STRATEGY

Enhancing Productivity and Sustainability in the Management of Non-Timber Forest Products of Yayu Coffee Forest Biosphere Reserve

November 2024
Addis Ababa
Ethiopia

Enhancing Productivity and Sustainability in the Management of Non-Timber Forest Products of Yayu Coffee Forest Biosphere Reserve

(*strategy*)

Organization for Social Science Research in Eastern and Southern Africa

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Acronyms and Abbreviations

AfDB	African Development Bank
AU	African Union
CCBA	Climate, Community and Biodiversity Alliance
BARC	Bedele Agricultural Research Center
CSO	Civil Service Organization
DeSIRA	Development Smart Innovation through Research in Agriculture
ECFF	Environment and Coffee Forest Forum
EWNRA	Ethio Wetlands and Natural Resources Association
EAS	Ethiopian Accreditation Service
ECTA	Ethiopian Coffee and Tea Authority
EEPA	Ethiopian Environment and Protection Authority
EFD	Ethiopian Forestry Development
EU	European Union
GOs	Governmental Organizations
HLR	Higher Learning Institutes
HRNS	Hanns R. Neumann Stiftung
ICP	International Coffee Partners GMBH
IDA	International Development Association
IES	Institute of Ethiopian Standards

JARC	Jimma Agricultural Research Center
JU	Jimma University
MaU	Mattu University
MFI	Microfinance Institutes
M&E	Monitoring and Evaluation
IPCC	Intergovernmental Panel on Climate Change
NABU	Nature And Biodiversity Conservation Union
NGOs	Non-Governmental Organization
NRM	Natural Resource Management
NTFPs	Non-Timber Forest Products
OBA	Oromia Bureau of Agriculture
OBF	Oromia Bureau of Finance
OCPA	Oromia Cooperative Promotion Agency
OEPA	Oromia Environmental Protection Authority
OLB	The Oromia Land Bureau
OFWE	Oromia Forest & Wildlife Enterprise
OSSREA	Organization for Social Science Research in Eastern & Southern Africa
PFM	Participatory Forest Management
PFMC	Participatory Forest Management Cooperatives
PHE	Population Health and Environment

PPP	Public Private Partnership
REDD +	Reduced Emissions from Deforestation and Forest Degradation plus
RI	Research Institutes
TARC	Tepi Agricultural Research Center
TK	Traditional Knowledge
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization
WoA	Woreda office of Agriculture
WoEPA	Woreda office of Environmental Protection Authority
WoF	Woreda office of Finance
WoL	Woreda office of Land
WB	World Bank
WBI	World Bank Institute
YCFBR	Yayu Coffee Forest Biosphere Reserve
ZoA	Zone office of Agriculture
ZoEPA	Zone office of Environmental Protection Authority
ZoF	Zone office of Finance
ZoL	Zone office of Land

1. Executive Summary

Ethiopia is highly diverse in context of geographic and climatic conditions that leads to its rich diverse ecosystems. These diverse ecosystems, from its highlands to lowlands, are home to various Non-Timber Forest Products (NTFPs), crucial for rural livelihoods. Among the diverse ecosystem, Yayu Coffee Forest Biosphere Reserve (YCFBR) is one of the country's last Afromontane forest areas. An important feature of YCFBR is its richness in valuable types of non-timber forest products such as the production of high-quality-specialty coffee varieties, honey, Korarima, and a lot of underutilized and undiscovered NTFPs. These NTFPs have been playing crucial role of safety nets for local communities who rely on the forest. The diverse NTFPs contribute to household income, food security, and household healthcare as well as, provision of multiple social and cultural values. However, the ways in which people interact with forests are varied and have a differential impact on the socio-ecological systems in which humans are an integral piece. Therefore, there is always a need of updating evidence-based approach to generate knowledge and to propose a more diverse portfolio of landscape restoration options that also improved the livelihood of the communities. Taking this into account, development research activity was initiated under the project name "Women, Coffee, and Climate", supported by the Spanish Cooperation (AECID) and the European Union (EU)-Development Smart Innovation through Research in Agriculture (DeSIRA) program.

The research findings of "Women, Coffee, and Climate" project has shown that, NTFPs potentials offered by YCFBR are undermined by growing threats. The most pressing drivers include population growth, which resulted in expansion of unsustainable small agriculture; as new settlement, unsustainable and illegal harvesting of forest resources for various reason. Furthermore, the large-scale demand for these products has put also great pressure on the species because of unsustainable harvesting practices, creating challenges for supporting organizations to implement and ensure that sustainable harvesting methods. In recognitions of the dangers posed by these trends, Organization for Social Science Research in Eastern & Southern Africa (OSSREA) has taken action to develop this strategy document as part of "Women, Coffee, and Climate", project. This Enhancing Productivity and Sustainability in the Management of Non-Timber Forest Products (EPSM-NTFPs) strategy was therefore developed as the main guiding

document for coordinating strategic development interventions on sustainable management of NTFPs in YCFBR for the short-, medium- and long-term plan. The strategy, among other things, aims at providing a basis for cooperation amongst diverse actors on matters related to sustainable management of NTFPs. Given that the intervention strongly relies on collaboration between many actors, we proposed Oromia Forest & Wildlife Enterprise (OFWE) as secretariat body that plays coordination role required to successfully implement the EPSM-NTFPs strategy.

The process to develop this strategy integrated two main sources of knowledge to ensure focus on common areas that matter at YCFBR level - primary sources (Socioeconomic & Ethnobotanical studies) and secondary sources (desk review). With regard to primary resource, in collaboration with OSSREA a study was carried out from 2022 to 2024 by team of experts from Ethiopian Forestry Development (EFD) sponsored by Development Smart Innovation through Research in Agriculture (DeSIRA). The strategy envisages integrating scientific research with traditional knowledge, promotes sustainable harvesting practices, and fosters economic opportunities for local communities. By addressing key areas such as gender equity, collective action, adaptive management, and market development, this strategy ultimately targets to improve livelihoods, promote environmental sustainability, and support the long-term conservation of valuable NTFPs.

