

Miombo Forest

Policy Analysis

RESEARCH REPORT



The Miombo Network with contributions from

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Introduction

Miombo woodlands support the livelihoods of millions of rural and urban dwellers through the provision of both wood and non-wood products across eastern and southern Africa (*Figure 1*). However, statistics show a continued decline in woodland cover in all the Miombo countries¹. Woodland loss and degradation is largely driven by three processes: land clearing for agriculture, selective timber harvesting and wood extraction for energy. In many cases these forces work in tandem, with wood extraction followed by use of the land for agriculture².

Sustainable management of the Miombo is necessary in order to meet the needs of the present generation without compromising the ability of future generations to meet their needs³. Sustainable woodland management depends among other aspects, upon the extent and quality of enabling policy, legal and institutional frameworks within which that particular woodland exists⁴.

The Miombo Network (http://miombonetwork.org/) is an alliance of scientists working together to respond to ecological and management issues of miombo woodlands in southern Africa. The network has identified a lack of clarity on regional policies related to the utilisation and sustainable management of these woodlands. Understanding of the forest policies and their implementation across the Miombo ecoregion would be a starting point towards the realisation of sustainable management of the Miombo woodlands. The overall aim of the study was to assess the forestry policies in the region in terms of rules for harvesting as well as policies promoting alternative wood sources.



Figure 1: Miombo woodland distribution in southern Africa

¹ FAO. 2007. State of the World's Forests 2007, Rome: Food and Agriculture Organization of the United Nations.

² Dewees, P.A., Campbell, B.M., Katerere, Y., Sitoe A., Cunningham, A.B., Angelsen. A., and Wunder, S. 2010. Managing the miombo woodlands of southern Africa: policies, incentives and options for the rural poor. Journal of Natural Resources. 2, 57–73

³ Geldenhuys, C.J. 2010. Managing forest complexity through application of disturbance-Recovery knowledge in development of silvicultural systems and ecological rehabilitation in natural forest systems in Africa. Journal of Forest Research. 1, 3-13.

⁴ Mayers, J., Bass S. and Macqueen, D. 2002. The pyramid: A diagnostic and planning tool for good forest governance. International Institute for Environmental and Development, London.

All National Forest Policies and Acts used in this research are available from the Miombo Network webpage: <u>http://miombonetwork.org/</u>

Methodology

Two approaches were deployed in collecting data, namely a questionnaire and a review of policy documents.

A questionnaire with four main sections was developed (Appendix 1):

- policies and regulations relating to the use of indigenous forests,
- harvesting of forest resources;
- stakeholder engagement in the management of indigenous forests; and
- programmes promoting sustainable use of wood fuel or alternative energy sources.

Through consultations with members of the Miombo network, and an independent online search on respective government departments responsible for managing woodlands and forests in the Miombo countries, a contact database for lead persons and potential respondents to the study was developed (<u>Appendix 2</u>). An introductory letter (<u>Appendix 3</u>) was then formulated and distributed to all the contacts in the database, who either participated in the study or provided a contact for the suitable respondent. The questionnaire was mainly administered telephonically or by Skype call. However, in cases where the two methods were not possible, it was sent via email to be completed by the appropriate respondent.

Thereafter, a review of policy documents and regulations relating to forestry in the Miombo countries was conducted to compliment information from the respondents. The policy documents that were reviewed for all the countries, except Malawi, were obtained from the interviewed respondents, whereas the ones for Malawi were obtained via the internet. An outline of the number of interviews/questionnaires, completed in each Miombo country, as well as the policy documents reviewed, are shown in **Table 1**.

| Country | Literature consulted | No of interviews/ questionnaires | Institutions consulted |
|------------|--|--|---|
| Mozambique | The Law of Forestry and Wildlife Regulation of the Forest and Wildlife Law Ministerial Decree No 8 2007 on the classification of forest wood product species used for producing timber | 2 | Edwardo Montana University National sustainable Development Fund |
| Zambia | National Forest Policy, 2009 National Forest Act No 4 2015 | 5 | Forest Department Nature Conservancy |
| Zimbabwe | Second Draft National Forest Policy, 2016; Forest Act Chapter 19:05 Communal Land Forest Act Chapter 19: 04 National Energy Policy | 1 | 1. Forestry Commission |
| Tanzania | Draft National Forest Policy, 2018; National Forest Policy, 1998 Forest Act No 14 of 2002 | 1 | 1. Ministry of Natural Resources and Tourism |
| Malawi | 1. National Forest Policy, 2016; | 1 | 1. Forest Department |

| Table | 1. Number | of interviews | conducted | institutions | consulted | and | documents | reviewed |
|-------|--------------|---------------|------------|--------------|------------|-----|-----------|-----------|
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| Country | Literature consulted | No of interviews/ questionnaires | Institutions consulted |
|---------|-------------------------------|--|---|
| | 2. Forest Act No 4 of 1997 | | |
| DRC | 1. Forest Code No 011 of 2002 | 4 | APRONAPAKAT Diocesan Office of Development Provincial Coordination of Environment and Sustainable Development |
| Angola | None | None | |

Main Findings

Presence of forest policies and regulations relating to indigenous forests

Respondents from all the countries surveyed indicated the existence of national forest policies and national forest law in their respective countries (*Table 2*). However, after document review, the study established that the policies in all the countries were not specific to indigenous forests, but included all other forest types (e.g. forest reserves, forest plantations, bamboos, etc.) as well as wildlife resources in the case of Mozambique⁵. Similarly, the study also established that national forest regulations in the surveyed countries did not only cover indigenous forests but also had provisions for plantations, as well as for trees in forest reserves and on private land.

