Thai model introduced by the Ministry of Forestry in the 1990s.
- The Pathein Stove, developed by the private sector of the Ayeyarwaddy region.

Actions

- Collection of the most common production designs of the 2 typologies of stoves.
- Testing to quantify their characteristics and identify potential improvements in design and production processes.
- Working in close relationship with Ministry of Forestry and Ministry of Health to create a national level standard for these models.

Recommendations – Supply – Quality Assurance

GERES can support existing producers by improving the quality and efficiency of their stoves through trainings and by providing the possibility to test the produced stoves

Training of Trainers

- GERES should recruit a team that will be trained on the best practices of production for A1 and Clay Stove models.
- The team should undergo a Training of Trainers (ToT) process to be able to then support involved producers to improve their technical production skills.

Quality Laboratory Testing

- Myanmar is currently lacking the necessary facilities to properly test locally available stoves.
- Therefore, GERES can support the market by providing this facility. Given the substantial cost of setting up the infrastructure, GERES can split this intervention:
  - Short to Medium Term: GERES can allow local Myanmar producers to test their stoves through their laboratory in Cambodia.
  - Medium to Long Term: GERES can set up the necessary infrastructure once the program scales up.

Quality Framework

Efficiency and Fuel Use	Indoor Emissions
Total Emissions	Safety of Use

Recommendations – Supply – Certification

As a result of their improved production quality, GERES can issue a certification asserting the quality of the stove. In exchange for these provided services and certification, producers can agree to offer a 1 year warranty on the stove, as well as committing to a roof price of their product

Certification Label

GERES can develop a certification system, whereby stove producers get their stove tested at the Laboratory, and they are awarded a label that qualified the level of:

- Fuel Efficiency
- Health Impact in terms of indoor emissions
- Environmental Impact reduction, in terms of reduced CO2 from inefficient wood burning
- Safety

1 Year Warranty

Involved producers can be asked to agree to offer customers a 1 year warranty on breakages from production causes.
An additional benefit is that this will allow for tracking and monitoring of customers, as they will be requested to provide their phone contacts and general information.

Roof Product Price

Producers involved in the program can agree not to a fixed overall price, which would reduce competition amongst them, but to a maximum roof price for the stoves they produce.

Recommendations – Supply – Management Skills

An additional support that GERES can offer to producers involved in the program is by improving their management and marketing skills

Marketing and Management Support

GERES can support stove producers by developing their management skills, through:

- Improving their ability to develop sound and feasible business expansion plans.
- Building their management capabilities related to production efficiency, logistics, accounting proficiency and transportation processes.
- Supporting their marketing activities by sharing relevant market intelligence:
  - Market sizes and potential estimated demand across the country.
  - Current pricing and customers' willingness to pay.
  - Main marketing channels and recommended contents, in different urban and rural environments.

Sources of Market Intelligence

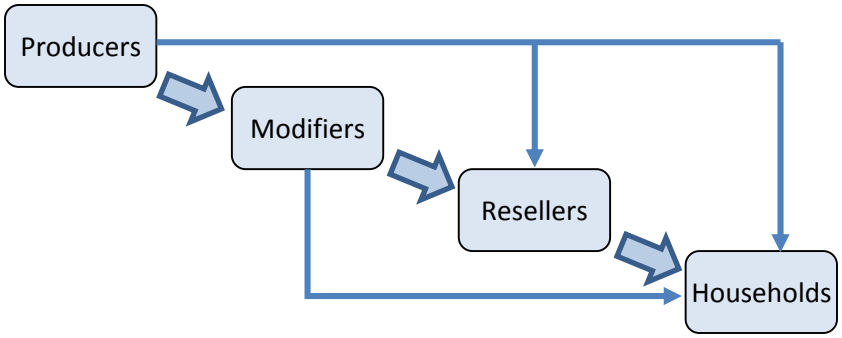
The necessary data and knowledge of the market can be collected in different ways. Further studies and research to check the evolution of the baseline data can be launched. An additional option is to collect data from stove customer of the producers involved in the program through:

- **Warranty Scheme**: to be eligible for the 1 year warranty, customers can be requested to share their basic information and contacts. This will allow GERES to collect direct data on sales, as well as a database of current customers.
- **Lottery Scheme:** A lottery, offering prizes like cell phones, bicycles and fans can be connected to the purchase of the stove. Customers who want to participate will have to leave their contacts and phone number.

→ The result of the Warranty and Lottery scheme is that GERES will be available to reach out to stove customers by phone interviews, which will provide a reliable and cheaper source of data

Recommendations – Supply – Association

Supporting the establishment of an association of the actors of the stove supply chain will allow for better coordination, distribution of information and in the longer term, it will allow local actors to take ownership



Issue

- The supply chain in Myanmar is currently uncoordinated, with lack of communication among the various actors, resulting in:
  - Confusion in the feedback originating from customers.
  - Confusion in the actual size of the market for producers.

Action

One potential solution is for GERES to support the establishment of an association bringing together the actors involved in the cookstoves supply chain. This organization could:

- Work as a coordination center to allow chain actors to share reliable information about the sector.
- Work as key partner for GERES in messaging to actors in the chain, and to organize information and market intelligence events.
- In the long run, become the agent responsible for the stoves certification process, as well the enforcement of the standards of production and quality that will be developed.

Recommendations – Supply – Access To Finance

GERES can facilitate producers' access to finance, by cooperating with existing institutions. However, the number of existing organizations loaning to SMEs in Myanmar is still low

Category	Institution	# of branches	# of borrowers	Regulated	SME Support	To Investigate Partnership
State Owned Banks	Myanmar Agriculture Development Bank (MADB)	205	1,420,000	Yes	Low/Medium	✔
	MEB	325	208,778	Yes	Low	
Private Bank	Myanmar Livestock and Fisheries Development Bank	53	N/A	Yes	Low	
Non-Governmental Organization	PACT-UNDP	105	365,410	No	Medium	✔
	PACT MFI	16	57,128	Yes	Low	
	GRET MFI	4	6,155	Yes	Low	
	Save the Children MFI	N/A	7,737	Yes	Low	
	World Vision MFI	12	13,282	Yes	Low	✔
	Proximity Design MFI	8	16,000	Yes	Low	
	AMDA	N/A	1,510	No	Low	
Cooperatives	Central Cooperative Society MFI	46	32,851	Yes	Low	
	Financial Cooperatives – Union of Savings and Credit Federation	1625	476,632	Yes	Medium	✔
Specialized Agricultural Companies	Rice Specialization companies	38	57,502	No	Low	
	Other Agri-Specialized Companies	22	140,000	No	Low	
Women's Union		16	4,800	No	Low	

Source: "Microfinance in Myanmar – Sector Assessment" (2013), International Finance Corporation

Recommendations – Demand – Market Segmentation

Following GACC's market assessment framework, EMC was able to identify three market segments that show potential for the provision of improved cookstoves. The four key segmentation criteria -in level of importance- are (1) Household fuel type, (2) Geographic location, (3) Income level, and (4) Cookstove acquisition behavior.

Segmentation criteria (Ranking)		Identified Market Segments
I	Household fuel type	Segment 1: Lower income biomass users from peri-urban and rural areas
II	Geographic Location	Segment 2: Middle/Lower income biomass users from peri-urban and rural areas
III	Income Levels	Segment 3: Middle/Higher income biomass users from peri-urban and rural areas
IV	Cookstove acquisition behavior	

Recommendations - Demand - Segmentation Criteria

Stove users, and therefore future potential customers of improved stoves can be initially segmented by the type of fuel they are currently using

	Urban Environments	Rural Environments
LPG	Mostly in larger cities, where availability of this fuel imported from Thailand is higher, and mostly used by higher income households.	Extremely low. Interviews indicated that LPG in rural areas is mostly reserved for restaurants rather than households.
Electricity	Quite prevalent especially in more developed cities like Yangon and Mandalay. Electricity appears to be preferred choice.	Quite low, only witnessed in ~3% of rural households interviewed.
Charcoal	Most predominant type of fuel in urban environments (~45%). Appears to be the gateway fuel between wood users and households switching to electricity.	Second most predominant type of fuel users in rural environments (13%).
Wood	About 18% of households across country still use wood. But a lot of this use is made on stoves rather than on open fires.	Largely the most predominant rural group (~80% of rural households). The larges part of this group cooks on open fires, while a smaller part happens on stoves.
Agr. Residue	-	Quite low penetration, witnessed in ~4% of rural household. Usually these household would cook on stoves designed to use agricultural residues.