Based on the above-mentioned aspects, the strategic vision for Enhancing Productivity and Sustainability in the Management of Non-Timber Forest Products is as follows:

To see YCFBR free from forest degradation by 2030 with significant rehabilitation of degraded parts through community participation, ensuring sustainable exploitation, management and promotion of NTFPs resources to improve the livelihoods of local communities.

Based on the vision, the following seven strategic goals are outlined:

Goal I: Awareness Creation, Motivation and Empowerment.

Goal II: Knowledge-Sharing and Capacity Building.

Goal III: Identify Research Priority Areas and Develop Comprehensive Proposal.

Goal IV: Integrate Traditional Knowledge into Natural Resource Management.

Goal V: Develop Sustainable Harvesting.

Goal VI: Promote Domestication and Commercialization.

Goal VII: Advocate for Supportive Policies and Regulatory Frameworks.

Priority targets are set out under each goal. For each target sequential action with timeframes, expected outcomes, responsibilities and indicators are outlined. This Strategy is a starting point on the journey towards achieving the vision, with the Action Plan in this document outlining some of the immediate steps needed to accelerate its delivery. By working together and drawing upon the commitment and expertise of Governmental Organizations (GOs), Nongovernmental Organizations (NGOs), development partners, business and many others, transformative change is within reach.

2. Introduction

Development is a function of natural or environmental resources, among other things. The potential values of natural resources associated to each attribute of the resources need to be explored, understood, conserved and planned for *sustainable* use. These natural resources provide diverse benefits such as food, water, fuel, fiber, and many other ecosystem services to society. Among other natural resources, forests have provided humankind with a wide range of crucial goods and services; while they are also primary raw materials used in household economies. Although, in the past the productive capacity of most forest ecosystems has focused mainly on timber and other wood products, forests provide a wide range of Non-Timber Forest Products with great value for many different groups of consumers. Thus, the recognition of the significance of utilizing or selling NTFPs as integral components of the livelihoods of both those residing within and outside the forests is increasing. Considering the technological development that involves natural resources, exploiting NTFPs for their better use, makes them an important source of raw material and a source of income that can be exploited in forest ecosystems. NTFPs cannot be measured by monetary estimations alone, as they have significant subsistence and sociocultural importance and are often integral of multifaceted, adaptive livelihood strategies.

Forests ecosystems have a high social significance in Ethiopia. Among the diverse forest ecosystem, Yayu Coffee Forest Biosphere Reserve (YCFBR) is one of the most treasured natural resources of the nation. Yayu forest is made up of a complex set of ecosystems generating a multitude of goods and services. It provides habitat for over 200 plant species, 100 bird species, 15 mammal species, and others. YCFBR was registered in 2010 as one of the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) sites for its significant role in the conservation of natural and cultural landscapes. Due to its national and international importance, part of YCFBR has been designated as a site for wild Arabica coffee (*Coffea arabica*). Apart from Coffee, other valuable NTFPs have also been an essential component of traditional livelihoods in the YCFBR and still contribute to the economic, social and cultural livelihoods of people living in and around the forest. The existence of natural resources in the form of NTFPs can directly reduce the exploitation of timber forest products which play essential roles in various socio-economic activities of the nation. YCFBR is a resource, that provide diverse a diverse range of ecosystem services, for which forests are well known. There is increasing evidence that traditional NTFPs extractive activities in the YCFBR, based mainly on coffee and honey, lead to other NTFPs being undervalued in local markets. As a result, these products are seen as economically marginal, and face strong competition from coffee and or honey production.

Today, collection and trade of NTFPs have already proven effective in improving communities' livelihood. Gathering of NTFPs such as Coffee, Honey, Korarima, medicinal plants tec., is an important economic and cultural activity for the YCFBR communities. If properly exploited and managed, the NTFP's in YCFBR can play a significant role in the socioeconomic wellbeing of the society, which in return will have a huge potential to complement the revenues from coffee production activities. We know that the extent of dependence on these products is enormous but there are again major concerns put to use the resources, which is neither sustainable nor meet the needs of the people who depend on. Together with coffee, the use of the ecological and socioeconomic potential of the YCFBR constitutes an important strategy for the application of efficient management systems for these resources. However, apart from population pressure and climate change impact, there isn't much data available to forecast how NTFPs will be used in the future or how the people who rely on them will live. Despite rising interest and recognition of the

potential contributions of NTFPs as key sources of employment and economic growth, comprehensive research, and insufficient integration of traditional knowledge into modern resource management is lacking. There is also a lack of knowledge related to the trade, markets and the socioeconomic impacts on the stakeholders involved in the NTFP sector. Consumers and stakeholders are demanding an emphasis on ecological sustainability and protection of the environment. Thus, this strategy seeks to address these gaps, promoting sustainable management practices that align with ecological conservation and socio-economic development of YCFBR.

3. Strategic Planning Process

A study was conducted in YCFBR funded by Development Smart Innovation through Research in Agriculture in collaboration with the Organization for Social Science Research in Eastern & Southern Africa and Ethiopian Forestry Development (EFD). The study targeted the assessment of the problem and specification of intervention approaches to sustainably conserve and utilize the NTFPs in YCFBR. Data on the background information of YCFBR and discussions with responsible key informants were made at the outset of the process; problems of natural resource degradation, and the current and past intervention on sustainable practices in managing NTFPs were collected. In addition, desk study with extensive use of secondary sources like Governmental Organizations (GO`s) and Non-Governmental Organizations (NGO`s) report, research findings published by Research Institutes (RI) and Higher learning Institutes (HLI), case studies, global best practices, policy documents and issues has also been reviewed. Likewise, the strategy paper has been shared for input. Furthermore, a half day interaction workshop was held to discuss the details on the entire strategic document section together with representative selected from GOs, NGOs, the public and entrepreneurs. Accordingly all relevant inputs, feedback and comments on the process or content of the findings were revisited.