| Country | Name of national policy / laws with provisions for indigenous forests |
|------------|---|
| Mozambique | Policy and Strategy for Development of Forestry and Wildlife 8/1997 Forestry and Wildlife Law 10/1999⁵ Regulation of the Forest and Wildlife Law⁶ |
| Zambia | Zambia National Forest Policy, 2009⁷ Zambia National Forest Act No 4 of 2015⁸ |
| Zimbabwe | Forest Act Chapter 19:05⁹ Communal Land Forest Act Chapter 19: 04¹⁰ |
| Tanzania | Draft Forest Policy, 2018; National Forest Policy, 1998¹¹ Forest Act No 14 of 2002¹² |

⁵https://forestlegality.org/sites/default/files/country_documents/The%20Law%20of%20Forestry%20and%20Wildlife.pdf

⁶https://forestlegality.org/sites/default/files/country_documents/Regulation%20of%20the%20Forest%20and%20Wildlife%20Law.p df

 ⁷http://www.fao.org/forestry/18861-01dab2ad4d624b8b0ffe5560e27823487.pdf
 ⁸http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Forest%20Act%202015.pdf
 ⁹http://www.parlzim.gov.zw/acts-list/forest-act-19-05
 ¹⁰ http://extwprlegs1.fao.org/docs/pdf/zim8819.pdf

¹¹ http://www.forestfund.go.tz/resources/view/tanzania-national-forest-policy-19981

| Malawi | Forest Policy, 2016¹³ Forest Act No 4 of 1997¹⁴ |
|--------|--|
| DRC | 1. Forest Code No 011 of 2002 ¹⁵ |

In **Mozambique**, the *Forestry and Wildlife Law No 10 of 1999* is the principal legal instrument for forest and wildlife management. It establishes that forests and wildlife are in the public domain and are owned by the State. The categories of forests highlighted in the Law include: Production Forests, which are administered by the national Directorate of Lands and Forests (DNTF) of the Ministry of Lands; and Forests in national Parks and Game Reserves, which are under the Ministry of Tourism National Directorate for Conservation Areas (DNAC). The Law also establishes the principle of participatory management of forest resources, with provisions for the creation of local government councils.

In **Tanzania**, the *Forest Act No 14 of 2002* is the main law in place for the management of forests. However, the *Village Land Act of 1999* and the *Local Government Act of 1982* also have provisions that empower village councils and local authorities to preserve, maintain, improve and regulate the use of forests and forest produce on their respective land¹⁶.

In Zambia, the Forest Act of 2015 categorises two main types of forests, namely local forests and national forests. The law provides for the establishment and declaration of joint forest management areas, botanical reserves, private forests and community forests. It also provides for the participation of local communities, local authorities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management. The Act stipulates that "ownership of all trees standing on, and all forest produce derived from customary areas, National Forests, Local Forests, State Land, botanical reserves and open areas are vested in the President, on behalf of the Republic, until lawfully transferred or assigned under the Act or any other written law".

In the **Democratic Republic of Congo** (DRC), the *Forest Code No 011 of 2002* is the main law regulating forest ownership and user rights. Three types of forests are recognised, namely: classified forests which are forests designated for environmental protection and have restrictions on their use and exploitation (these include nature reserves and national parks); protected forests which are subject to less stringent restrictions than classified forests, such as community forests and limited concessions; and permanent production forests which include forests that are already being exploited under long term concessions. According to the law, the exercise of user rights is always subordinate to the state, however, local people may use protected forests for subsistence needs and may clear the forest for crops on an area of not more than 2 hectares. Exploitation of forest products for commercial purposes should only be done under a licence.

¹⁴http://extwprlegs1.fao.org/docs/pdf/mlw10025.pdf ¹⁵http://www.leganet.cd/Legislation/Droit%20economique/Code%20Forestier/rdc-loiforets.pdf

¹³http://www.unpei.org/sites/default/files/dmdocuments/Malawi%20Government%20National%20Forest%20Policy%20-%20June%202016.pdf

¹⁶Lukumbuzyam K. and Sianga, C. 2017. Overview of the timber trade in East and Southern Africa: National Perspectives and Regional Trade Linkages. 53 pp. TRAFFIC and WWF. Cambridge, UK. TRAFFIC.

Zimbabwe has two main legislative documents that govern the use and management of trees and forests, namely: the *Forest Act (Chapter 19:05)* and the *Communal Lands Forest Produce Act (Chapter 19:04)*. The Forest Act, among others, provides for: *"the setting aside of State forests and the protection of private forests, trees and forest produce; the conservation of timber resources and the compulsory afforestation of private land; and the regulation and control in trade of forest produce"*.

The Communal Land Forest Produce Act was enacted "to regulate the exploitation of and to protect forest produce within Communal Land; to regulate and encourage the establishment of plantations within Communal Land and to provide for matters connected with or incidental to the foregoing". The Act clearly states that "the inhabitants of any Communal Land shall have the right within that Communal Land to exploit for their own use any forest produce". Furthermore, "no forest produce exploited in the exercise of such right shall be sold to anyone or supplied to anyone who is not an inhabitant of that Communal Land".