Recommendations - Demand - Segmentation Criteria

The next relevant customer segmentation criteria are in terms of their geographic location (peri-urban vs. rural), income levels, and acquisition behavior (purchase vs. non-purchase stove).

II Geographic location

	LPG	*Electricity*	*Charcoal*	*Wood*	*Agricultural residues*
Peri-urban Distribution (Users)	*2%*	*35%*	*45%*	*18%*	*0%*
Rural Distribution (Users)	*0%*	*3%*	*13%*	*80%*	*4%*

III Income levels

- Low: $0.0 - $3.7 USD per day
- Medium/Low: $3.7 - $7.4 USD per day
- Medium/High: $7.4 - $11 USD per day
- High: $11 - $18.5 USD per day

IV Acquisition behavior

	Low ($0.0-$3.7 USD/day)		*Medium/Low ($3.7-$7.4 USD/day)*		*Medium/High ($7.4-$11 USD/day)*		*High ($11-$18.5 USD/day)*	
Total Purchased	*Peri-urban*	*74.4%*	*Peri-urban*	84.20%	*Peri-urban*	90.60%	*Peri-urban*	89.70%
	Rural	*32.1%*	*Rural*	44.20%	*Rural*	47%	*Rural*	47.60%
Total Non-purchased	*Peri-urban*	*25.6%*	*Peri-urban*	15.80%	*Peri-urban*	9.40%	*Peri-urban*	10.30%
	Rural	*67.9%*	*Rural*	55.80%	*Rural*	53%	*Rural*	52.40%

Recommendations - Demand - Market segment size

Households in Myanmar: 11.431,111

	Low income		Medium/Low income		Medium/High income		High income	
Peri-Urban Wood users	Purchase	130,561	Purchase	305,851	Purchase	45,585	Purchase	22,015
	Not-purchase	44,924	Not-purchase	57,392	Not-purchase	4,730	Not-purchase	2,528
Rural Wood users	Purchase	902,857	Purchase	1,243,186	Purchase	385,695	Purchase	81,904
	Not-purchase	1,909,781	Not-purchase	1,569,452	Not-purchase	434,933	Not-purchase	90,163
Urban Charcoal users	Purchase	135,811	Purchase	799,501	Purchase	308,530	Purchase	55,039
	Not-purchase	46,731	Not-purchase	150,025	Not-purchase	32,011	Not-purchase	6,320
Rural Charcoal users	Purchase	114,955	Purchase	230,538	Purchase	45,996	Purchase	46,583
	Not-purchase	243,160	Not-purchase	291,041	Not-purchase	51,868	Not-purchase	51,280
Urban Agric. Residues users	Purchase	0	Purchase	0	Purchase	0	Purchase	0
	Not-purchase	0	Not-purchase	0	Not-purchase	1400	Not-purchase	0
Rural Agric. Residues users	Purchase	48,329	Purchase	59,819	Purchase	6850	Purchase	14,333
	Not-purchase	102,229	Not-purchase	75,518	Not-purchase	7,892	Not-purchase	15,779

Segment 1 Segment 2 Segment 3

Recommendations - Demand - Market segment size

With almost 2 million potential customers, segment 2 features the highest number of households that might switch to clay based ICS, followed by segment 1 (0.8 million) and segment 3 (0.4 million). Segment 4 seems more likely to switch to more improved stoves such as LPG and electric.

	Probability* of each sub-segment to become a clay based ICS customer							
	Peri-Urban			Rural			Total Households	
	Wood	Charcoal	Agrc. Residues	Wood	Charcoal	Agrc. Residues		
Segment 1 "Low"	65%	45%	-	64%	70%	85%	**845,357**	**3,261,651 Households**
Segment 2 "Medium/Low"	70%	50%	-	70%	50%	90%	**1,998,737**	
Segment 3 "Medium/High"	60%	40%	-	60%	65%	80%	**417,557**	
Segment 4 "High"	0%	0%	0%	0%	0%	0%	**0**	

*Note: Probability of customers becoming ICS customers has been estimated by EMC, following the GACC Market Assessment Toolkit, using data from direct household interviews.

Recommendations – Demand – Marketing Sizing

Segments 2 and 3 will require marketing efforts to communicate quality, while segment 1 will require more awareness campaigns to develop awareness

	Low income	Medium / Low income	Medium / High income	High income
Total	**845,357**	**1,998,737**	**417,557**	**0**
Customer Demographic	• Female • Mainly farming, poultry or small businesses.	• Female • Domestic work, small businesses	• Female. • Domestic work, paid, government jobs	• Female. • Paid jobs, paid, government jobs
Customer Needs	• Cost, durability, ease of use • Switch to charcoal and wood stoves	• Cost, durability, ease of use • Switch to charcoal and wood stoves	• Durability, ease of use and safety. • Switch to charcoal or electric stoves	• Durability, ease of use and safety. • Switch to cleaner fuels
Buying Behavior	• Relevant Self Production, or purchase of in local shops or near markets	• Mild Self Production, or purchase of in local shops or near markets	• Low Self Production, or purchase of in local shops	• Low self production, purchase in local shops
Segment Characteristics	• Large base. • Requires campaign to further develop awareness	• Large base • Requires marketing efforts to communicate quality	• Smaller base • Requires marketing efforts to communicate quality	• Customers will more likely switch to more improved stoves

Recommendations – Demand – Market Issue Tree

A market based stove mechanisms for improved clay based stoves appears to be feasible

How do the different consumer needs influence cookstove program design?	Is there a consumer demand for clean cookstove?	Yes	Demand exists for most segments, especially for middle and lower income brackets, in rural and peri-urban areas. An exception can be identified in a part of the lower income wood users that will have less incentives to switch from current wood cooking practices, as well as higher income groups that will more likely switch to cleaner fuels (electricity and LPGs)
	Is there a high barrier to switch?	No	Clay based Stoves: barriers to improved, clay based stoves (A1, Charcoal) do not appear high. Barriers for this models include lack of standardization, and market penetration in rural areas through mobile sellers for most segments. The exception are the very lower part of rural low income level groups, who still benefit from large availability of wood.
		Yes	Electric Stoves: Barriers are high in rural areas, as the electrification levels are still very low. LPG: the current lack of production of LPGs in the country acts as a high barrier at the moment.
	Is there a high willingness to pay?	Yes	For most stoves, respondents who are interested are willing to pay a price in the range of the market prices of these stoves. Up to 5,000 for most stoves, including A1, mud stoves, charcoal stove and iron stoves, and up 30,000 and 50,000 MMK respectively for Electric and LPG stoves.
	Does the cooking requirement varies across segment?	No	Cooking uses appear to be quite standardized across the country, even if these needs to be validated with further research on households' cooking cycles.
	Is there a gender role difference in the household?	Yes	Women are the main cooks, users and decision makers on the stove model (within the households' economic ability to afford them)

Recommendations – Demand – Market Tree Results

A market based stove mechanisms for improved clay based stoves appears to be feasible

How do the different consumer needs influence cookstove program design?	Is there a consumer demand for clean cookstove?	Yes	Indicates that a cookstove program can be successful, and that it will have to focus on resolving issues connected to the supply and availability of stove models. In the short term, on the most favorable segments (segments 2 and 3), while creating awareness campaigns on the less favorable target segments (segment 1).
	Is there a high barrier to switch?	No	For the most favorable segments (#2 and #3), the barriers can be overcome by increasing market demand and availability of improved cookstoves. For the less favorable segment (#1), there will be need for market awareness campaigns. Given the high % of electrical stove users, the low reliability of the electricity supply, and the newly decreased LPG prices, there might be space for activities in the area to push users toward this fuel.
		Yes	
	Is there a high willingness to pay?	Yes	Indicates that a market based mechanism is possible, as the main need do expand upon is the quality and availability of the supply side.
	Does the cooking requirement varies across segment?	No	Indicates that a low number of model designs can be sufficient. This should be connected with the most available and known ones.
	Is there a gender role difference in the household?	Yes	Indicates that women are the target audience and final users of the product, to be targeted through awareness campaigns

Recommendations – Demand – Marketing Channels

Television ads are more accessible in urban environments, while rural customers can be reached by radio or through partnership with existing organizations

Channels	Efficacy in Urban Environments	Efficacy in Rural Environments	Description
TV			Can be used especially to target urban environments. Messaging needs to be quick and relating to known purchase drivers.
Radio			Can be used especially to rural environments. Messaging needs to be quick and relating to known purchase drivers.
Newspapers			Can be used across different environments, with visual messaging on known purchase drivers.
Text Messages			Outreach potential is higher in urban areas, but the actual efficacy of the method would have to be tested.
Workshops			Workshops to conduct awareness campaigns can be carried out in rural areas through partnerships with existing NGOs, Social Enterprises, Organizations and Ministry Branches.

