



## **Policy Brief**

# **The Value of Forest and Range Resources for Livelihoods, Poverty Reduction and Local Economic Development**

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**Prepared by the Centre for Applied Research**

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## 1. Introduction

Forest and Range Resources (FRRs) have long been a source of food, medicine and building materials in rural areas. However, their collection and value are insufficiently recognised in development and land use planning. In Botswana, FRRs such as grapple and morama are underexploited and their development potential is not realised. FRR can contribute more to poverty reduction and employment creation, in short to the rural and national economy.

This policy brief is based on a study that assessed the value of FRRs. The study covered 6 villages and 9 FRR. Table 1 shows the FRR's availability by village; while firewood and thatching grass is widely available, morama, grapple, morula and palm leaves are area specific.

**Table 1: Availability of FRRs by surveyed villages**

	Gweta	Lerala	Palla Road	Chobokwane	Tsetseng	Kumakwane
<b>Firewood</b>	X	X	X	X	X	X
<b>Thatching grass class A<sup>1</sup></b>	X	X	X			
<b>Thatching <sup>2</sup>grass class B</b>	X	X	X	X	X	X
<b>Phane</b>	X	X	X			
<b>Morula</b>	X	X	X			X
<b>Mmilo</b>			X			X
<b>Palm Leaves</b>	X					
<b>Grapple</b>				X	X	
<b>Wood products</b>	X	X	X	X	X	X
<b>Morama</b>				X	X	
<b>Total # of FRRs</b>	<b>7</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>5</b>

Source: CAR, 2017

The main messages of this policy brief are:

1. FRRs are valuable rural livelihood sources and important for poverty reduction
2. FRRs generate a significant economic value;
3. FRR collection need to be recognised as a land use and economic sub-sector;
4. The Community-Based Natural Resource Management Policy (CBNRM) programme must be used to develop the FRR sub-sector; and
5. Effective governance mechanism need to be established to sustainable FRR harvesting.

Each policy message is elaborated below.

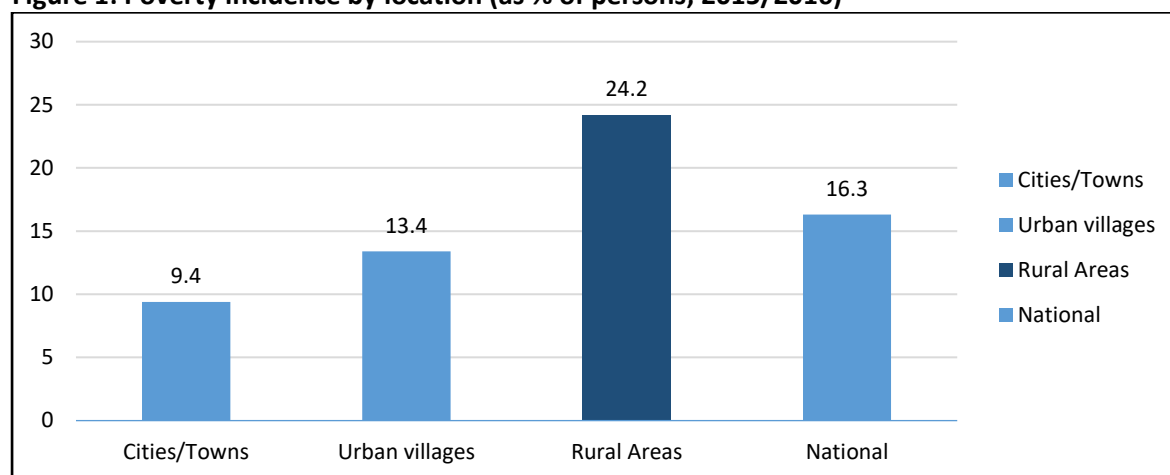
<sup>1</sup> Good quality grass species i.e. Mokamakama (*Cymbopogon plurinoides*) and Motshikiri (*Eragrostis pallens*)

<sup>2</sup> Poor quality grass i.e Tshikitshane (*Stipagrostis uniplumis*)

## FRRs are valuable rural livelihood sources and important for poverty reduction

Rural poverty is currently 24.2% and only reduced marginally since 2009/10 (SB, 2018). It is almost 50% higher than the national average (Figure 1). This is due to limited employment opportunities in rural areas and low agricultural productivity. Development of agricultural subsectors like the FRR sector can improve rural livelihoods and reduce poverty. This will benefit women, as they dominate the FRR sub-sector and are most affected by poverty and unemployment in Botswana (Statistics Botswana, 2013 and 2017).

**Figure 1: Poverty incidence by location (as % of persons; 2015/2016)**



Source: Statistics Botswana, 2018.