Rules for harvesting of forest resources

A review of the Forest Acts across the Miombo countries conducted to establish the rules for harvesting of forest resources revealed similarities across the region. In most of these countries a permit or licence is not required for use of forest produce on private land (*Table 3*) except for Mozambique where the law does not categorise private land, and Zimbabwe where it is a requirement to notify the Forestry Commission prior to removal of any indigenous wood on private land⁶. In regard to transportation of forest produce, however, a permit/licence is required in all the countries of the region. Harvesting of forest produce on communal land is generally permitted to local inhabitants for domestic use in all the countries, whereas harvesting by non-members of the community, and/or for commercial purposes is prohibited unless with a licence or permit.

| Country | Forest produce on private land | Forest produce on communal, public or open spaces | Forest produce in forest reserves, state land and protected forest |
|------------|---|--|--|
| Zimbabwe | Notice should be submitted to Forestry Commission and permit should be granted | Under community management agreement, inhabitants of communal land can exploit forest produce whereas outsiders require a permit/licence | Licence/ permit required |
| Zambia | No permit required for removal and use, however, transport of forest produce to another area is prohibited unless with permit from the Director of the Forest Department | No permit required for domestic consumption by local communities. Licence required for commercial use | Licence/permit required |
| Malawi | No permit required for removal and use, however, transport of forest produce to another area is prohibited unless with permit from the Director of the Forest Department | No permit required by village inhabitants for domestic use. Permit and licence is required for outsiders and for commercial purposes | Licence/permit required |
| Mozambique | Law does not categorise private land | No permit required for domestic consumption by local communities. Licence required for commercial use | Licence/permit required |
| Tanzania | No permit required for removal and use, however, transport of | Members of village councils in village land forest reserves have | Licence/ permit required |

Table 3: Rules for harvesting of forest produce on different land types

| Country | Forest produce on private land | Forest produce on communal, public or open spaces | Forest produce in forest reserves, state land and protected forest |
|---------|---|--|--|
| | forest produce to another area is prohibited unless with permit | the right to use forest produce governed by local bylaws, rules and agreements | |

Licences and permits

Various types of harvesting licences and permits exist in the countries surveyed. These include licences to harvest forest produce on public land (communal land), state land (forest reserves and protected forests) and private land.

In **Tanzania**, a harvesting permit issued by the District Forest Officer (DFO), is required after screening in a District Harvesting Committee meeting, and harvesting must be done under the supervision from the DFO. A transit pass is also required for transportation of hammer marked logs. In practice, domestic harvesting and use of wood for subsistence utilisation are exempt from the terms and fees associated with forest regulations¹⁶.

Two types of timber harvesting licences exist in the **DRC**, namely: simple felling permits for smallscale logging and large scale industrial logging permits^{15,16}. Permits are granted subject to limitations, which are imposed by the types of species and the area to be harvested. An inventory must be done before applying for a logging permit and permit holders must submit quarterly reports of volumes felled¹⁷.

In Zambia, similar to the DRC, two types of licences may be issued for exploitation of forest produce, namely: 1) a sawmill licence which authorises a sawmill owner to process timber using a sawmill or any other wood processing equipment for a period not exceeding five years; and 2) a concession licence which authorises a citizen to cut, fell or process timber from a specified forest area in a period not exceeding five years⁸. A forest officer must be present in the logging area and mark the trees for harvesting, after which both tree and stump must be hammer marked with a unique two or three digit hammer of a district. In addition, licence holders are required to report monthly on their logging operations to the District Forest Office. A harvesting licence, which specifies the physical location of the trees to be harvested, the tree species, the estimated volume, and also the revenue to be paid, is also required in Zambia⁸. These licences are required for timber harvesting in the country, both in forest reserves and in forested areas outside forest reserves. Under a forestry community management group, a community forestry agreement may confer rights to harvest timber or fuel wood for the group¹⁶. A conveyance licence is also required to transport forest produce from a forest to any other point.

In **Mozambique**, two regimes for exploitation of forests exist, namely: 1) a simple annual licence for a maximum of 500 m³, exclusively for Mozambicans, who can demonstrate that they have the necessary equipment, that the area they propose to harvest has timber and that they have the approval of the local community; and 2) concessions, for up to 50 years, which require an inventory, approved management plan and local community approval¹⁶. A licence is required for exploitation

¹⁷http://www.leganet.cd/Legislation/Droit%20economique/Code%20Forestier/rdc-loiforets.pdf

and processing of forest products in Mozambique, and a licence or permit is required for transportation of forestry and wildlife products.

In **Zimbabwe**, the Minister may enter into an agreement or issue a licence to any person authorizing that person to exploit any forest produce situated in any natural forest on public land; or in any plantation controlled by the State¹⁰. The Minister may also issue a permit to an inhabitant of Communal Land who resides in a protected forest area, authorizing that inhabitant, to exploit any major forest produce situated on public land, within the protected forest area concerned¹⁰.

In **Malawi**, unless under a licence, no person is allowed to cut, take, fell, destroy, uproot, collect and remove forest produce from a forest reserve, customary land, public land and protected forest areas¹⁴. However, a resident of any village is allowed to collect forest produce from customary land other than village forest areas for domestic use only.

Licensing conditions

In terms of requirements for issuance of licences, the similarities and differences in **Table 4** below were established from the respondents of the study.

| | Licence Requirement | Country | | | | | |
|-----|---|--------------|--------------|--------------|--------------|--------------|--------------|
| | | Zimbabwe | Zambia | Malawi | Mozambique | Tanzania | DRC |
| 1. | Consent from Local authority | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 2. | Delimitation and mapping of proposed area (forest zoning) | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 3. | Conduct forest inventories | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 4. | Registered company/business licence | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 5. | Valid tax papers | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 6. | Develop forest management plan | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 7. | Pay associated fees and royalties | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| 8. | Socioeconomic survey | | | | | | \checkmark |
| 9. | Approval by district harvesting committee | | | | | \checkmark | |
| 10. | Registered as forest product dealer | | | | | \checkmark | |
| 11. | Indication of foreseeable markets; | | | | \checkmark | | |
| 12. | Indication of the number of jobs to be created | | | | \checkmark | | |
| 13. | Record of community consultation | | | | | | |

Table 4: Similarities and differences in terms of licence issuance requirements

Charcoal licensing

The review of the national forest laws in all the Miombo countries established that charcoal licensing is only clearly stipulated in three of the countries in the region.