Note: Coding based on EMC analysis, extrapolated from av. time spent on different media and % of rural and urban population owing different devices

Recommendations – Demand – Marketing Contents

Households currently base their stove purchase decision on a selection of drivers that can be used in the marketing communication, while others can be developed in the future

Current Purchase Decision Drivers

Traditional marketing channels such as Television, Radio and Newspapers can be used to reach out to potential customers and to leverage stove purchase decision drivers, common across urban and rural environments:

- Price
- Durability of the stove
- Ease of use of the stove
- Safety of the stove

Develop Awareness On New Decision Drivers

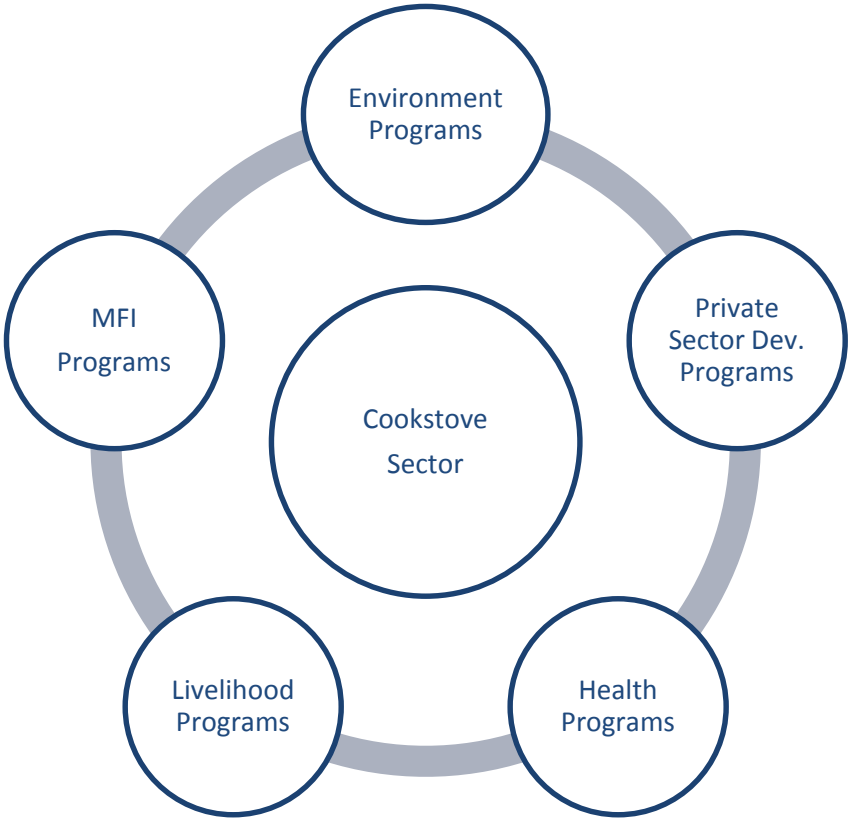
Households do not appear to be aware of the health and environmental impacts of cooking on health.

- One possible strategy is to partner with NGOs and organization with rural reach in Myanmar to develop awareness campaigns on the topic. However, the impacts of such an activity would be challenging to obtain and to monitor.

- One additional strategy is to partner with available government departments (Ministry of Health and Ministry of Forestry) to develop a shared strategy on stove models, and outreach to communities.

Recommendations – Partnerships

Strategic synergies can be obtained by pursuing partnerships with programs active in the country, in fields such as Environment, Health, Microfinance, Private Sector Development, and Livelihood Improvements



GERES can investigate partnerships with other programs running in Myanmar, to take advantage of mutual strategic synergies.

Environmental Programs: Potential partners include Green Lotus, iDE/Proximity Designs, IUCN, Myanmar Ceramics Society, MERN, MIID, Network Activities Group, Shalom (Nyein) Foundation, UNDP, WCS, WWF

Private Sector Development Programs: potential partners include Eden center for disabled children, ILO, International Trade Center, the KT Care Foundation, Mercy Corps, and World Vision.

Health Programs: Potential partnerships include the IOM, UNHCR, UNICEF, the WHO, World Vision

Livelihood Improvement Programs: potential partners include Action Aid Myanmar, Agape Community Service, Association Francois-Xavier Bagnoud, Bride Asia Japan, the Center for Vocational Training, CESVI, the Danish Church Aid, The Danish Refugee Council, Mercy Corps.

Microfinance Programs: Myanmar Agriculture Development Bank, PACT-UNDP, World Vision MFI Fund, the Union of Savings and Credit Association

Recommendations – Intervention Timeline

The evolution of the market over the next few years will require GERES to start planning for the longer term from the beginning

	Term: Short (1 Year)	Term: Medium (2 - 3 Years)	Term: Long (Above 3 Years)
Stove Models	In the short to medium term, GERES should focus on the simpler ICS models, like the A1 and the charcoal stoves, allowing for easier market penetration.		GERES should keep investigating the potential for more advanced and sophisticated stoves
Activity Areas	• Urban Areas: marketing and market development activities. • Rural Areas: pilot activities to engage rural communities and test the feasibility of rural households switching from three stone fires		Depending on the outcome of the testing, GERES might consider to expand marketing to rural areas.
Sustainability	EU funding will cover the first 4 years of the program, however, GERES should start exploring future sustainability options: • Carbon Financing shows good potential, but it will require GERES to start the baseline study and the application process within the first year of activities. • In the longer run, once producers are more committed to the program, GERES might consider charging a fee for producers involved in the program.		

Recommendations – Carbon Finance (1/3)

The existing situation in Myanmar provides opportunities for substantial emission reductions to be achieved. Myanmar, as an LDC, also has preferential standards for additionality and default values – as well as eligibility for carbon credit sales within the European Union-Emission Trading System

- Supportive Market Criteria -	- Potential Risks-
Existing Designated National Authority: Ministry of Forestry, Planning and Statistics Department	The carbon market is new within local and national government
Well-developed stove markets with high percentage of population using inefficient stoves and reliant on biomass fuels	Wide variation in calculations of the fraction of biomass considered non-renewable could impact overall emission reduction potential[1]
Multiple, competitive carbon financing organizations to implement the work	Potential difficulty in convincing rural populations to switch to efficient stoves where biomass fuels are plentiful
Advantages of Least Developed Country status for additionality and default values	Monitoring of decentralized projects raises the transaction costs of carbon finance, and makes stoves with small increases in efficiency unattractive in the long term

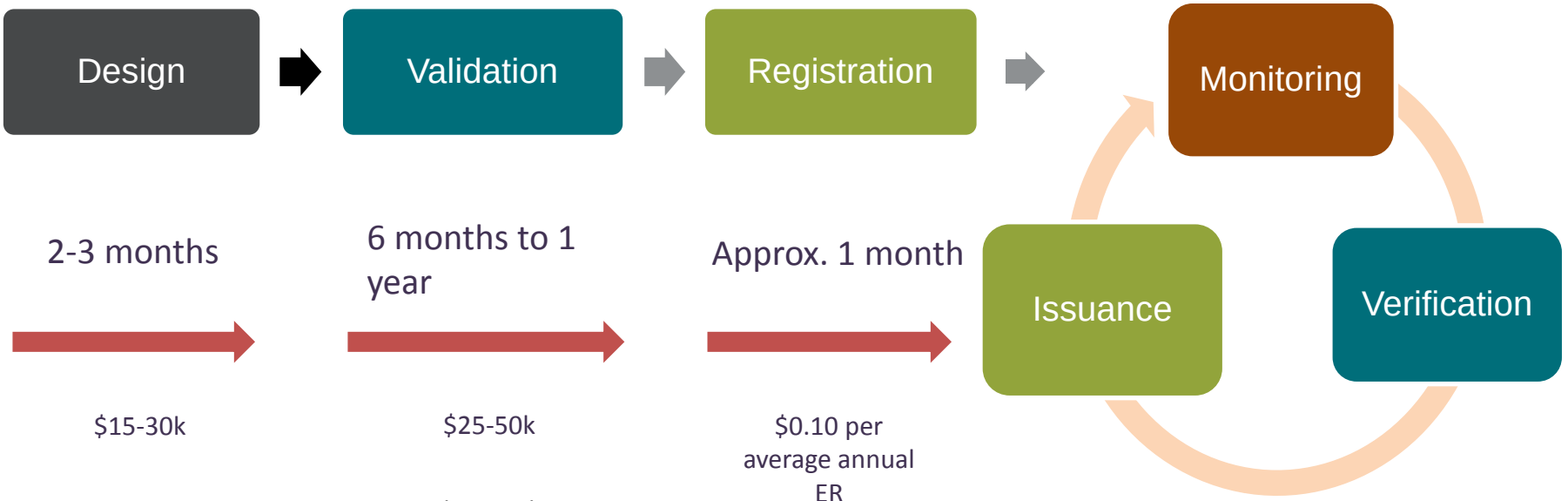
Opportunities

- Myanmar is an LDC, and therefore all standards are eligible. Currently there are no cookstove projects registered with the CDM, although one PoA is being considered
- This study establishes data requirements for a draft Project Design Document which could be submitted for registration of a carbon project
- High availability of resources and information on carbon markets and existing PoAs which could be joined (although it is not confirmed if this is possible based on publicly available PoA documentation)
- High efficiency stoves could create substantial emission reductions over baseline stoves
- Testing efficiencies of baseline stoves would provide better information on the potential for emission reductions