Most rural households rely on multiple sources for their livelihoods. Households were asked to rank the most important first, second and third livelihood sources. While arable agriculture and employment emerged as the most important first livelihood source, FRR collection is regarded as the most important second and third source of livelihood in most villages (Table 2). Arable farming or (informal) employment are the most important livelihood source. Importantly, FRRs generate cash and in-kind benefits.

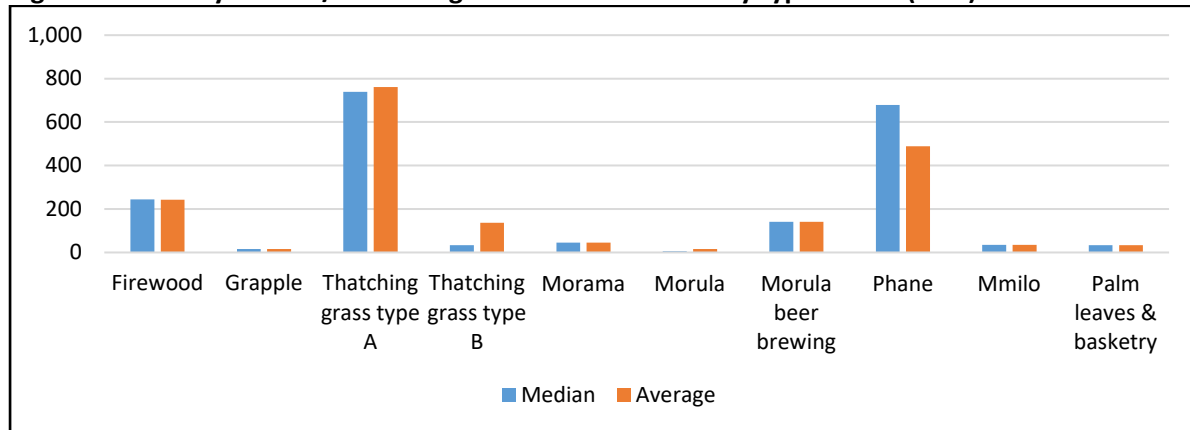
**Table 2: Ranked livelihood sources by village**

Village	Most important livelihood	Second most important livelihood	Third most important livelihood
<b>Zone 1 villages (Central District)</b>			
Gweta	Arable farming	FRR collection	FRR collection
Lerala	Arable farming	FRR collection	FRR collection
Palla Road	Informal employment	FRR collection	FRR collection
<b>Zone 2 villages (Ghanzi and Kweneng Districts)</b>			
Tsetseng	Informal employment	FRR collection	FRR collection
Chobokwane	Informal employment	FRR collection	FRR collection
Kumakwane	Formal employment	FRR collection	FRR collection

Source: CAR, 2017.

Figure 2 shows the median and average monthly income derived from FRR harvesting. Thatching grass class A, phane and firewood emerge as the high-income generating FRRs<sup>3</sup>. Morula beer brewing also generates reasonable income, while the other FRR generate little income. Thatching grass A and phane are mostly found in northern Botswana. The FRR poverty reduction potential can be enhanced by greater household participation and FRR processing.

**Figure 2: Monthly income/harvesting household from FRR by type of FRR (Pula)**



Source: CAR, 2017.

**FRRs generate significant economic value;  
Values differ significantly by resource**

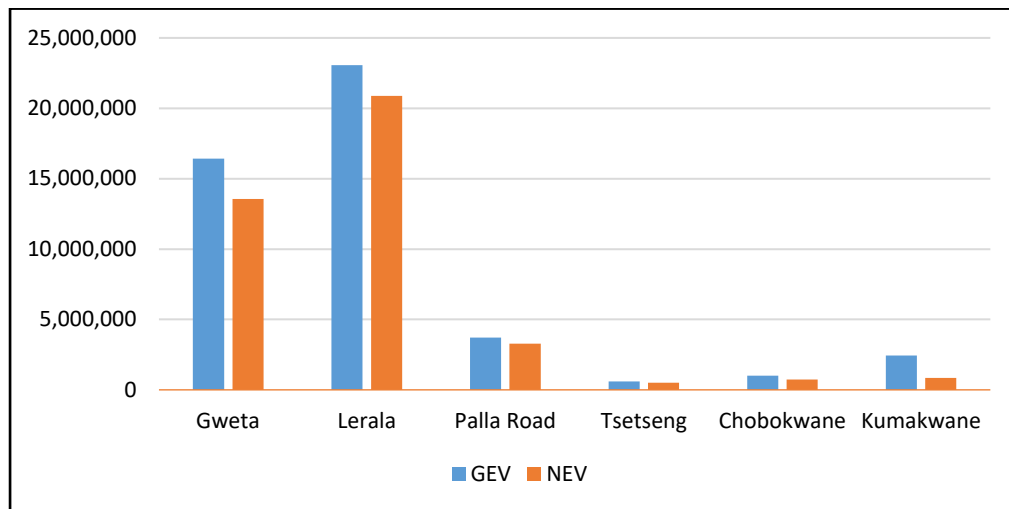
FRRs generate cash and in-kind income for the rural population. The average annual per capita income from FRR of P1 228.06<sup>4</sup> (CAR, 2017). Figure 3 shows the aggregate gross and net economic values (GEV and NEV) of the 9 FRRs by village. Zone 1 villages realised higher gross and net economic values than zone 2. Net and gross economic values of FRRs are lower in zone 2 because of:

- ✓ Small size of the villages;
- ✓ Low participation rate of households
- ✓ Lower availability of FRRs, especially the high value ones; and
- ✓ High labour intensity of available FRRs like grapple.

<sup>3</sup> As compared to the monthly disposable income of around P200/rural household (source: SB, 2013)

<sup>4</sup> The populations for the villages are taken from the 2011 census and adjusted by 10% to account for population increases. The per capita income is calculated from the aggregate value of FRRs in all villages and the aggregate population of all villages. It measures the estimated value of FRRs per person in the surveyed area.

**Figure 3: Gross and net economic value of FRRs by village (Pula)**

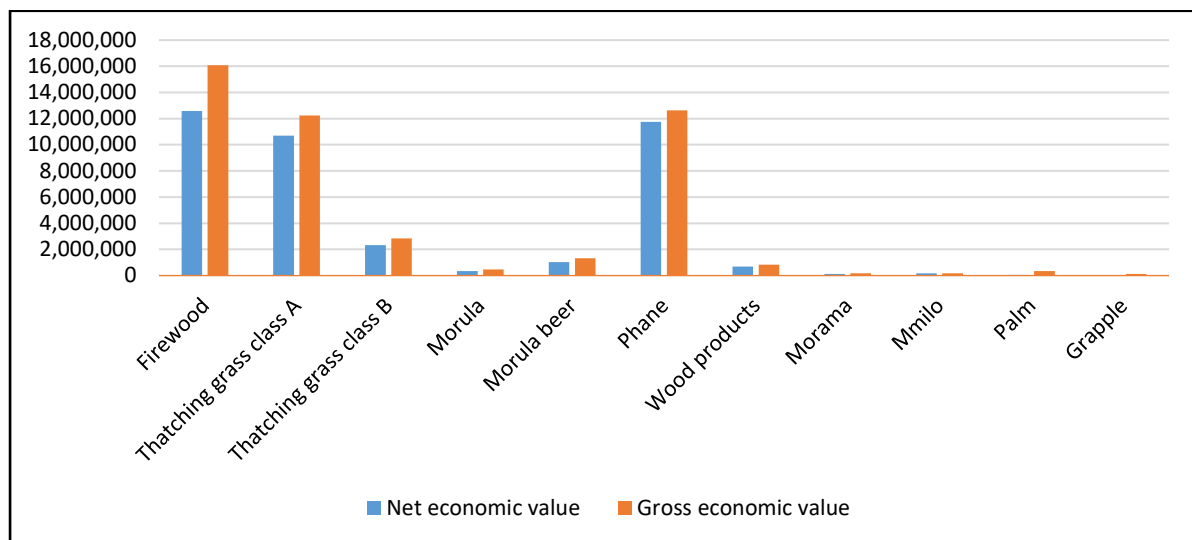


Source: CAR, 2017.

FRRs have different economic potential and they make different contributions to household incomes (Figure 4). Firewood, thatching grass class A and phane generate around 85% of the total economic value of the 9 FRRs for all villages together. Firewood, harvested in all 6 villages with a very high participation rate, is used as a cheaper alternative and/or complement to gas and electricity. The annual aggregate GEV of firewood collection in the 6 villages is P16.1 million. Thatching grass class A and phane are locally sold and provide valuable cash income. In 2016, phane accounted for P 11.7 million in NEV, with the bulk of the value (P11.5 million) realised in Lerala. Thatching grass class A was second with a NEV of P 10.7 million in zone 1.

The other FRR have economic values, mostly well below P 0.5 million values because they are collected for leisure (e.g. mmilo) or only occur in a few small villages (e.g. grapple). Morama is the most important resource after firewood for Chobokwane and Tsetseng with a GEV of P162 298. The FRR sub-sector has the potential to develop and realise higher values if more FRRs are harvested, more value is added and FRR and products are sold in better markets (not only locally with low prices).

**Figure 4: Total gross and net economic value by resource in all villages (in Pula)**



Source: CAR, 2017.