In **Malawi**, for example, "no person shall make or sell charcoal from indigenous timber or tree species unless with a licence" ¹⁴. Commercial processing of any wood or forest produce without a permit from the Director of the Forestry Department is also not allowed in Malawi¹⁴.

Similarly, in **Zambia**, a permit is required for charcoal production. "Unless with a permit or licence, manufacture, sale and removal of charcoal in and from State land or customary land is an offence"⁸.

In **Mozambique**, production of firewood and charcoal from precious wood of 1st, 2nd and 3rd class, as well as from protected trees or those with historical and cultural value is prohibited unless with a licence⁶.

Enforcement of licence conditions

Most respondents mentioned that licence conditions are supposed to be enforced through verification and monitoring of operations by licence holders. Other enforcement measures mentioned include forest patrols and through road check points. However, the study established that enforcement of licence conditions was a challenge in most countries mainly due to insufficient funding and personnel to monitor use of forest produce by licence holders.

According to one respondent from Zambia, the following challenges relating to licensing conditions and requirements are faced in the country:

- Illegal utilization of forest resources (exploitation without licences) due to lengthy licensing procedures and difficulties in obtaining licences
- Inadequate supervision of concession holders due to lack of transport and financial resources
- Non-compliance with the conditions attached to the licence due to inadequate supervision and lack of penalties imposed on those contravening forest licence regulations
- Lack of forest management plans

The above finding is in agreement with other researchers who indicate that despite the existence of policies, laws and international protocols, most forestry departments in the region do not routinely monitor forest operations due to inadequate finances and human resources ^{2, 16}.

Presence of harvesting rate/annual allowable cut (ACC)

The interviews conducted as well as the review of forest policies and legislation established that most countries in the region do not have a specified annual allowable cut (AAC) or harvesting rate except for Mozambique where the AAC for precious timbers as well as other timbers are provided in forest regulation and forest law^{5,6}. In the other countries, an allowable cut (AC), which is not necessarily annual, is given to licence owners as a condition to the licence. The AC is dependent on the area (size of forest to be harvested) and the species inventories. According to one respondent from DRC, the AC in the country depends on the type of forest in a particular area in relation to the cutting permit. For example, for a plot of 50 hectares of the Miombo forest, a maximum limit in volume for all species combined is provided. Similarly, in Tanzania, Zambia and Zimbabwe, the AC is specific to a forest to be harvested, and depends on the species inventory. In these countries, the type of species and volume to be harvested is indicated in the harvesting permit issued by the forest officer in charge of the district. In Mozambique, based on data from the National Directorate of Land and Forestry, which indicate that the volumes of timber exploited in the country range from 25% to 38% of AAC, it can be concluded that timber exploitation in the country generally complies with the AAC¹⁶.

In terms of enforcement of the AC, the study established that it is done through regular monitoring and verification of the area being harvested in all the countries. In Mozambique, the AAC is also enforced through the annual release of a legal document indicating species names and the allowable cut per province.

Respondents to the study also outlined the challenges faced in enforcing the allowable cut (*Table 5*). Inadequate funding is the main challenge that affects monitoring of areas being harvested. Inadequate staffing levels was also mentioned across all the countries except in Mozambique and Zimbabwe.

Table 5: Challenges in enforcing allowable cut

| Country | Challenges faced in enforcing Allowable cut |
|------------|--|
| Zimbabwe | Inadequate funds |
| Zambia | Inadequate funds for monitoring and verification; inventories not conducted due to inadequate personnel and lack of resources |
| Mozambique | Inadequate funds |
| Tanzania | Inadequate funds for monitoring and assessment of forest area; limited funds for preparation of management plans; and inadequate staffing levels |
| DRC | Inadequate funds to conduct field audits in a timely manner |

Ultimately, the lack of adequate funds and staff means that forestry departments cannot implement forest policies, have limited capacity for regulation where it is needed, and provide limited services to communities and other stakeholders. In addition, forest officers in the region are reported to have low salaries, almost no equipment, no current maps, no transport and tiny operational budgets, but yet, are supposed to patrol large geographical areas².

3.3 Community involvement in forest management

Community involvement is widely viewed as a means to achieve sustainable forest management^{18,19}. It is considered by some authors as an important turning point in forestry, resulting in the emergence of a new era^{18,20}.

It was evident from the review of forest policies and Acts, that community involvement in forest management is recognised in the countries of the region. Respondents from all the countries surveyed also indicated that communities are involved in forest management. Two respondents (one from Zimbabwe and one from Mozambique) mentioned that it was a requirement by law^{5,10} that communities are involved in forest management. One respondent from Zambia indicated that community involvement was only common in rural communities and not in urban areas of the country.

Most respondents also indicated that incentives are given to communities involved in forest management. The incentives given varied across the countries (*Table 6*) with some being in form of revenue (e.g. 20% of forest revenue collected given to local communities in Mozambique) and in form of local community user rights of a particular forest in Zambia and the DRC.

¹⁸ Nair, C. T. S and Tieguhong, J. (2004) 'African forests and forestry: An overview', Report prepared for the project: Lessons Learnt on Sustainable Forest Management in Africa, FAO and CIFOR, Bogor.

¹⁹ Barrow, E., and Rietbergen, S. 2002. Community involvement in forest management: an analysis of key opportunities and constraints to the responsible involvement of communities and rural people in forest management in Eastern and Southern Africa - Final technical report, ICUC-WCMC, Nairobi.