[1] Cookstove emission reductions are derived from the reduction of use of woodfuels that are considered non-renewable. The UNFCCC CDM calculates and applies the fraction of non-renewable biomass which applies to all wood harvested in Myanmar at 95% (See UNFCCC - CDM), while a recent global study (See Bailis 2015) using the WISDOM method and isolating woodfuels predict that Myanmar's fraction of non-renewable biomass for woodfuels between 2.9 and 9.8%, which would dramatically reduce potential for carbon finance.

Recommendations – Carbon Finance (2/3)

The carbon project cycle for issuance of carbon credits takes substantial time and investment, but the process should be initiated from the start to qualify.



- Project Design Document
- Stakeholder Consultations
- Emission Reduction Estimation
- Baseline Surveys and Tests

- Evaluation by External Auditor
- Revision of project documentation
- Submission to Standard

- Evaluation by Standard
- Revision of project documentation
- Acceptance of project by the Standard

- Monitoring of Project Implementation
- Evaluation by Auditor and corrections
- Acceptance by the Standard and issuance of credits

Recommendations – Carbon Finance (3/3)

Improved Cookstove programs have high potential for long term revenues from emission reductions. Transaction costs could be reduced through joining an existing PoA, and financing could be accessed through the Global Alliance for Clean Cookstove's Clean Cooking Loan Fund

Next Steps:

Explore

- Identify Stove Intervention
- Initial feasibility and recommendations for a carbon finance standard and methodology and estimated emission reductions can be assessed using the Global Alliance for Clean Cookstoves (GACC) Screening Tool online: http://carbonfinanceforcookstoves.org/tools/screening-tool/
- Assess the potential to join the existing PoA (Myanmar Cookstoves Campaign)
- Find sources of finance for carbon finance registration (GACC and Gold Standard have a Clean Cooking Loan Fund to finance these expenses)

Design

- Assess the potential to join the existing PoA (Myanmar Cookstoves Campaign)
- Select a carbon finance standard and methodology
- Find sources of finance for carbon finance registration (GACC and Gold Standard have a Clean Cooking Loan Fund to finance these expenses
- (Note: Gold Standard projects are currently achieving the highest average prices for cookstove projects; New Gold Standard rules require a project to submit Local Stakeholder Consultation documentation within 1 year of the start date to be eligible)

Test and Validate

- Conduct Kitchen Performance Testing for accurate household fuel use data
- Conduct Stakeholder Consultations on the project activity
- Submit draft documentation to Gold Standard
- Hire an auditor to initiate validation

ANNEX

Environment – Programs in Myanmar (1/4)

Myanmar has over 50 active programs addressing environmental issues being implemented by over 20 organizations. Below is a list of programs relevant to the cookstove sector. Potential partners include Green Lotus, iDE/Proximity Designs, IUCN, Myanmar Ceramics Society, MERN, MIID, Network Activities Group, Shalom (Nyein) Foundation, UNDP, WCS, WWF

Organization	State/Region	Project Title	Project Status	Open/Restricted
Danish Church Aid	Ayeyarwady, Kachin, Magway, Rakhine	Upbringing resource governance and empowerment for sustainable livelihood (URGEs)	Under Implementation	Open
Danish Church Aid	Kachin, Sagaing, Tanintharyi	FLEGT Myanmar: Laying foundations & mobilization civil society	Under Implementation	Open
Green Lotus	Countrywide	Myanmar Platform for Dialogue on Green Growth	Under Implementation	Open
Groupe Energies Renouvelables, Environnement et Solidarités	Countrywide	SCALE - Strengthening improved Cook-stove Access towards a better quality of Live and Environment	Under Implementation	Open
IDE/Proximity Designs	Ayeyarwady, Bago (West), Magway, Mandalay, Sagaing, Yangon	Energy	Under Implementation	Open
International Union for Conservation of Nature	Ayeyarwady, Shan (South)	Building Capacity and Strengthening Voice of Local NGOs for Improved Environmental Governance in Myanmar	Under Implementation	Open
International Union for Conservation of Nature	Bago (East), Mon,	Community Led Coastal Management in the Gulf of Mottama	Under Implementation	Open
International Union for Conservation of Nature	Chin		Under Implementation	Open
International Union for Conservation of Nature	Tanintharyi	Improving the information base and developing a functional network or coalition for addressing conservation and management of the Myeik Archipelago region	Under Implementation	Open
Istituto Oikos	Tanintharyi	Building Local Capacity for Conservation and Tourism Development in Myeik archipelago (COAST)	Under Implementation	Open
Mercy Corps	Mandalay	Myanmar Stoves Campaign of Slow Life in Myanmar	Under Implementation	Open
Myanmar Ceramics Society	Shan (South)	Inle Lake Conservation and Rehabilitation Project	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Environment – Programs in Myanmar (2/4)

Myanmar has over 50 active programs addressing environmental issues being implemented by over 20 organizations. Below is a list of programs relevant to the cookstove sector. Potential partners include Green Lotus, iDE/Proximity Designs, IUCN, Myanmar Ceramics Society, MERN, MIID, Network Activities Group, Shalom (Nyein) Foundation, UNDP, WCS, WWF

Organization	State/Region	Project Title	Project Status	Open/Restricted
Myanmar Environment Rehabilitation-conservation Network	Ayeyarwady, Shan (South)	Forest and Farm Facility	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Ayeyarwady, Tanintharyi	Building Comprehensive Chelonian Conservation Program	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Ayeyarwady	A Gap Analysis for the Conservation of Freshwater Biodiversity in the Upper Ayeyarwaddy Basin	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Ayeyarwady	Developing policies for sustainable tourism in the Upper Ayeyarwaddy River Corridor, Myanmar	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Chin	Conducting a KBA gap analysis to promote PA expansion on three little know corridors in Myanmar	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Kachin	Conservation of Vultures at two main sites at Myanmar	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Mandalay	Developing policies for sustainable tourism in the Upper Ayeyarwaddy River Corridor, Myanmar	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Mon	Building the Capacity of Local conservation groups for conservation of the Spoon-billed sandpiper in the Gulf of Mottama	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Rakhine	Strengthening of DRR capacity and Community -based management of mangrove forest ecosystem for adaptation to climate change in high- risk areas of Rakhine state, Myanmar	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Sagaing	Promoting the conservation of Eld's deer in Chatthin Wildlife Sanctuary through core zone management and community participation	Under Implementation	Open
Myanmar Environment Rehabilitation-conservation Network	Tanintharyi	Mainstreaming Karst Biodiversity Conservation into policies, plans and business practices in Myanmar	Under Implementation	Open
Myanmar Institute for Integrated Development	Bago (East), Bago (West), Mon	Healthy River	Under Implementation	Open
Myanmar Institute for Integrated Development	Shan (South)	Climate change Adaptation	Under Implementation	Open
Network Activities Group	Kaylin	Improve Access to Communal Lands and Forest Through Community Forestry Project	Completed	Open

Source: http://www.themimu.info/3w-maps-and-reports

Environment – Programs in Myanmar (3/4)

Myanmar has over 50 active programs addressing environmental issues being implemented by over 20 organizations. Below is a list of programs relevant to the cookstove sector. Potential partners include Green Lotus, iDE/Proximity Designs, IUCN, Myanmar Ceramics Society, MERN, MIID, Network Activities Group, Shalom (Nyein) Foundation, UNDP, WCS, WWF