4. Purpose of the Strategy

The need for this strategy arises from the growing recognition of the economic and ecological value of these resources and the increasing pressures from unsustainable resource extraction and environmental degradation. This strategic document provides a roadmap to create and sustain an enabling, robust and flourishing environment for sustainable utilization of NTFPs in YCFBR. It

also serves as a guiding reference for action by the local government and partner organization, and a tool to crosscheck the fulfillment of the action that is set out for the short-, medium- and long-term plans. The strategy could also be serving as a framework and give directions that support all stakeholders engaged in sustainable management of YCFBR and to put their effort together and act synergistically in order to avoid duplication effort that will be cost effective. By integrating scientific research with traditional knowledge (TK) and promoting sustainable harvesting practices, the strategy gives a direction to improve local livelihoods, conserve biodiversity, and foster the development of value-added products from these forest resources. Ultimately, the strategy intends to create a balance between economic growth and ecological preservation, ensuring that both current and future generations can benefit from Yayu Forest's biodiversity.

5. Objective of the Strategy

The objective of this strategy is to promote sustainable practices, improve the livelihoods of local communities based on gender and social inclusion, and support biodiversity conservation in the Yayu Forest Coffee Biosphere Reserve. However, this strategy does not claim to have all the answers, but it hopes to point out some possible avenues of exploration, as well as to open discussion on important issues that have to be taken into account in the sustainable management of YCFBR in general and promoting sustainable utilization NTFPs in particular.

VISION

To see YCFBR free from forest degradation by 2030 with significant rehabilitation of degraded parts through community participation and ensures sustainable exploitation, management and promotion of NTFPs resources to improve the livelihoods of local communities.

MISSION

Promoting sustainable management and utilization of NTFPs in YCFBR and support the local community's life by leading an integrated efforts to enhance sustainability and productivity through innovative research undertakings, adoption of best practices along with provision of

practical training for inhabitants and experts and ultimately pushing to translate research and sustainable management issues into policy and practice.

6. Scope of the Strategy

The scope of this strategy covers the entire Yayu Forest Coffee Biosphere Reserve, with a focus on its NTFPs. The strategy is geographically confined to the biosphere reserve and its surrounding communities as target beneficiaries. It acknowledges that people and their livelihoods are dependent on the health and productivity of the biosphere, and that their actions as land stewards are crucial in maintaining that health and production. More specifically, the strategy focuses on increasing the stake of the local communities, especially NTFP collectors at large, in sustainable management of NTFP resources. In line with this, the strategy touched on research and documentation, sustainable resource management, capacity building, market development, and policy advocacy. Apart from the local communities, the strategy targets multiple stakeholders, including government bodies, NGOs, RIs, HLIs, the private sector, development partners (donor countries, development banks, United Nation (UN) agencies), ensuring that all relevant actors are engaged to enhance productivity and sustainability in the management of NTFPs found in YCFBR.

7. Situational Analysis

7.1. Current Status

The current state of NTFPs in the YCFBR is characterized by limited knowledge and underutilization. Considering the current challenges on the YCFBR and upcoming pressure on the entire forest ecosystem, there is always a need of updating evidence-based approach to generate knowledge and to propose a more diverse portfolio of landscape restoration options that also improved the livelihood of the communities. Although the forest is home to a diverse array of NTFPs with significant ecological and economic value, research into these issues has been sparse, and traditional knowledge surrounding their use is fragmented. To be more specific, most of the studies on NTFPs in YCFBR only focused on their inventory, use, and diversity conservation, and did little on value chain analysis, value-addition options, and on increasing awareness on nutritional, medicinal and industrial values. For example, the rich mycological

resource is an often-overlooked topic in YCFBR. Existing studies on this resource have only scratched the surface of documenting the biodiversity, with the majority of fungi in the biosphere remaining unidentified or unexplored for their potential applications in medicine, food, and other industries. Other valuable NTFPs, such as medicinal plants and wild edible fruits, have also been overlooked. While local communities have some traditional uses of diverse NTFPs, such as in medicinal or culinary practices, these are not well-documented or integrated into broader resource management strategies. The general neglect of these resources means that there's little research into sustainable levels of use, and inadequate statistics on either the level or distribution of harvest. The knowledge gap hampers both the effective conservation and sustainable use of NTFPs, leaving much of their economic and ecological potential untapped. In general, it appears that NTFPs in YCFBR have received little attention in the past and has complemented continual degradation of the natural forest while they possess a huge potential to improve the livelihoods of the local communities and maintain the ecosystem. Based on their significances, special attention should be given to their sustainable management and valorization.

7.2. Stakeholder Analysis

Successful implementation of sustainable NTFPs management activities within the YCFBR can be influenced by various stakeholders operating locally, nationally and internationally, which have a direct or indirect relationship among themselves. In this regard, it would be necessary to engage all relevant local stakeholders and introduce them to the socio-economic and ecological values of diverse biological resources found in YCFBR. These biological resources are a source and an important reservoir of NTFPs which offer many products and services that are used by the local communities. Furthermore, the biosphere reserve is an area that possesses great natural and cultural values both from a national and an international perspective. Therefore both national and international organization have vested interest, though to varying degrees in the activities of sustainable NTFPs management of YCFBR. As a result, investigating stakeholder understanding of NTFPs, their harvesting, sustainability issues, prospective role in conservation within YCFBRs and their present contribution are vital to discuss, and the key stakeholders are discussed below:

a) Local Communities

There is a strong linkage between forest resources and forest dwellers in and around forest frontiers. Local communities such as youth groups, women group, men and elders have direct stake in sustainable management of NTFP resources to protect their livelihoods. They possess traditional knowledge (TK) about NTFPs and how to deal with it. Unfortunately, they are rarely involved in decisions related to sustainable management of these vital resources. They are directly impacted by any changes in forest management practices and are essential partners in the conservation and sustainable utilization of these resources. When participating the local communities, one has to consider variation between age groups and genders that influence engagement in forest management. The diverse community involvement ensures that indigenous practices are preserved and aligned with modern sustainable methods across institutional regimes.