²⁰ Alden-Wily, L. and Mbaya, S. 2001. Land, People and Forests in Eastern and Southern Africa at the beginning of the 21st Century. The impact of land relations on the role of communities on forest future. IUCN-The World Conservation Union. Nairobi.

Table 6: Incentives for community involvement in forest management

| Country | Community Incentive |
|------------|---|
| Zimbabwe | User rights for local inhabitants; More than 90% of revenue from Communal Land Forests goes to local community through local authority |
| Zambia | Communities enjoy user rights such as collection of herbs, honey, timber, fuel wood, etc; Technical advice is given to communities; and material and financial support may also be given |
| Mozambique | 20% of tax revenue from exploitation of forest resources must be given to the local community |
| Tanzania | All revenue accrued from gazetted village forest reserves belong to the respective village |
| DRC | Allocation of forest concessions to local communities; continuous awareness on forest resources and management; Community sensitization on how local communities can obtain local community concessions |

One important response noted from Zambia was that community involvement was a challenge and was not being implemented in most areas of the country reason being that the incentives proposed to be given to local people were too low and were therefore discouraging to community members. Another respondent indicated that:

"In Zambia, joint forest management groups in previous forest Act failed reason being that local communities were not getting incentives as prescribed in the law".

Similarly, reports from Zimbabwe indicate that even though provisions exist for communities to manage communal forest areas through community concessions, local communities are seldom involved, receive only limited benefits and have no control over the allocation or management of these concessions²¹.

Unfortunately, weak incentives for community involvement in forest management trigger rural populations to opt for other activities such as small-scale agriculture, charcoal production and use of fire to clear lands for agriculture¹⁶ which in most cases lead to deforestation.

3.4 Private Sector Involvement in Forest Management

The Forest Acts reviewed for most countries in the region (Zimbabwe, Zambia, Malawi, and Tanzania) had provisions for involvement of the private sector companies in forest management. For example, In Zambia, Tanzania and Malawi, private companies can apply and enter into agreements with the government department to manage a forest reserve or any other forest type. However, interviews conducted with officials in these countries established that very few private companies were involved in forest management. This could either be because this provision is not known or well communicated to private companies, or because the benefits as well as incentives for involvement are too low. Research has demonstrated that in most cases, the private sector will make investments in the forest sector if only the expected rates of return are sufficiently attractive and if a favourable business climate exists²². Thus, a lack of understanding of the benefits and

²¹ Katerere, Y., Guveya, E., & Muir K. 1999. Community forest management: lessons from Zimbabwe

²² Chipeta, M.E. and Joshi, M. (Editors). 2001. Financing sustainable forest management. Report of the International Workshop of Experts, 22-25 January 2001, Oslo, Norway. CIFOR Publication, Indonesia

incentives associated with involvement in forest management activities is a potential constraint to private sector involvement. Some reports show that the lack of incentives to the private sector and local communities to sustainably manage and use natural forest resources inhibits their involvement in sustainable forest management^{23,24} whereas others indicate that increased private sector involvement is hampered by factors such as the absence of a favourable institutional and legal framework, land tenure uncertainties, and other constraints which hinder the development of free and fair markets^{16,18}.

Table 7 shows the activities that private sector companies are involved in according to the respondents of the study. Important to note, however, is that in certain instances, respondents from the same country gave contradicting statements in terms of private sector involvement in forest activities. In Zambia for instance, one respondent indicated the presence of a private company involved in marketing of forest products, whereas others indicated the non-existence of such a company. Similarly in Mozambique, whereas one respondent indicated the existence of a private company promoting the establishment of carbon forests and plantations of indigenous species, the other respondent indicated otherwise.

The incentives for involvement according to the reviewed Forest Acts are outlined in Table 8.

| Country | Establishment of carbon forests | Establishment of plantations of indigenous species | Management and use of natural forest resource | Marketing of forest products | Forest industries development |
|------------|---------------------------------------|---|--|------------------------------------|-------------------------------------|
| Zimbabwe | | | \checkmark | | \checkmark |
| Zambia | | | | \checkmark | \checkmark |
| Mozambique | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| Tanzania | | \checkmark | | \checkmark | \checkmark |
| DRC | \checkmark | \checkmark | \checkmark | | |

Table 7: Private sector involvement in forest related activities across countries

 Table 8: Incentives for private sector involvement

| Country | Incentives given |
|------------|--|
| Zambia | Offer of technical advice on management and conservation; |
| | Access to loans for development and management of forest |
| Mozambique | Access to forest concession systems; incentives given for those exporting wood |
| Tanzania | User rights of forest that they are involved in managing |
| DRC | Possibility of obtaining contract/licence to exploit forest resources |

²³ Lambooy, T. and Levashova, Y. 2012. Opportunities and challenges for private sector entrepreneurship and investment in biodiversity, ecosystem services and nature conservation, International Journal of Biodiversity Science, Ecosystem Services & Management, 7:4, 301-318

²⁴ World Bank. 2006. The Role of the Private Sector in Natural Resource Management: A Focus on Forests. International Finance Corporation. World Bank Group. Washington D.C

3.5 Measures promoting sustainable use of wood fuel/alternative energy sources

Through review of National Forest Policies, the study established that the dependence of both rural and urban communities on wood fuel in all the countries in the region is heightened. The Zambian forestry policy, for example, states that 90% of rural and urban households depend on wood fuel for their energy needs and identifies wood fuel as the main cause of forest depletion and degradation. The Forest Policy of Zimbabwe reveals that wood fuel consumption will continue to increase with increasing population due to unavailability of appropriate affordable energy sources. Similarly, the forest policy of Malawi emphasises the importance of promoting sustainable production and utilization of biomass fuels in the form of firewood and charcoal in the wake of increased demand of biomass as a source of energy especially in urban areas of Malawi. In the DRC, apart from slash and burn agriculture, fuel wood collection is identified as one major cause for deforestation especially in densely populated rural areas and peri-urban areas of the country¹⁶.