Organization	State/Region	Project Title	Project Status	Open/Restricted
Network Activities Group	Kayin	Improving Grassroots Equity in Forest Management and Climate Change Project	Completed	Open
Network Activities Group	Kayin	Integrated Community Forestry Project	Completed	Open
Shalom (Nyein) Foundation	Kachin, Shan (North),	Transparent & Accountable Governance of Oil/Gas Resources in Myanmar	Under Implementation	Open
Social Vision Services	Ayeyarwady	Forest and Farm Programme Facility	Completed	Open
Social Vision Services	Rakhine	Capacity Building for Mangrove Reforestation Links with Livelihood towards Disaster Resilient Communities under the Climate Change	Completed	Open
SWISSAID	Kachin, Shan (East), Shan (North), Shan (South)		Under Implementation	Open
Triangle Generation Humanitarian	Chin	Improving living conditions of isolated rural populations of Chin State	Under Implementation	Open
United Nations Development Programme	Shan (South)	Inle Lake Conservation and Rehabilitation Project	Completed	Open
Wildlife Conservation Society	Kachin	Law Enforcement and Patrolling Activity in Hkakaborazi NP	Under Implementation	Open
Wildlife Conservation Society	Kachin	Biological Survey in Hkakaborazi NP	Under Implementation	Open
Wildlife Conservation Society	Kachin	Environmental Education and Awareness	Under Implementation	Open
Wildlife Conservation Society	Kachin	Conservation linked Community Development in Hkakaborarzi NP	Under Implementation	Open
Wildlife Conservation Society	Kachin	Conservation and Developing Activities in Hukaung Valley Wildlife Sanctuary	Under Implementation	Open
Wildlife Conservation Society	Kachin, Sagaing	Community Base Natural Resource Management Activity in Hukaung Valley Wildlife Sanctuary	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Environment – Programs in Myanmar (4/4)

Myanmar has over 50 active programs addressing environmental issues being implemented by over 20 organizations. Below is a list of programs relevant to the cookstove sector. Potential partners include Green Lotus, iDE/Proximity Designs, IUCN, Myanmar Ceramics Society, MERN, MIID, Network Activities Group, Shalom (Nyein) Foundation, UNDP, WCS, WWF

Organization	State/Region	Project Title	Project Status	Open/Restricted
Wildlife Conservation Society	Mandalay	Ayeyarwady Dolphin Conservation	Under Implementation	Open
Wildlife Conservation Society	Mandalay	In-situ, Ex-situ Conservation and Reintroduction of Burmese Roofed Turtle in Lawkananda WS	Under Implementation	Open
Wildlife Conservation Society	Rakhine	Radio Telemetry survey on history and distribution of Arakan forest turtle in Rakhine Yoma Elephant Range	Under Implementation	Open
Wildlife Conservation Society	Rakhine	Law Enforcement and Patrolling Activity	Under Implementation	Open
Wildlife Conservation Society	Sagaing	Turtle Conservation Activities	Under Implementation	Open
Wildlife Conservation Society	Sagaing	Law Enforcement and Patroling in Htamanthi WS	Under Implementation	Open
Wildlife Conservation Society	Sagaing	Biological Monitoring -1.Holock Gibbon Monitoring,2. Clouded leopard Survey	Under Implementation	Open
Wildlife Conservation Society	Sagaing	Camera Trapping Activity in Htamanthi Wildlife Sanctuary	Under Implementation	Open
Wildlife Conservation Society	Sagaing	Law Enforcement and Patroling Activity in AlaungdawKathapa NP	Under Implementation	Open
Wildlife Conservation Society	Shan (North)	Conservation, treatment and reintroduction of confiscated turtles and tortoise from Turtle Rescue Centre in Bampmwaygone GP.	Under Implementation	Open
Wildlife Conservation Society	Tanintharyi	Village Consultation and village use zoning Process in Myintmolatkhat Area.	Under Implementation	Open
Wildlife Conservation Society	Tanintharyi	Forest Management and Land use Mapping for Taninthayi Region	Under Implementation	Open
World Wide Fund for Nature	Countrywide	Promote green economy	Under Implementation	Open
World Wide Fund for Nature	Tanintharyi	Conservation	Planned	Open
World Wide Fund for Nature	Tanintharyi	From Conflict to Collaboration - biodiversity as a bridge	Under Implementation	Open
World Wide Fund for Nature	Tanintharyi	Strengthen protected area network	Under Implementation	Open
World Wide Fund for Nature	Tanintharyi	strengthen civil society in Dawei	Under Implementation	Open
World Wide Fund for Nature	Tanintharyi	Energy in Tanintharyi	Planned	Open

Source: http://www.themimu.info/3w-maps-and-reports

Private Sector Development – Programs in Myanmar (1/2)

Myanmar has over 20 programs addressing private sector development. Below is a list of the main programs which could be leveraged to address household cooking practices or cookstove producer development. Of particular interest are programs run by the ILO (Entrepreneurship Development and SME support in Myanmar).

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Community & Family Services International	Skills Development	Rakhine	Computer	Completed	Open
Community & Family Services International	Skills Development	Rakhine	Sewing Livelihood	Completed	Open
Community & Family Services International	Skills Development	Rakhine	English Class	Completed	Open
Eden Centre for Disabled children	Other private sector support	Chin, Sagaing, Yangon	"Open the World for a child with Disability"	Under Implementation	Open
Eden Centre for Disabled children	Skills Development	Yangon	"Towards an inclusive local development of disabled people organizations and self help groups in Myanmar" Project	Under Implementation	Open
International Labour Organization	Corporate Social Responsibility	Countrywide	Reinforcing Capacities of the Government and Social Partners to build a Garment Sector Industry Development Strategy	Under Implementation	Open
International Labour Organization	Industrial policy support	Countrywide	Responsible Industry Development in the Garment and Fisheries Sector	Under Implementation	Open
International Labour Organization	Other private sector support	Countrywide	Improving Labour Market Data Sources in Myanmar through support to the National Labour Force and School-to-Work Transition Survey	Under Implementation	Open
International Labour Organization	Other private sector support	Countrywide	Developing the capacity of Employer organizations in Myanmar to promote Decent Work principles and sustainable enterprise	Under Implementation	Open
International Labour Organization	Skills Development	Countrywide	Skills for Trade and Economic Diversification	Under Implementation	Open
International Labour Organization	Small and Medium Enterprises Development	Countrywide	Entrepreneurship Development and SME support in Myanmar	Under Implementation	Open
International Labour Organization	Small and Medium Enterprises Development	Countrywide	Supporting Tourism in Myanmar through Business Management Training	Under Implementation	Open
International Trade Centre	Other private sector support	Kayah	Inclusive Tourism Project in Kayah State	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Private Sector Development – Programs in Myanmar (2/2)

Myanmar has over 20 programs addressing private sector development. Below is a list of the main programs which could be leveraged to address household cooking practices or cookstove producer development. Of particular interest are programs run by the ILO (Entrepreneurship Development and SME support in Myanmar).