b) Government Organizations

Government bodies operating at the local level in YCFBR (Woreda office of agriculture (WoA), Woreda Office of Environmental Protection Authority (WoEPA), Woreda office of Finance (WoF), Woreda office of Land (WoL), zonal level (Zone office of agriculture (ZoA), Zone office of Environmental Protection Authority (ZoEPA), Zone office of Finance (ZoF), Zone office of Land (ZoL). Oromia regional level includes: Oromia Forest and Wildlife Enterprise (OFWE), Oromia Bureau of agriculture (OBA), Oromia Environmental Protection Authority (OEPA), Oromia Bureau of Finance (OBF), The Oromia Land Bureau (OLB), Oromia Cooperative Promotion Agency (OCPA). At national levels the Ethiopian Forestry Development (EFD), The Ethiopian Environmental Protection Authority (EEPA), Institute of Ethiopian Standard (IES), Ethiopian Accreditation Service (EAS) and Ethiopian Coffee and Tea Authority (ECTA) play a critical role in setting and decision-making powers on policy issues and resource allocation that govern the sustainable management of the Yayu Forest. These bodies are responsible for providing market information, infrastructure, processing, resource mapping, financial, technical support, quality control and accreditation and creating regulations for conservation efforts, and ensuring that biodiversity is protected.

c) Community Influencers

It is important to recognize the significant impact community influence in shaping and mobilizing communities. Community influencers such as religious leaders, elder people, and knowledgeable individuals possess the ability to inspire, engage, and drive action among their followers. They act as catalysts for change; by leveraging their platform, they can raise awareness about important issues; advocate for causes of forest degradation and promote sustainable management of NTFPs.

d) Higher Learning- and Research-Institutions

The production of new knowledge through the practices of research lies at the heart of the higher learning and research institute's mission. Both the federal and regional research institutions such as EFD, Jima Agricultural Research Center (JARC), Bedele Agricultural Research Center (BARC) and Tepi Agricultural Research Center (TARC) and federal higher learning institutes (HLI) such as Mattu University (MaU), Jimma University (JU) are crucial for advancing knowledge of NTFPs in the Yayu Forest. They conduct studies to identify and document species, investigate their ecological roles, generating data that informs resource management strategies and explore their potential commercial applications. Yet without effective dissemination strategies of knowledge and practice, their efforts are wasted. Therefore, dissemination is thus the core responsibility of these institutes to help ensure the uptake of research findings for sustainable utilization of NTFPs in YCFBR.

e) Non-Governmental Organizations

Non-Government Organizations (NGOs) working with forest-based communities could strengthen their capacity in the sustainable management of natural resources. A number of NGOs are currently working on the ground and/or interested to engage such as Environment and Coffee Forest Forum (ECFF), NABU (Nature And Biodiversity Conservation Union), Population, Health and Environment (PHE), Ethio Wetlands and Natural Resources Association (EWNRA), Care Ethiopia and Farm Africa. They use their knowledge and experience of working in a local context to strengthen their roles in empowerment and social transformation. They work on conservation, sustainable

development, and community welfare and often lead initiatives related to resource management in the Yayu Forest. They would provide financial, technical, and educational support to local communities, advocate for biodiversity conservation, and promote sustainable economic development through training and capacity building. In addition, they act as a bridge between the community and the state to create an enabling environment for sustainable management of YCFBR through participatory forest management (PFM).

f) Unions, Cooperatives and Private Sector

Given the inherent bottlenecks to the commercialization of NTFPs; unions, cooperatives and private sector play significant role in developing market opportunities and investment in conservation, sustainable harvesting and processing techniques. In this regard, the 2018 Ethiopian forest policy acknowledged the significance of community participation in forest resource conservation and hence Participatory Forest Management Cooperatives (PFMC) will play significant role to ensure economic efficiency, social equity, and environmental sustainability through PFM approaches. Similarly, entrepreneurs and private business owners are obviously interested to engage in local product supply chain and commercialization the NTFPs that have various industrial applications. Self-organized communities have also a stake in commercialize NTFPs in the YCFBR. Producing, collecting, processing, storing, transporting, marketing, and selling are some activities comprising NTFPs value chains. There is a need to engage directly with communities and other stakeholders in the NTFP value chain. Therefore, local processors, intermediaries and traders have significant role in the value chains and needs to secure a reliable and fair market for their harvested products from YCFBR.

g) Development Partners

Development partners include donor country governments, development banks such as the World Bank (WB) and regional development banks such as African Development Bank (AfDB) and United Nation (UN) agencies, has a deep interest to work in partnership with national and local government bodies on global conservation and

development issues. These parties support local efforts by providing funding, expertise, and access to international markets. They also play a role in shaping global policies and agreements that impact the conservation of biodiversity and natural resources.

8. Challenges and Opportunities

Despite huge potential and development opportunities of NTFPs in YCFBR, the business potential of NTFPs is still strongly underutilized. Major challenges that hinder the development of the NTFP sector and opportunities to tap into have discussed below:

8.1. Challenges

a) Forest Degradation and Deforestation

There are a multiple of pushing and pulling factors to go for the best use of the forest resource in the area. Rapid population growth results in increased pressure of needs in formerly remote areas whereby farmers wished to improve their socio-economic conditions through crop production and animal husbandry. Agricultural expansion, the main proximate cause of forest degradation and deforestation, is even practiced in areas where it is deemed inappropriate for cultivation. This has led to a decline in the availability of NTFPs. Hence NTFP collectors are unable to sustain their livelihoods because of changes caused in the NTFP collection environment by deforestation and degradation. This situation further exacerbates the problem as people keep on converting the forests to agricultural land to compensate for their reduced incomes from NTFPs. The degradation of YCFBR cannot be tackled without unleashing the land's economic potential as it requires large-scale restoration. The communities, therefore, need to participate in restoration and sustainable management programs and hence they can obtain economic benefits from restoration works.

b) Limited Research and Documentation

Despite their importance to the local communities as well as an immense potential to the nation, most of NTFPs found in YCFBR are overlooked resource. The knowledge generated so far does not allow predicting future trends, nor does it allow us to promote

sustainability or enhance the welfare of people dependent upon the products. The general neglect of these resources means that there's little research into sustainable levels of use, and inadequate statistics on either the level or distribution of harvest. Particularly, there is a significant lack of data on the biodiversity, food and medicinal values and ecological roles of fungi in the Yayu Forest. The overall knowledge gap on NTFPs limits the development of effective conservation strategies and impedes efforts to sustainably manage and utilize these resources.