All the policies reviewed suggest increased future demand for wood for energy. This is because of the predicted increase in population growth which is likely to increase aggregate demand for wood energy, and urbanization which can lead to a switch from wood to charcoal (which requires more wood input for a given energy output)^{25,26}.

Governments in all the countries surveyed have thus come up with different strategies to curb the wood fuel crisis. **Table 9** shows the strategies mentioned by respondents as currently being implemented in the countries of the region whereas **Table 10** outlines the strategies extracted from the forest policies of the respective countries.

| Country | Measures |
|------------|---|
| Zimbabwe | Increased tree planting programmes; formulation of renewable energy policy; woodlot establishment under Tobacco Wood Energy Programme |
| Zambia | Improved cook stoves; biomass briquette |
| Mozambique | Improved stoves; use of biofuel e.g. bio ethanol for cooking; use of solar cells; training in improved techniques such as casamance kilns |
| Tanzania | Improved cooking stoves; REDD+ Credits; Improved charcoal kilns; Use of kerosene, briquettes and coal |
| DRC | Improved stoves; Make and use of briquettes |

Table 9: Measures promoting sustainable wood fuel utilisation as mentioned by respondents

The use of improved cook stoves was mentioned by most of respondents in the countries surveyed, as a strategy being implemented to promote sustainable use of wood fuel. However, research shows that use of improved stoves (energy efficient stoves) is mainly common in urban areas where wood fuel has to be purchased, whereas in rural areas with better access to wood fuel and other biomass, their impact has been marginal¹⁸.

²⁵ Zulu, L.C. 2010. The forbidden fuel: charcoal, urban woodfuel demand and supply dynamics, community forest management and woodfuel policy in Malawi. Energy Policy 38, 3717–3730.

²⁶ Mwampamba, T.H. 2007. Has the woodfuel crisis returned? Urban charcoal consumption in Tanzania and its implications to present and future forest availability. Energy Policy 35, 4221–4234.

In Zimbabwe, a Tobacco Wood Energy Programme aimed at encouraging tobacco farmers to establish woodlots of fast growing trees (such as Eucalyptus) for curing of tobacco instead of using indigenous Miombo firewood to cure tobacco was launched in 2005. The program was introduced mainly because approximately 20% of the 330,000 hectares of Miombo woodland in the country was being lost annually for tobacco curing.

In Tanzania, Zambia and the DRC, the use of biomass briquettes was mentioned as a more efficient way of utilising wood fuel. The method involves collecting sawdust, wood bark and off-cuts, as well as other wood waste from Sawmills and across the timber processing chain to produce a briquette which can be used as a source of energy, displacing non-renewable biomass (such as charcoal) in cook stoves. The use of the biomass briquette on the domestic market instead of charcoal is envisaged to drastically reduce rampant deforestation.

The use of improved kilns (casamance kilns) for charcoal production was mentioned by one respondent as a method being implemented in Mozambique. The casamance kiln is an earth mound kiln equipped with a chimney which can be made of oil drums. This chimney allows a better control of air flow²⁷. In addition, the hot flues do not escape completely but are partly redirected into the kiln, which enhances pyrolysis²⁸. Due to this reverse draft carbonization is faster than traditional kilns and more uniform giving a higher quality of charcoal and efficiency of up to 30 %. Comparative tests of the casamance kiln and traditional mound kilns confirm the advantages in terms of efficiency and shorter carbonization times due to the enhanced hot flue circulation²⁷. However, disadvantages of this kiln type are that it requires some capital investment for the chimney and it is more difficult to construct. Thus even though use of improved kilns such as casamance kilns could contribute significantly to production efficiency, their use by most people in the Miombo countries is limited due to lack of capital for kiln construction²⁹.

Use of other alternatives to wood fuel such as kerosene, gas, electricity, coal or solar cells were also mentioned by some respondents. However, research indicate that the relative prices of these alternatives and the income of the households are the main factors determining the use by the local people¹⁸, and that in most cases, access to these options by rural poor people is considered to be very limited¹⁸.

²⁷ https://energypedia.info/wiki/Charcoal_Production

²⁸ Pyrolisis is defined as the decomposition of materials brought about by high temperatures

²⁹ Malimbwi, R., Chidumayo, E., Zahabu, E., Kingazi, S., Misana, S., Luoga E., and Nduwamungu, J. 2010. "Woodfuel" In The dry forests and woodlands of Africa: managing for products and services (Chidumayo, E., and Gumbo, D. (eds)). Earthscan Publishers. London