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
International Trade Centre	Small and Medium Enterprises Development	Countrywide	Myanmar Country Programme to contribute to inclusive and sustainable trade-led growth	Under Implementation	Open
International Trade Centre	Small and Medium Enterprises Development	Countrywide	Improving food safety and compliance with SPS measures to increase export revenues in the oilseeds value chain	Planned	Open
International Trade Centre	Trade and Regional Integration support	Countrywide	National Export Strategy Project	Completed	Open
International Trade Centre	Trade and Regional Integration support	Countrywide	Advisory support, training and coaching project to manage and coordinate the implementation of the Myanmar National Export Strategy	Under Implementation	Open
KT Care Foundation	Corporate Social Responsibility	Nay Pyi Taw	Preschool	Under Implementation	Open
KT Care Foundation	Other private sector support	Countrywide	Small Grants Project	Under Implementation	Open
KT Care Foundation	Other private sector support	Magway	Monastery Renovation Project	Under Implementation	Open
Mercy Corps	Public-Private partnerships	Shan (South)	Making Vegetable Markets Work (MVMW) for Small-holders in Southern Shan and Chin States	Under Implementation	Open
World Vision	Skills Development	Yangon	Capacity Building Project	Under Implementation	Open
World Wide Fund for Nature	Corporate Social Responsibility	Countrywide	Let's do it right in Myanmar – support strong corporate environmental responsibility in Myanmar	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (1/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Action Aid Myanmar	Income Generation, Social Recovery	Ayeyarwady, Chin, Magway, Mandalay, Sagaing	Community Led Development Programme (3)	Under Implementation	Open
Action Aid Myanmar	Income Generation	Magway	The Civil Society Led Community Based Livelihood Resources Development in Dry Zone	Under Implementation	Open
Action Aid Myanmar	Micro-Finance, Vocational Training	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Under Implementation	Open
Action Aid Myanmar	Micro-Finance	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Under Implementation	Open
Action Aid Myanmar	Micro-Finance	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Completed	Open
Action Aid Myanmar	Micro-Finance	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Completed	Open
Action Aid Myanmar	Micro-Finance	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Completed	Open
Action Aid Myanmar	Micro-Finance	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Completed	Open
Action Aid Myanmar	Social Recovery	Sagaing	Community Led Development Programme (5)	Under Implementation	Open
Action Aid Myanmar	Vocational Education and Training	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Under Implementation	Open
Action Aid Myanmar	Vocational Education and Training	Magway, Sagaing	Socio-Economic Development Network	Under Implementation	Open
Action Contre La Faim	Income Generation, Rehabilitation-Community Infrastructure & Facility, Vocational Education and Training	Rakhine	Poverty and Hunger Alleviation through Support, Empowerment and Increased Networking	Under Implementation	Open
Adventist Development & Relief Agency	Vocational Education and Training	Kayin	Vocational training to Support Livelihood	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (2/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Agape Community Service		Sagaing	Enhancing capacity for HIV/AIDS prevention and care	Under Implementation	Open
arche noVa-Initiative for People in Need	Cash For Work, Income Generation, Rehabilitation-Community Infrastructure & Facility	Ayeyarwady, Shan (North)	Community-based disaster preparedness and disaster management and improvement of food security and water supply in the Delta, Ayeyarwaddy Region	Planned	Open
Association François-Xavier Bagnoud	Income Generation	Ayeyarwady, Magway, Yangon,	Partnership approach for Continuum Care, Treatment, Support and Prevent HIV transmission	Under Implementation	Open
Association François-Xavier Bagnoud	Income Generation, Social Recovery, Vocational Education and Training	Rakhine	Strengthened national capacity and institutional mechanism for promoting gender equality and advancement of women	Completed	Open
Association François-Xavier Bagnoud	Vocational Education and Training	Magway, Yangon	Livelihood assistance to access education for sustainable socio economic development	Under Implementation	Open
Association of Medical Doctors of Asia	Micro-Finance	Mandalay	Livelihood Improvement Program	Under Implementation	Open
Better Life Organisation	Income Generation	Mandalay	Income Generation Development	Under Implementation	Open
BRAC Myanmar	Micro-Finance	Bago (East), Yangon	Micro-finance	Under Implementation	Open
Bridge Asia Japan	Rehabilitation-Community Infrastructure & Facility	Rakhine	Community shelter construction	Completed	Open
Bridge Asia Japan	Rehabilitation-Community Infrastructure & Facility	Rakhine	Community Services Development Centers construction	Completed	Open
Bridge Asia Japan	Vocational Education and Training	Kayin	Building Construction Course - 1st Batch	Under Implementation	Open
Bridge Asia Japan	Vocational Education and Training	Kayin	Building Construction Course - 2nd Batch	Planned	Open
Bridge Asia Japan	Vocational Education and Training	Kayin	Electrical Course - 1st Batch	Planned	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (3/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Center for Vocational Training	Vocational Education and Training	Yangon	CVT-Certified Instructors	Under Implementation	Open
Center for Vocational Training	Vocational Education and Training	Yangon	Post Graduated Program for Young Entrepreneurs	Under Implementation	Open
Center for Vocational Training	Vocational Education and Training	Yangon	Training Companies Instructors	Under Implementation	Open
CESVI Foundation	Income Generation, Vocational Education and Training	Shan (North)	Livelihood Security in Kyaukme and Nawnghkio Townships in Northern Shan State	Under Implementation	Open
CESVI Foundation	Micro-Finance	Magway	Shae Thot	Completed	Open
Consortium Dutch NGO's	Rehabilitation-Community Infrastructure & Facility	Kayin	ZOA Netherlands- Kayin	Under Implementation	Open
Danish Church Aid	Income Generation	Bago (East), Kayin	Christian Integrated Social Services (Phase III)	Under Implementation	Open
Danish Church Aid	Income Generation	Magway	Pilot Project for Building Resilient Livelihood in Min Hla Township	Under Implementation	Open
Danish Church Aid	Income Generation, Social Recovery	Sagaing, Tanintharyi	Dry Zone 5-village Food Security, Livelihood and Women's Empowerment Project	Completed	Open
Danish Church Aid	Micro-Finance	Shan (South)	Livelihoods Development and Community Empowerment Project,	Under Implementation	Open
Danish Church Aid	Rehabilitation-Community Infrastructure & Facility	Bago (East), Kayin, Mon	Livelihood Rehabilitation of Conflict Affected Community	Under Implementation	Open
Danish Refugee Council	Cash For Work	Rakhine	Emergency Shelter Assistance to Giri Affected Populations	Completed	Open
Danish Refugee Council	Income Generation	Kachin	Humanitarian need and Protection Programme	Completed	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (4/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Danish Refugee Council	Income Generation	Kachin	Integrated Emergency Response (IER) in Myanmar	Planned	Open
Danish Refugee Council	Income Generation	Rakhine	Myanmar Provision of emergency assistance to IDPs and conflict-affected population in Rakhine and Kachin States	Completed	Open
Danish Refugee Council	Income Generation	Rakhine	Female Headed Household Project	Completed	Open
Danish Refugee Council	Rehabilitation-Community Infrastructure & Facility	Kayah	All Children Have Right (ACHR)	Under Implementation	Open
Danish Refugee Council	Rehabilitation-Community Infrastructure & Facility	Kayah	Towards Durable Solutions in South-East Myanmar	Completed	Open
Danish Refugee Council	Rehabilitation-Community Infrastructure & Facility	Kayah	Mine Risk Education and Victim Assistant - Kayah and Kachin State, Myanmar	Under Implementation	Open
Danish Refugee Council	Rehabilitation-Community Infrastructure & Facility	Rakhine	Protection, Livelihoods and Community Safety Support to Conflict-Affected Communities in Southeast and Western Myanmar Provision of emergency assistance to IDPs and conflict-affected population in Rakhine and Kachin States	Completed	Open
Danish Refugee Council	Rehabilitation-Community Infrastructure & Facility	Rakhine	Quick Impact Project	Completed	Open
DEAR Myanmar	Rehabilitation-Community Infrastructure & Facility	Ayeyarwady, Kayin, Nay Pyi Taw,	Rural Road Improvement Project	Under Implementation	Open
Good Neighbors International	Income Generation, Social Recovery, Vocational Education and Training	Ayeyarwady, Magway, Yangon	Community Development Project	Under Implementation	Open
Groupe de Recherche et d'Echanges Technologiques	Micro-Finance	Chin	Micro-finance	Under Implementation	Open
Groupe de Recherche et d'Echanges Technologiques	Micro-Finance	Sagaing	Creation of a Microfinance Institution in the Dry Zone, Myanmar	Under Implementation	Open
Help Age International	Income Generation, Vocational Education and Training	Ayeyarwady, Mandalay, Yangon	Building Community Organization o Reduce Poverty and Vulnerability amongst Older People their Families in Myanmar	Completed	Open
Help Age International	Income Generation, Vocational Education and Training	Mandalay, Sagaing	Reducing Economic Vulnerability Through and Equitable/ Inclusive Approach to Livelihoods	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (5/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Kayin Baptist Convention	Social Recovery	Bago (East), Kayin	LEAD Project	Under Implementation	Open
Kayin Baptist Convention	Social Recovery	Bago (East), Kayin, Tanintharyi	CISS	Under Implementation	Open
Knowledge and Dedication for Nation Building	Rehabilitation-Community Infrastructure & Facility	Bago (East), Mon, Tanintharyi	Assistance to Conflict Affected People in Myanmar	Under Implementation	Open