c) Fragmented Traditional Knowledge

While local communities possess valuable traditional knowledge on the use values of NTFPs, it is often fragmented and inadequately documented. The importance of this traditional knowledge for the protection of biodiversity and sustainable development is not fully exploited. The number of studies on traditional knowledge about NTFPs in the YCFBR is scarce and the studies cover limited parts of the forest. In addition, those studies report is mostly limited to a few NTFPs with high commercial value. This disconnects between traditional practices and scientific research prevents the full integration of local expertise into sustainable resource management. It is worrying, that empirical knowledge on the effects of such combined and diversified approaches is scarce.

d) Unsustainable Harvesting Practices and lack of domestication

Despite the continuing dependence of the local communities on NTFPs, current methods of extracting NTFPs may be unsustainable, leading to overexploitation and environmental degradation. Open access of the resources aggravates the situation by increasing risk and thus potentially threatens the long-term viability of the resources and the ecosystems that support them. In this regard, domestication of NTFP species helping the local communities to fulfill the demand of those products to improve their livelihood at the same time it will counter balance unsustainable harvesting practices. Therefore, domestication is critical for both livelihood and environmental sustainability. However, current level of skills for some of the NTFPs production, management, and post-harvest

operations in home gardens and in agro-forestry plots is not satisfactory. The management knowledge and techniques are not well developed. The species specific information required for in-situ as well as ex-situ management is generally lacking for most of the NTFPs bearing species and these needs to be laddered for proper domestication of important species.

e) Underdeveloped Policy and Regulatory Framework

Barriers to protect and sustainably manage NTFPs resources arise from incomprehensive policy design or lack of enabling regulatory frameworks and institutional reform. In discussing major policy and legal aspects sustainable management of NTFPs, it is necessary to clarify the shift from the traditional harvesting approaches to that of sustainable NTFPs harvesting for multiple benefits. This shift demands a sound policy regulatory framework. It is essential that policy on NTFPs recognize the diversity of interests related to their conservation, utilization, marketing as well as the need to involve major interest groups in whom they can express their expectations and their role in sustainable NTFPs management. Communities are often obliged to trade NTFPs in the informal sector because they lack the capacity to comply with the legal requirements for formal sector commercialization. Without consensus, formal guidelines and enforcement mechanisms, conservation efforts are inconsistent, and harmful practices may continue unchecked.

f) Lack of institutional capacity and Limited Financial Resources

Sustainable utilization of the NTFPs in YCFBR strongly depends on the existence of strong, capacitated, and effective local institutions. This would be one of the major challenges needs to be circumvented. An enhanced institutional capacity results in the improvement of local actor performance and operational efficiency to deliver efficient and effective services. Similarly, limited financial support particularly for conservation, and development intervention; research undertakings restricts the capacity to explore the ecological and economic potential of NTFPs resources and to expand investment in sustainable practices. Local government agencies generally lack the budget and staffing

to enforce restrictions on sustainable mismanagement of the forest because the areas are large and often remote.

g) Lack of standard and certification

There are no quality standards for NTFPs except for coffee. Most of NTFPs collected from YCFBR flow through complex and informal chains-of-custody on their way to market, making tracking difficult and the risk of mixing with different unwanted products. The quality and quantity of NTFPs can be highly variable, and therefore this is a potential traits considered as undesirable in order to penetrate the global marketplace and also to obtain the required certification. Certification of NTFPs encourages sustainable forest management for the multiple values of the Yayu Forest.

h) Climate Change

Apart from other common threats to Yayu forest, climate change presents additional challenges. Climate alterations have affected the forest ecosystem of which NTFPs are part, which in turn influences its contribution to the livelihood of the local communities and women are often more susceptible to these issues. Paradoxically, women are often ignored when designating solutions to climate change. Bringing women experience to the decision-making table will ensure that the ways we fight the climate crisis will be more sustainable, successful, and equitable. There is a limited understanding of the magnitude of the changes in local climatic scenarios in the YCFBR because of uncertainty, irregularity, and periodic changes. The effects of extreme weather events can negatively affect the growth, regeneration, and overall productivity of NTFP species. For example, irregularities in rainfall pattern or draught affect the amount and fruiting periods of Korarima, wild edible fruits and mushroom. Because of this yields have declined in and this change has prompted management and research attention.

8.2. Opportunities

a) Rich Biodiversity

Economic endeavors rely heavily on biodiversity and natural capital, highlighting its importance as a driver of sustainable growth and innovation. The YCFBR biodiversity is rich in abundance. A wide variety of species—microbial, plant, and animal and their genes— offers a variety of materials, chemicals, and organisms essential to new products and services or inspiration for products or the basis of industries. For instance, conducting systematic research offers the opportunity to discover new fungal species with potential applications in medicine, food, and biotechnology. This could enhance scientific knowledge, contribute to biodiversity conservation, and lead to the development of innovative products.

b) Rich Traditional Knowledge

The local communities' traditional knowledge has been developed over generations through daily life practices and a close understanding of local environments. The TK can offer valuable responses to challenges that one is trying to introduce sustainable development. This knowledge is valuable not only to those who depend on it in their daily lives, but to sustainable management of biodiversity and to modern industry as well. In this regard, collaborating with local communities to document and incorporate their ethnobotanical knowledge into scientific research provides an opportunity to develop culturally appropriate and sustainable management practices.

c) Presence of Cooperative Unions

The presence of community associations (Cooperatives and Unions) plays a key role in facilitating sustainable development of NTFPs in Yayu forest. Cooperatives are most effective at the local level, where they form and bring together local communities through daily interactions with members and non-members. They demonstrate the major role that these cooperatives are playing to foster inclusive and sustainable development at the grassroots level. In this regard the 2018 Ethiopia's forest policy and strategy becomes a crucial part of the country's forest policy. The natural forest resources owned and managed by the state that can be developed on concession shall be transferred to the local

cooperatives so that they protect and use them according to the approved management plan.

d) Presence of Microfinance Institutions and Credit Union

With all limitations, microfinance institutions (MFIs) have played a significant role towards achieving the growth and poverty reduction strategy by promoting income generating activities. These institutes involved in various microfinance services such as short-term loans to finance inputs associated with diverse forest-based activities.