| Zimbabwe | Zambia | Malawi | Tanzania |
|---|---|--|---|
| Promote fuel wood plantations for down- stream agricultural and industrial activities Promote the planting of woodlots as a source of domestic fuel wood and the use of other renewable and alternative energy sources to reduce deforestation. Support research into alternative fuel sources to reduce dependency on fuel wood and reduce deforestation levels. Strengthen the resilience of communities to climate change through afforestation programmes, smart agriculture, planting trees for fuel wood energy as well as economic activities that include wood and non-wood forest products. Support the Forestry Commission to increase the tree-planting rate from 10 million to 20 million trees per year by 2015 and to promote rural fencing using live trees. Improve collaboration with other ministries to enforce existing and proposed regulations against the destruction of natural forests, e.g. the requirement for tobacco growers and rural commercial Promote the use of alternative heating and cooking fuels such as coal, solar and biogas in rural households and institutions | Encouraging the establishment of private sector driven investment in wood fuel plantations in wood deficit locations that respond to the national sustainable development criteria. Improving the efficiency and technology of charcoal production and utilisation that have a minimal carbon footprint Encouraging the utilisation of forest plantation species in charcoal production. Encouraging, through dialogue with other stakeholders, the development of alternative sources of energy as a way of reducing greenhouse gas emissions and consumption of charcoal. Encouraging and establishing an incentive system for the expansion of small-scale entrepreneurs manufacturing energy saving cooking braziers and stoves (i.e. consuming limited quantities of charcoal). Promoting and incentivizing the utilization of wood waste to generate energy such as Bio-gassifiers and charcoal briquettes. Promoting a multi-sectoral approach to the establishment of forest resources for wood fuel. | Promote the growing of trees by all sections of the communities in order to achieve sustainable self-sufficiency of firewood, charcoal and forest products and services. Promoting green charcoal production and utilisation through improved and efficient charcoal kilns and clean cook stoves Promoting the development and use of alternative sources of energy for cooking for rural and urban areas. Promoting indigenous woodland regeneration and the establishment of woodlots and homestead planting specifically for firewood. Promote the implementation of the HIV Work Place Strategy for the forestry sector. | Private individuals will be encouraged to establish woodlots in their farms through research and extension as well as through financial incentives. Dissemination of information on appropriate technology for wood fuel production and use will be enhanced. Private investment in establishing wood fuel plantations will be promoted Use of alternative affordable sources of energy and energy saving technologies will be promoted through research and extension. Provision of alternative livelihood to charcoal production and sale in the rural areas will be promoted so as to minimise environment damage. |

Table 10: Measures promoting sustainable wood fuel utilisation extracted from forest policies

Conclusion

The study demonstrates similarities in terms of licensing requirements as well as rules for harvesting of forest resources. Moreover, it provides evidence that harvesting of forest resources is generally influenced by land ownership with more licences and permits required for use of forest produce on state land (forest reserves, protected forests) in most of the countries (except Zimbabwe) in comparison with the permits required to harvest and use forest produce on private land. Thus, the way in which the forest is owned, directly influences the status of the forest, its condition and the way in which it is managed¹⁹.

Forest policies across the region encourage involvement of local communities and the private sector in forest management. However, the actual involvement of both communities and private companies on the ground, as indicated by most respondents is low, probably due to little or no benefits and incentives to the private sector and local communities. Another potential reason is the issue of land tenure security. It is possible that forest tenure uncertainties also discourage community and private sector involvement in forest management activities. Secure forest ownership is viewed as the most powerful stake a community may hold in forest future and the pivot upon which their involvement in forest future may be most profoundly and securely based^{19,20}. It determines the parameters of the relationship of forest local communities with the forest, and it also provides a stable platform upon which the community may develop a regime of sustainable and sustained management ¹⁹. Thus, the low participation of local communities and the private sector in forest management activities may ultimately affect the attainment of sustainable forest management in the region.

The importance of implementing sustainable methods of utilising wood fuel as well as alternative wood fuel sources is realised across all the countries in the region as this is evidenced by the number of strategies proposed in the national forest policies that were reviewed. However, there is little record on the success of such strategies and whether or not there has been any impact in terms of reduction in wood fuel utilisation. This finding is in line with other scholars who indicate that the performance of different wood fuel demand reduction strategies across Africa has been patchy¹⁸. It is therefore important in future studies, to take stock of the situation, specifically addressing the actual implementation of different wood fuel demand reduction strategies on the ground and the impact of each individual strategies on wood fuel demand reduction in the Miombo countries. This is especially important because as population is expected to grow in the region, so is the demand for wood fuel. Increased demand for wood fuel such as charcoal for instance (which requires high wood input) can result in accelerating clearance of forests thereby threatening the sustainability of the resource for the benefit of the future generation.

Acknowledgments

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Annex 1: Draft Questionnaire- Miombo Forest Policy Analysis

Date

Section A: General information about the respondent and institution/department

a) Does your country/district have the following?

1. Indigenous Forest policy? Yes □ No □

If yes, please kindly attach policy or summarise it and let us know where we can find more details

2. Indigenous Forest Law? Yes
No
Kit Ves, when was it enacted?

If yes, please kindly attach document or summarise it and let us know where we can find more details-

b) What measures have been put in place to encourage formulation of forest legislation and regulations at district level?

c) Who is responsible for the enforcement of the forest law at national and local levels?

d) What is your institution's role in ensuring that forest legislation is enforced?

Section C: Sustainable harvesting of forest resources

a) Is your institution involved in the issuance of tree harvesting licences? Yes \square No \square

If yes, what are the different types of harvesting licences and what are the requirements for each type

| Type of licence | Requirements for issuance of licence | Who applies for this licence |
|-----------------|--------------------------------------|------------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

b) How does your institution ensure that licence conditions are implemented by the licencee?

c) Does your country have indigenous forest harvesting guidelines Yes \square ~ No \square

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If yes, please kindly attach copy of guidelines or summarise it and let us know where we can find more details.

d) Do the guidelines state the allowable harvesting rate/allowable cut? Yes \square \square No \square

If yes, please indicate here the allowable harvesting rate/allowable cut

c) Is the allowable harvesting rate/allowable cut for the whole country or is it specific to province or for districts?_____

d) Does the allowable harvesting rate/allowable cut depend on size, class, species or is it just the total amount harvested?

e) How is the allowable harvesting rate/allowable cut enforced in your country?____

f) What is your institution's role in ensuring that the allowable harvesting rate/allowable cut is enforced?

g) What challenges does your institution face in the enforcement of the allowable harvesting rate/allowable cut in your country?_____

Section D: Stakeholder engagement in the management of the indigenous forests

a) Are local communities involved in forest management? Yes \square \square No \square

b) What mechanisms have been put in place to encourage community participation in the management of forest resources in the miombo?

c) Do local communities receive any incentives for involvement in forest management? If yes, please state below the types of incentives given.

d) Are there any deliberate measures to encourage the involvement of women, youths, and people with special needs in the management of forest resources?

e) What measures have been put in place to encourage the involvement of the private sector in forest management and forest industry development?

f) Please state any private sector companies or civil society organisations that are currently involved in _____

i) Establishment of carbon forests_____

ii) Establishment of plantations of indigenous species_____

iii) Management and utilisation of natural forest resources_____

iv) Marketing of forest products____

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v) Forest industries development_____

g) What mechanisms have been put in place to ensure equitable cost and benefit sharing among stakeholders involved in the management of indigenous forest resources?