Knowledge and Dedication for Nation Building	Rehabilitation-Community Infrastructure & Facility	Kayin, Mon, Tanintharyi	Southeast Infrastructure Rehabilitation Project (SIRP)	Under Implementation	Open
Lutheran World Federation Myanmar	Micro-Finance, Rehabilitation-Community Infrastructure & Facility, Social Recovery, Vocational Education and Training	Ayeyarwady, Chin, Yangon	Integrated Rural Development Project	Under Implementation	Open
Lutheran World Federation Myanmar	Micro-Finance, Rehabilitation-Community Infrastructure & Facility, Social Recovery, Vocational Education and Training	Ayeyarwady	Project for Improved Women Livelihood	Under Implementation	Open
Mercy Corps	Cash For Work	Ayeyarwady	Delta Livelihoods Recovery for Food Security and Community Resilience	Completed	Open
Mercy Corps	Cash For Work, Income Generation, Rehabilitation-Community Infrastructure & Facility	Chin, Mandalay, Rakhine	Building Community Resilience for Food Security	Completed	Open
Mercy Corps	Cash For Work, Income Generation	Rakhine	Joint Approaches to Collating Planning Information for Longer-term Program Design in 4 Townships in Rakhine Affected by Cyclone Giri	Completed	Open
Mercy Corps	Income Generation	Ayeyarwady	Civil Society and Market Networks for Pro-Poor Sustainable Environmental Development in the Ayeyarwady Delta	Completed	Open
Mercy Corps	Income Generation	Ayeyarwady	Business and Financial Literacy for Success Phase II	Completed	Open
Mercy Corps	Income Generation	Mandalay	Myanmar Stoves Compaign of Slow Life in Myanmar	Under Implementation	Open
Mercy Corps	Income Generation	Shan (South)	Myanmar Financial Inclusion Initiative	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (6/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Metta Development Foundation	Income Generation	Kachin	Community Initiated Project	Completed	Open
Metta Development Foundation	Income Generation	Kachin, Kayah, Sagaing	CDP	Completed	Open
Metta Development Foundation	Income Generation	Kachin, Sagaing, Shan (North)	CMLP	Completed	Open
Metta Development Foundation	Income Generation	Shan (North)	Women Leadership	Under Implementation	Open
Metta Development Foundation	Income Generation	Shan (North)	CCDP	Under Implementation	Open
Myanmar Ceramics Society	Income Generation, Rehabilitation-Community Infrastructure & Facility	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Under Implementation	Open
Myanmar Ceramics Society	Income Generation	Ayeyarwady,	Livelihood Development in Nargis-Affected areas	Completed	Open
Myanmar Ceramics Society	Income Generation, Vocational Education and Training	Sagaing, Shan (South), Yangon	Livelihood Assistance for pottery Enterprises in Non-Delta	Under Implementation	Open
Myanmar's Heart Development Organization	Micro-Finance	Nay Pyi Taw	Myanmar Access to Rural Credit through Institutional Strengthening -MARC Program	Under Implementation	Open
Nan Oo Teaching & National Youth Development Organization	Micro-Finance	Ayeyarwady		Completed	Open
Nan Oo Teaching & National Youth Development Organization	Vocational Education and Training	Ayeyarwady	Building Local Capacities for Livelihood Systems Approach in Ayeyarwaddy Delta	Under Implementation	Open
Network Activities Group	Rehabilitation-Community Infrastructure & Facility	Sagaing	Community Driven Development Project	Under Implementation	Open
New Generation Social Development Organisation	Rehabilitation-Community Infrastructure & Facility	Chin		Under Implementation	Open
Norwegian Refugee Council	Rehabilitation-Community Infrastructure & Facility	Kayin, Tanintharyi	SIRP	Planned	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (7/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
OXFAM GB	Income Generation	Kachin	Emergency WASH & EFSL response for Conflict-affected displaced people in government and non-government controlled areas of Kachin	Under Implementation	Open
OXFAM International		Ayeyarwady	Livelihood and Governance	Under Implementation	Open
Pact Global Microfinance Fund	Micro-Finance	Ayeyarwady, Magway, Mandalay, Sagaing, Shan (North), Shan (South), Yangon		Under Implementation	Open
PACT-Myanmar	Micro-Finance	Magway, Mandalay, Sagaing	Shae Thot	Completed	Open
PACT-Myanmar	Micro-Finance	Mandalay, Sagaing, Yangon	Strengthening Abilities for Women's Economic Empowerment	Under Implementation	Open
PACT-Myanmar	Micro-Finance	Sagaing	Sustainable Health Improvement And Empowerment program	Under Implementation	Open
Partners Myanmar	Rehabilitation-Community Infrastructure & Facility	Magway, Yangon	Enhance education capacity & community livelihood assets to food insecure people	Under Implementation	Open
Premiere Urgence-Aide Medicale Internationale	Income Generation	Yangon	improving the living conditions of people in the suburban area south of Yangon	Completed	Open
Progetto Continenti Myanmar	Micro-Finance	Magway	FAI	Under Implementation	Open
Ratana Metta Organization	Micro-Finance	Bago (East)	Myanmar Access to Rural Credit through Institutional Strengthening -MARC Program	Under Implementation	Open
Ratana Metta Organization	Social Recovery	Rakhine	Improved Livelihood and Social cohesion project in Mrauk U Township	Under Implementation	Open
Relief International	Rehabilitation-Community Infrastructure & Facility	Bago (East), Rakhine	National Community Driven Development Project (NCDD) for Htantabin Township	Under Implementation	Open
Relief International	Vocational Education and Training	Ayeyarwady, Yangon	Strengthening Women's Cooperatives in Myanmar	Under Implementation	Open
Rural Development Services	Rehabilitation-Community Infrastructure & Facility	Chin, Mandalay	Energy for all	Completed	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (8/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
Rural Development Services	Vocational Education and Training	Mon, Yangon	Sewing Machine Training fro Adults Females and Training for False Eyes Lash Making	Completed	Open
Save the Children in Myanmar	Cash For Work	Rakhine	Tat Lan Livelihoods Project	Completed	Open
Save the Children in Myanmar	Cash For Work	Rakhine	Tat Lan Livelihoods Project	Completed	Open
Save the Children in Myanmar	Micro-Finance	Bago (West), Kayin, Magway, Mon, Rakhine, Yangon	Micro-Finance	Under Implementation	Open
Social Development Initiative	Social Recovery, Vocational Education and Training	Shan (South)	Human Capital Development in Post Conflicted Area Project	Planned	Open
Social Vision Services	Micro-finance	Mandalay	Myanmar Access to Rural Credit through Institutional Strengthening -MARC Program	Under Implementation	Open
Solidarities International	Cash For Work; Income Generation	Chin	Integrated assistance to the vulnerable populations in two areas of Myanmar: Dry Zone and Chin State	Completed	Open
Solidarities International	Cash For Work; Income Generation	Rakhine	Building resilience in Rakhine state, Myanmar, through sensitive livelihoods support	Planned	Open
Solidarities International	Income Generation	Kachin	Emergency WASH assistance and Food Security and Livelihood support	Under implementation	Open
Sone Tu (Myanmar)	Income Generation	Rakhine		Under Implementation	Open
Swanyee Development Foundation	Micro-Finance	Ayeyarwady	Self Help Group & Job Creation	Under Implementation	Open
Swanyee Development Foundation	Micro-Finance	Ayeyarwady	Livelihood Enhancement and Food Security Initiatives by Using the Power of the Business Strategy	Planned	Open
Swiss Agency for Development and Cooperation	Rehabilitation-Community Infrastructure & Facility	Mon	Southeast Infrastructure Rehabilitation Project (SIRP)	Planned	Open
SWISSAID	Income Generation, Micro-Finance, Vocational Education and Training	Kachin, Shan (East), Shan (North), Shan (South)		Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (9/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
The Border Consortium (Karen Education Department)	Rehabilitation-Community Infrastructure & Facility	Kayin	Construction of School and Water Filters	Under Implementation	Open
The Border Consortium (Mon Relief and Development Committee)	Rehabilitation-Community Infrastructure & Facility	Kayin, Tanintharyi	Community Buildings	Under Implementation	Open
The Leprosy Mission Myanmar	Micro-Finance	Yangon	Integrated Rehabilitation and Improve Access	Under Implementation	Open
The Leprosy Mission Myanmar	Rehabilitation-Community Infrastructure & Facility	Mandalay	Integrated Rehabilitation and Improve Access	Under Implementation	Open
The Leprosy Mission Myanmar	Vocational Education and Training	Yangon	GPAF	Under Implementation	Open
The National Young Women's Christian Association of Myanmar	Micro-Finance	Yangon	Micro-finance	Under Implementation	Open
The National Young Women's Christian Association of Myanmar	Social Recovery	Kayin	livelihood and awareness raising	Under Implementation	Open
Trocaire	Income Generation	Mon, Tanintharyi	Gender Programme	Under Implementation	Open
Trocaire	Income Generation	Shan (North)	Peace & Humanitarian	Under Implementation	Open
Trocaire	Vocational Education and Training	Kachin	Protection/Equal Access to Resources	Under Implementation	Open
United Nations Development Programme	Cash for work, Income Generation, Social Recovery, Vocational Education and Training	Chin, Kachin, Kayah, Kayin, Mon, Rakhine, Shan (North), Shan (South),	Local Governance Programme	Under Implementation	Open
United Nations Educational, Scientific and Cultural Organization	Vocational Education and Training	Countrywide	Support to Technical and Vocational Education and Training in Myanmar	Under Implementation	Open
United Nations High Commissioner for Refugees	Income Generation	Kayah	Livelihoods Support to Conflict-Affected Communities	Under Implementation	Open
United Nations High Commissioner for Refugees	Income Generation	Mon	Provision of livelihood opportunities and improved community infrastructure for IDP and Refugee Returnees as well as host communities in Mon State	Under Implementation	Open
United Nations High Commissioner for Refugees	Rehabilitation-Community Infrastructure & Facility	Kayah	Livelihoods Support to Conflict-Affected Communities	Completed	Open