On the other hand credit unions are established specifically to provide business development services and community empowerment. As not-for-profit financial cooperatives, credit unions exist to serve the financial needs of member-owners to develop NTFPs. For example, the local credit cooperatives may have the advantage of having detailed knowledge of the characteristics and constraints, technical as well as economic and social values of NTFPs. This may help them to identify the most attractive market and support the local communities in the development of NTFPs. Credit cooperatives also assist in overcoming the constraint of high transaction costs to service such enterprises.

e) Participatory Forest Management Success Stories

There are a number of success stories about participatory forest management (PFM) in the country, which is now formally recognized by the state. Some NGOs had begun pilots of implement PFM approaches in YCFBR which can be served as basis for scaling up and policy recognition. That lesson can be used as a proxy to demonstrate the potential of the approach by implementing training programs for local communities to decide through forest user groups and to work with other stakeholders on sustainable harvesting techniques. The approaches are also officially recognised by Oromia Regional State since 2000. The initiatives can empower the community to manage the forest resources responsibly and benefit from the economic potential of NTFPs.

f) Multiple Actors Partnership

A number of multiple actors are interested in promoting sustainable harvesting and utilization practices in YCFBR. This is a blessing and offers potential economic benefits for local communities and the ecosystem. A key success factor is to joint collaborative landscape-level NTFPs actors' involvement in the decision-making process. In this regard, a participatory approach is an important tool to address different actor interests and thus help develop effective sustainable management and development of NTFPs. Therefore, engaging multiple stakeholders—government agencies, research institutions, NGOs, and the private sector—presents opportunities for resource sharing, co-financing of projects, and the development of sustainable economic models.

g) International Interest

YCFBR is rich in biodiversity and the preservation of biodiversity has been clearly identified as an international goal. Therefore, there is a mutual interest, for the conservation and sustainable use of biological diversity. In this regard, collaborating with international organizations offers access to additional funding, expertise, and global platforms for promoting the conservation and sustainable use of NTFPs in the YCFBR.

9. Strategic Goals, Objectives and Action Steps

To enhance the knowledge and utilization of NTFPs resources of the YCFBR, the following seven strategic goals have been proposed:

Goal I: Awareness Creation, Motivation and Empowerment

Raising people's attention is a prerequisite to establishing a social relation. Making the public, the media, and others more aware of NTFPs utilization and management is a critical step in creating an environment where change is possible. One way to educate them is to first increased awareness about deforestation and forest degradation which is the main causes for biodiversity loss, soil degradation, and other problems affecting the community. Local communities need to aware that the loss of biodiversity will lead them to lack the raw materials needed to produce commercial products (e.g., NTFPs). Such kind of awareness creation will open the door to place communities at the heart of restoration work (e.g., replanting, soil rehabilitation etc.) while

focusing on community needs for useful NTFPs bearing species and preferences in restoration to support their livelihoods. In addition, awareness creations brace the current forest policy and even guide formulation of new policies towards their access and utilization in order to guard against overharvesting and eventual depletion of the resource. As such, the concept of raising awareness about NTFPs is now recognized as an integral part of sustainable forest management. On the other hand, sustainable utilization of NTFPs projects to be successful the involvement of motivated local communities, particularly women, is inevitable. The NTFPs activity is one of the few cash-generating opportunities for women and that leads to their empowerment in most cases. Women comprise a significant segment of those involved in the NTFP sector and its income can be quite substantial to single female-headed households in YCFBR communities. Choices between different values will have to be made in each action plan in response to women needs. Whatever management strategy is chosen, women should be motivated, fully participated in the planning and decision-making processes. Empowering them by providing access to economic resources, including financial services, property and other productive assets, skills development and market information is a vital strategy.

Strategy Objective: Educate, motivate, empower women and achieve long-term lasting attitude on the importance of sustainable management of NTFPs.

Action steps:

1.1 Identify target audience interests, values, needs, and expectations.

1.2 Develop communication initiatives that aim to widely disseminate key messages using social and religious local institutions, large-scale media and also promote community dialogue on gender equality.

1.3 Organize a series of get together with the community heads (Chiefs and elders), Kebele assembly officials, women, students, and farmer groups.

1.4 Ensure that the communities develop strategic thinking and works for the long-term lasting benefits of NTFPs.

1.5 Encourage farmers to discuss on indigenous knowledge and their experience on NTFPs management.

1.6 Give the community more freedom to make decision.

1.7 Promote gender mainstreaming and gender equality at the community level, empower women to be able to make their own decisions and to take responsibility for their own business development.

1.8 Provide communities involved in restoration efforts with both financial and technical assistance, including incentive for the cultivation of NTFPs bearing plants.

1.9 Measure success and work on continuous improvement.

Goal II: Knowledge Sharing and Capacity Building

In knowledge sharing, both tacit and explicit knowledge play crucial roles in the development of NTFPs, where target audience can learn from one another's experiences and expertise, building on existing knowledge and generating innovative solutions to challenges. There are many ways and means available to achieve knowledge sharing. The primary purpose of a best knowledge sharing platform is to make information easy to find, access, and use. In this regard, digital libraries and on-line discussion forum can provide a platform for sharing of knowledge, resources and best practices. Such kind of platforms can be facilitated to integrate scientific and local knowledge, with focus on NTFPs and how they can contribute to livelihood and climate resilience. The integration of diverse knowledge sources and the creation of a favorable knowledge-sharing space facilitate knowledge co-creation among local communities, between experts and communities. This leading them to develop context-specific recommendations and improved NTFPs management. Shared practices among community; between communities and experts is the basis for sustaining the knowledge. Most importantly, sharing and utilizing of the existing knowledge will speed up the innovation process and improve the innovation quality on the development of NTFPs. Equally important provision of trainings catalysis and supports activities that strengthen the capacity of local experts in their work. Supporting local experts and institutions sustain the knowledge and skills needed for the effective implementation of sustainable utilization and management of NTFPs strategies. Specifically consistent and regular

in-service training for frontline community-serving professionals (Wereda & kebele level experts) is crucial for improving skills in sustainable forest management and cultivation of NTFPs. Tailor made trainings programs for the frontline workers is helpful to increase income for local communities from NTFPs, and strengthening abilities in good governance, ultimately maintaining strong group cohesiveness. Overall, the process of training in the NTFPs sector requires a holistic approach, this call for emphasis that the capacity-building programs need to address wider aspects that should equip experts with information and skills on NTFPs production, harvesting, value addition, marketing, application of suitable technology and business management.