Section E: Enforcement of forest management plans

a) What are the basic requirements for approval of forest management plans?

b) What measures have been put in place to ensure that the management plans are implemented in accordance to law requirements?

Section F: Measures to promote sustainable use of wood fuel/ alternative energy sources

a) Is your country promoting any sustainable methods of utilizing wood fuel? Yes \Box No \Box

If yes, Please state here the methods being promoted

b) Does your country have any programs promoting use of fuel sources other than charcoal?

 $Yes \Box \quad No \Box$

If yes, please attach documents or state below names of the programmes and their objectives

| Programme (1) name: |
|------------------------------|
| Objective: |
| Year established |
| Source for more information: |
| Programme (2) name: |
| Objective: |
| Year established |
| Source for more information: |
| Programme (3) name: |
| Objective: |
| Year established |
| Source for more information: |

Section G: Other Contacts/Institutions/Departments responsible for forest management

Please state the names of other people from your institution or other institutions/government departments involved in forest management (i.e. forest policy/law implementation/forest research/forest programme implementation) in your country

| | Name of institution/department | Role | in | forest | Level of actions (central, | Contact person and contact |
|---|--------------------------------|---------|-----|--------|------------------------------|----------------------------|
| | | managem | ent | | provincial, district, local) | details (telephone/email) |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

Annex 2: Contact database for lead persons and potential respondents

| Country | Name | Organisation | Role | Email | Phone |
|------------|-----------------------------------|--|--------------------------------------|------------------------------|-----------------------------------|
| Mozambique | Carla Maria Pereira | | | carlaraposopereira@gmail.com | |
| Mazambique | Almeida Sitoe | University of Zimbabwe | Professor | almeidasitoe@gmail.com | |
| Mozambique | Macuacua Joaquim | | | joaquimmacuacua@gmail.com | |
| Mozambique | Carla Cuambe | FAO | | carlacuambe@fao.org | |
| Mozambique | Falcao Mario | | | mariopaulofalcao@hotmail.com | (258)828244130 |
| Mozambique | Darlindo Pechisso | | | d.pechisso@yahoo.com | (258)824547920/ (258)847731315 |
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| Malawi | Nyuma Mughogho | | | nyumamughogho@hotmail.com | |
| Malawi | Teddie Kamoto | | | teddiekamoto@yahoo.co.uk | |
| Tanzania | Alfan Rija | | | alrija10@gmail.com | |
| Tanzania | Tanzania Forest Service Agency | Tanzania Forest Service Agency | Tanzania Forest Service Agency | mpingo@tfs.go.tz | (255)(022)2864249 |
| Zimbabwe | Isla Grundy | University of Zimbabwe | Forest Commission | | (263)4332039 |
| Zimbabwe | Anderson Muchawona | | | anderson@frchigh.co.zw | |
| Zimbabwe | Stephen Zingwena | Forest Commission | Operations Manager | szingwena@gmail.com | (263)772551274 |
| Zambia | Mrs Chama | Forest Department | Rsearch Officer | | (260)977584053 |
| Zambia | Mrs Tembo | Forest Department | Forest Officer | | (260)966304855 |
| Zambia | Mrs Chongo | Forest Department | Forest officer | | (260)966 820737 |
| Zambia | Mr Gondwe | Department of Environment and Natural Resources | Director | | (260)978793309 |
| Zambia | Dr Siamudala | Nature Conservancy | | | (260)966701239 |
| Zambia | Mr Makumba | Forest Department | Director | | |
| DRC | Landing Mane | OSFAC | | Imane@osfac.net | |

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| DRC | Innocent Ombeni | FAO | Innocent.OmbeniCiribagula | (243)823198599 |
|-----|-----------------------|-----|---------------------------|----------------|
| DRC | Jean Muneng Ilunga | | jeanmuneng@gmail.com | |

Annex 3: Introductory Letter

Greetings,

The Miombo Network is conducting a research on policies relating to the utilisation and sustainable management of Miombo woodlands in Southern Africa. The overall aim of the research project is to assess the forestry policies in the region in terms of rules for harvesting as well as policies promoting alternative wood sources.

By way of this email, I am kindly requesting you to assist our researcher (Miss Mwale Chishaleshale) copied in above, by taking part in a telephone or Skype interview to help us complete a questionnaire on forest policy implementation in your country. The interview is designed to take not more than 20 minutes and the questionnaire has five main sections as follows:

- 1. General information about the respondent and institution/department
- 2. National/local policies and regulations relating to use of indigenous forests
- 3. Harvesting of forest resources
- 4. Stakeholder engagement in the management of the indigenous forests
- 5. Programmes promoting sustainable use of wood fuel/ alternative energy sources

The findings of this research project will be made available to the public through published articles and written policy briefs, but this information will not be linked to any individual.

Would you be willing to participate in this study? If so, please assist us with your contact number and kindly indicate the date and time that our researcher can get in touch with you.

Thanking you in anticipation,