## The FRR sector needs to be recognised as a sub-sector of agriculture in land use and development planning

Botswana aims to diversify its economy away from the mineral sector, including diversification of agriculture, tourism and mining as well as value addition through value chain approaches. Until now, the FRR subsector has been largely overlooked. This sector needs to be recognised as an economic sub-sector and a form of land use. Opportunities to boost the subsector include:

- **Increased sustainable collection by greater participation and larger harvests.** There is a potential for increased sustainable collection of FRRs like grapple, morula and mmilo. A sustainability assessment for other FRRs is needed first before increased harvesting is promoted. Government, the private sector, academia, and Non-Governmental Organisations (NGOs) must assist the rural population through research, information dissemination and training in sustainable harvesting methods and FRR processing. Government needs to ensure that the FRR subsector is fully integrated into land use and development planning. Cultivation of FRR such as morama and grapple needs to be included into the ISPAADD support programme, especially in areas with limited suitability for conventional crops. Research centres can provide solutions for propagation and value additions.
- **Value addition activities.** Currently, value addition is very limited, and yet, where it occurs it has demonstrated its potential (e.g. selling of morula and phane in cups generates higher revenues than selling in bags; morula beer and jam generate extra value and income). Most FRRs can be processed into foods and drinks like beverages, spreads, sweets, tea and others.
- **Development of infrastructure.** Further development of the FRR sub sector requires better infrastructure. For example, storage facilities would stabilise the prices throughout the year; processing facilities will augment the economic value; marketing infrastructure will permit increased sales and growth of the sub sector. Private sector engagement (e.g. phane), government support and strengthened Community Trusts such as Kgetsí ya Tsie are needed to develop and exploit the required support infrastructure.
- **Accessing and developing local and international markets.** Opportunities exist for export-led growth and development of domestic markets. The country should exploit conventional and niche market opportunities in Southern African Development Community (SADC), Africa and globally (e.g. AGOA and the EU markets). Export businesses must be able to meet international standards, which may be a challenge for rural industries and community trusts without support from the private sector and/or government.

## Development of FRR activities through CBNRM

Communities can obtain FRR user rights under the CBNRM<sup>5</sup>. Three of the six villages had such rights for morula (Gweta and Lerála) and morama (Tsetseng). In Chobokwane, grapple was sold to a social enterprise that trained and assisted harvesters. However, the survey showed that CBNRM projects had little impact on FRR harvesters. In Lerála, none of the collectors of morula sold the produce to Kgetsí ya Tsie for processing. In Gweta and Tsetseng, the CBNRM projects are inactive.

Clearly, FRR activities of CBNRM projects require more support to make them successful. FRR have the potential to diversify the revenue base of CBOs and to compensate for lost hunting revenues following the suspension of hunting. Joint ventures between communities and enterprises can unlock the FRR CBNRM potential supported by academia such as BUAN and NGOs such as Thusano Lefatsheng.

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<sup>5</sup> However, Community Based Organisations (CBOs) derive most revenues from wildlife (CAR, 2016).

## Governance of FRR harvesting and trade

Most FRRs are harvested in communal areas with 'open access' and at risk of 'the tragedy of the commons'. Formally, collection and use of FRR is governed by the Agricultural Resources Conservation Act (ARCA). Imports and exports are governed by the Convention for International Trade in Endangered Species (CITES). ARCA provides a permit system for the harvesting, trade and export of FRR. The permit fees are very low. Permits are mostly required for commercial harvesting; small amounts for own livelihoods do not require a permit. Traders and exporters do not separate permits.

Compliance and monitoring is inadequate, offering opportunities for unsustainable practices and use. While the level of FRR harvests is generally modest and below the regeneration capacity, this may change in future with the development of the FRR subsector. Moreover, the survey showed that thatching grass is occasionally harvested by de-rooting the entire plant. Resources like grapple also needs to be harvested carefully (without removing the main tuber) to ensure the survival of the plant.

There is need to strengthen governance of the FRR sub-sector through:

- a. Building of a data base on harvesting, trade and exports of FRRs, that require licenses. FRR statistics should be compiled. Just like wildlife, water and tourism statistics;
- b. Compliance monitoring with the permit conditions. CBOs could use the MOMS tools to monitor the resource availability and conditions;
- c. Training of harvesters in sustainable harvesting practices and research into cultivation and processing options (e.g. through BUAN and NAFTEC); and
- d. Identification and extra protection of FRR with a commercial potential and FRR that are threatened (e.g. IUCN red list and CITES listing).

The sector is currently dominated by government and supported by NGOs and universities. It is important to interest the private sector in the FRR sector through joint ventures with communities or direct involvement in cultivation, processing and trade.

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