Strategic Objective: Critical knowledge, best practices and efficient implementations passed on and retained within local experts and communities.

Action steps:

2.1 Identify key areas that require knowledge sharing gaps in production, harvesting, value addition, marketing and business management of NTFPs.

2.2 Synthesis existing and planned capacity-building initiatives at the local, regional and national, and international levels, and their coverage.

2.3 Develop a knowledge exchange platform or hub that allows for continuous learning and innovation within NTFP-producing communities.

2.4 Facilitate skill development of local experts through formal training, technical assistance and development of teaching materials in the areas of production, processing and NTFPs-based enterprise development.

2.5 Sharing and applying knowledge by capturing, analyzing best practices, highlighting innovative approaches, and facilitating learning.

2.6 Facilitate input supply for NTFPs production, infrastructure development and promote the expansion of cottage industries in a representative NTFPs production area.

2.7 Networking, communication and dissemination of lessons learnt, including contributions to policy debates.

Goal III: Identify Research Priority Areas and Develop Comprehensive Proposal

The successful implementation of sustainable management of the NTFPS found in YCFBR cannot be achieved without defined research priority areas and a clear understanding of the environment in which one conduct research therein. So the NTFPs need to be viewed as a component of larger and more varied ecological, social, economic, and cultural settings and practices. Exploitation of NTFP resources in the wild has resulted in diminishing stocks which can be indicated by reduced availability of NTFPs and immature quality in the market place; and high prices for scarce products. From practical point of view, it is not possible to address all NTFPs related issues at once and by one institution. Therefore, there is a need to identify strategic research priorities areas that addresses keystone species which are often embedded within social and ecological systems where they are thought to play critical roles in maintaining cultural or ecological stability at a local level. In this regard, by combining scientific rigor of botany with the traditional knowledge through ethnobotanical studies plays a vital role in biodiversity conservation. The ethnobotanical knowledge the local communities possess is very important not only for them but also as a knowledge pool for various industrial application. This knowledge guides sustainable harvesting, ensuring that valuable plant resources are not depleted and the right product is obtained. Nevertheless, ethnobotanical study *per se* is not the ultimate solution, one needs to carefully address other critical limitations that promote resource depletion such as benefit sharing systems, weak institutional infrastructure; weak communication efficiency among local, national, and international institutions. It is fundamental, therefore, that all the relevant stakeholders participate and evaluate the socioeconomic factors involved in the use or destruction of biological diversity to formulate comprehensive research proposal.

Strategy Objective: Develop research priorities areas and justify the need to study major problems on sustainable management of NTFPs.

Action Steps:

3.1 Set criteria for research prioritization based on culturally, economically and ecologically keystone NTFPs bearing species (e.g., abundance; multiplicity of use; irreplaceability; use in trade or resource acquisition; level of importance etc.) and also consider local, regional, national and global potential opportunities.

3.2 Identify changes in diversity, resource management, culture, decision-making and maintenance systems, as well as overall changes in social and economic relationships to resources using brief ethnobotanical studies (e.g., market survey, four-cell participatory tool, etc.).

3.3 Engage the community, relevant stakeholders and build a collaborative network.

3.4 Understand the existing research environment; this includes funding and facilities issues, institutional arrangement, group and partnership climate, etc.

3.5 Organize deliberative workshops and bringing together multiple participants, achieve consensus about the research priority areas.

3.6 Conceptualizations and develop evidence-based logic (this includes literature review, analysis, guidance of experts) and establish the limits of the proposed study to provide specific and achievable outcomes intend to accomplish.

3.7 Develop a clear methodology (qualitative or quantitative) to measure keystone species status (e.g., taxonomic surveys and biodiversity assessments of wild edible fruits, edible and medicinal fungi) and processing technologies (e.g., adopt modern hive technological facilities for beekeeping using locally available materials).

3.8 Conduct participatory action research on some of key identified themes for evidence based policy recommendation.

Goal IV: Integrate Traditional Knowledge into Natural Resource Management

Local communities have a long history of natural resource management (NRM) and have developed strong traditional knowledge (TK) and resource-use practices over generations. The traditional knowledge surrounding is vital to ecosystem processes and livelihoods. There is a

much greater potential to meaningfully integrate TK into sustainable resource management system. Local communities are advance guard of climate change, and they can provide important insights into the processes of observation, adaptation and mitigation of climate change consequences. Indigenous management systems frequently optimize diversity, embodying an essential adaptation strategy, the significance of which will increase with resource scarcity and climate variability. The indigenous management systems can be fruitful if they are linked with long-term economic interests of the community. In line with this, the development of scientific management plans has been supported by this knowledge, and it is increasingly acknowledged as a valuable source of data for the conservation, management, and sustainable use of natural resources.

Strategy Objective: Incorporate traditional knowledge into sustainable resource management.

Action Steps:

4.1 Identify and document traditional knowledge and practices about NTFPs (e.g., ethno-medicinal practices, wild edible fruit and mushroom cultivation, etc.) and prioritize kinds of innovative knowledge to integrate.

4.2 List out opportunities and challenges of knowledge integration.

4.3 Develop and testing new methods and tools to sustainably conserve plants/fungus and associated knowledge.

4.4 Develop participatory approaches planning and natural resources management at the community level.

4.5 Validating and integrating the traditional knowledge and best practices into the local planning procedures.

4.6 Identify and document traditional knowledge and practices used to cope with climate change using focal group discussions and semi-structured questionnaires.

4.7 Perform surveys with local communities to assess their perceptions of climate change and the role of traditional plants and management practices for adaptation.