Source: http://www.themimu.info/3w-maps-and-reports

Livelihoods – Programs in Myanmar (10/10)

Over 140 recent programs focus on non-agricultural livelihood development programs centered on income generation, cash for work, community infrastructure, vocational education and training, and social recovery. Below is a selection of relevant programs to the cookstove sector.

Organization	Sub Sector	State/Region	Project Title	Project Status	Open/Restricted
United Nations High Commissioner for Refugees	Rehabilitation-Community Infrastructure & Facility	Rakhine	Footpath Bridge Construction Project	Under Implementation	Open
United Nations High Commissioner for Refugees	Rehabilitation-Community Infrastructure & Facility	Rakhine	Market Project	Completed	Open
United Nations High Commissioner for Refugees	Vocational Education and Training	Kayah	Livelihoods Support to Conflict-Affected Communities	Under Implementation	Open
United Nations High Commissioner for Refugees	Vocational Education and Training	Rakhine	Income Generation Activity	Under Implementation	Open
United Nations High Commissioner for Refugees	Vocational Education and Training	Rakhine	Technical workshop, infrastructure project in Rakhine Region	Planned	Open
United Nations High Commissioner for Refugees	Vocational Education and Training	Rakhine	Agricultural Equipment Training	Under Implementation	Open
Welthungerhilfe	Rehabilitation-Community Infrastructure & Facility	Shan (North)	Improving Rural Drinking Supply and Strengenthing of the Community Development Structure	Under Implementation	Open
welthungerhilfe	Rehabilitation-Community Infrastructure & Facility	Yangon	Livelihood Improvement	Completed	Open
World Food Programme	Cash For Work	Chin, Magway, Shan (North)	PRRO 200299	Under Implementation	Open
World Vision	Income Generation	Ayeyarwady	Pathein Livelihood Project	Under Implementation	Open
World Vision	Income Generation	Kayah	Loikaw Livelihood Project	Under Implementation	Open
World Vision	Income Generation, Social Recovery	Kayin	Livelihood Project	Under Implementation	Open
World Vision	Income Generation	Mon	Thanbyuzayat Area Development Programme	Under Implementation	Open
World Vision	Micro-Finance	Ayeyarwady, Kayin, Mandalay, Yangon	Micro-finance	Under Implementation	Open
World Vision	Social Recovery	Yangon	South Dagon Economic Development Project	Under Implementation	Open
World Vision	Social Recovery	Yangon	Improving Livelihoods through CBO project	Under Implementation	Open

Source: http://www.themimu.info/3w-maps-and-reports

WASH Programs in Myanmar

State/ Region	State/ Region Pcode	Assessment	Construction & Rehabilitation -Sanitation Facility	Construction & Rehabilitation -Water Facility	Environmental Sanitation	Hygiene Promotion	Safe Water Supply
Ayeyarwady	MMR017		GNI WC	GNI WC	WC	GNI WC	GNI SMDO
Bago (East)	MMR007		TBC (BPHWT)	Not Specified Org			Not Specified Org
Bago (West)	MMR008		MRCS	MRCS		MRCS	
Chin	MMR004		LWF	LWF MRCS	LWF	LWF MRCS	CAD
Kachin	MMR001	ACTED	ACTED CESVI OXFAM-GB (KBC (Kachin)) OXFAM-GB (Metta) OXFAM-GB (Shalom) Solidarites Solidarites (KBC (Kachin))	ACTED		ADRA CESVI Not Specified Org OXFAM-GB (KBC (Kachin)) OXFAM-GB (Metta) OXFAM-GB (Shalom)	CESVI OXFAM-GB (KBC (Kachin)) OXFAM-GB (Metta) OXFAM-GB (Shalom)
Kayah	MMR002		ACF (KMSS, KHB, KPBA, KBC (Kayah)) IRC	ACF (KMSS, KHB, KPBA, KBC (Kayah))		PACT (KMSS)	
Kayin	MMR003	SVS	Malteser SVS TBC (BPHWT)	Malteser Not Specified Org PWJ SVS UNHCR (BAJ)	SVS	Malteser SVS UNICEF (CDA)	CWS HAI Not Specified Org
Magway	MMR009		GNI MRCS PARTNERS Solidarites	GNI MRCS		GNI MRCS PACT (TA) Solidarites SVS	GNI Solidarites
Mandalay	MMR010			HAI (YMCA) MRCS	IFRC (MRCS)	IFRC (MRCS) MRCS PCM	IFRC (MRCS)
Mon	MMR011		TBC (BPHWT) WC	Not Specified Org UNHCR (BAJ) WC	AFXB	WC	Not Specified Org WC
Rakhine	MMR012	CARE	ACF CARE CDN DRC OXFAM RI Solidarites	ABCD ACF CARE CDN DRC IRC OXFAM OXFAM (BLO) Solidarites	Solidarites	ACF CARE CDN DRC IRC OXFAM RI SCI Solidarites	ACF CARE CDN DRC IRC Solidarites UNICEF (DoH)
Sagaing	MMR005		Solidarites	CAD HAI (NAG) MRCS		MRCS Solidarites SVS	MCS Solidarites
Shan (North)	MMR015		WHH	AMDA	WC	Not Specified Org	CARE
Shan (South)	MMR014						MCS
Tanintharyi	MMR006		TBC (BPHWT)	Not Specified Org UNHCR		NRC UNHCR (PU-AMI) WV	Not Specified Org UNHCR (PU-AMI)

Source: Myanmar Information Management Unit, 2014

Health Care Programs in Myanmar

Org. Type	Organizations and Implementing Partners	Countrywide	Ayeyarwady	Bago (East)	Bago (West)	Chin	Kachin	Kayah	Kayin	Magway	Mandalay	Mon	Naypyitaw	Rakhine	Sagaing	Shan (East)	Shan (North)	Shan (South)	Tanintharyi	Yangon
INGO	AFXB		■							■										■
	GNI		■						■		■									■
	HAI		■																	
	HAI (NAG)														■					
	HAI (NYWCA)								■											
	HAI (YMCA)										■									
	IRC						■							■			■			
	Malteser													■						
	MDM (MoH)		■																	
	MERCY													■						
	MERCY (DoHP)													■						
	MERLIN (MoH)		■			■									■		■			
	MERLIN (MoH, MCC)					■														
	MSF-H					■	■							■			■	■		
	RI													■						
	RI (MMA)													■						
	SCI														■					
	SCI (KWAG)								■											
	SCI (MHAA)								■											
	WC		■				■					■					■			
	WV											■				■	■		■	
NNGO	Amara		■																	■
	CAD					■														
	CHAD																■			
	KBC (Kayin)							■	■											
	KTCare		■											■						■
	MCS		■																	
	MHAA													■						
	MMA													■						
	MNMA														■					
	MRF													■						
	NotSpecifiedOrg						■													
Red Cross	ICRC (MRCS)						■		■		■			■						
	JRC (MRCS)									■		■	■			■			■	
	MRCS				■		■			■	■	■	■	■		■				■
UN	IOM (MoH)											■								
	UNHCR (Malteser)													■						
	UNHCR (MRCS)								■			■								
	UNICEF (IRC)													■						
	UNICEF (MHAA)													■						
	WHO						■							■			■			
	WHO (DoH)																			■

Source: Myanmar Information Management Unit, 2014

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