4.8 Strengthening documentation and monitoring of biodiversity through participatory community-driven methodologies.

4.9 Develop traditional knowledge dissemination strategies to new generation.

Goal V: Develop Sustainable Harvesting

Collecting NTFPs can be ecologically sustainable without impacting the dynamics of targeted and associated species in the long run. Utilizing NTFPs in a managed way has the potential to combine resource use and conservation effectively. However, sustainable harvesting of NTFPs actually involves meticulous management, regulated harvesting, and ongoing monitoring to ensure resource sustainability. The most direct ecological impact of harvesting NTFPs is changes in the survival, growth, and reproduction rates of the harvested plants. Tolerance to harvest (limits) varies according to life history and the part of plant (roots, whole stems, bulbs, and bark,) that is harvested. Therefore, a special type of harvesting scheme has to be developed for NTFPs bearing plants that usually lethal or fatally weakens the plant species, which will making sustainability to become difficult. In this regard, the local communities have adopted harvesting practices based on understanding of plant's biology, ecology and harvesting season that is optimal for the collectors as well as for the plant to replace itself. Considering the traditional knowledge is therefore helpful to develop non-lethal and optimal harvesting scheme.

Strategy Objective: Formulate and implement guidelines for sustainable harvesting.

Action Steps:

5.1 Conduct participatory resource assessment; assess relative abundance and livelihood importance of NTFPs.

5.2 Assess harvest practices currently employed by local peoples or adaptations of those currently used by them.

5.3 Identify sustainable harvest limits and thoroughly investigate how these limits are constrained by socioeconomic and environmental factors.

5.4 Initiate discussion with key informants and NTFPs collectors, design sustainable management guidelines for harvesting.

5.5 Develop production, management, and harvesting guidelines (e.g., replanting plant part, transplanting, thinning, harvesting, post-harvest handling, storage etc.).

5.6 Develop standard protocols for nondestructive harvesting of species specific NTFPs based on ecological and economic assessments, and provide training and tools required for the production and sustainable harvesting of NTFPs.

5.7 Strengthen community-driven monitoring activities of forest protection and NTFPs collections.

5.8 Develop user friendly technological and data collection methods using GIS and mobile apps that help communities to implement change detection and quickly address issues.

5.9 Develop of legal and governance tools to ensure compliance and ecosystem protection.

Goal VI: Promoting Domestication and Commercialization

Different types of NTFPs are available at YCFBR and some of them are produced for local consumption while others have entered the market such as coffee and Korarima. However, many of the locally consumed NTFPs have a strong potential to enter the industry and organized market and bring benefits to producing communities. On the other hand, there are also other NTFPs that have an immense potential for marketing and industrialization but only a few individuals harvest them for local consumption and hence the communities miss the opportunity for additional income. In this regard, women are the most disadvantageous group in the community. Because of house burden, it takes time for them to develop capacity to make money just from collecting NTFPs from the wild. This scenario indicate that one possible way of increasing the welfare of women would be activities that can accommodate the constraints of traditional domestic duties and recognize gender differences in domestication and commercialization of NTFPs. Local communities including women have the required knowledge

and skills to undertake the production and harvesting but they need to be supported and linked with the market and industries to produce value added products. Value addition will have a direct impact on the commercialization and quality of the NTFPs. To boost economic returns from NTPs, we must find ways to earn a greater share of the product sale revenue after adding value to the produce.

Strategic Objective: Domesticating and unlocking marketability of NTFPs and diversify source of income for local communities.

Action Steps:

6.1 Inventory NTFPs produced for local consumption and/or market and prioritized them based on abundance, marketability and industrial application.

6.2 Identification of potential high value niche markets, particularly for NTFPs which can be cultivated.

6.3 Assess quality standards required by consumers and organize quality processing locally for value addition.

6.4 Develop the propagation techniques that ensure the minimum quality standards and piloting domestication of commercially attractive NTFPs.

6.5 Devise improvement of production, harvesting techniques and reduction of post-harvest losses, and facilitate connections to value chains at national and international level.

6.6 Build corporate management and adopt simple marketing strategy suitable for women which yields assured and good revenue.

6.7 Promote joint production/marketing among different NTFPs where appropriate and strengthening certification as a marketing tool.

6.8 Advice women NTFPs producers, communities, partners and other beneficiaries on certification (e.g., fair-trade, organic, etc.) purpose and function.

6.9 Provide support for the creation of value chains and alliances between women NTFPs producers and national and international retailers.

Goal VII: Advocate for Supportive Policies and Regulatory Frameworks

The NTFP sector contains various stakeholder groups such as collectors, local middlemen, urban traders, manufacturers, exporters, government agencies, each with distinct interests and perspectives. On the other hand, category of NTFPs is so large and diverse that umbrella forest management and policy recommendations do not easily attach to this group of products. In this regard, compromised regulatory frameworks play a pivotal role in shaping the adoption and success of sustainable management of NTFPs. These frameworks encompass laws, policies, and guidelines that govern harvesting practices and utilization of the NTFPs. The adaptation policy promotes the need for and implementation of solutions that would make NTFPs harvesting more resilient to today's conditions. Similarly, successful implementation of policies pertaining to the sustainable management of NTFPs requires careful understanding of the unique ecological, economic, and sociopolitical conditions of the local community. In this regard, the NGO`s play a facilitator and promoter role through policy advocacy and implementation process. Commercialization for both local and international markets holds promise in some cases, but it requires a number of critical preconditions among which a favorable law and policy environment; and capacity building preconditions (including well-developed and accessible infrastructures) and policy advocacy are decisive.

Strategic Objective: Advocate for the implementation of workable regulatory framework that supports development of NTFPs.

Action Steps:

7.1 Identify key challenges of regulatory framework issues to implement NTFPs development.

7.2 Consider critical factors that may impact regulation (legal and cultural traditions; government commitments; other legislation; and the market) to safeguard the local communities.

7.3 Addresses the functional aspects for effective regulation (competencies, accountability, and the implementation regulatory processes).

7.4 Analyze the organizational and institutional approaches to regulation.

7.5 Fostering collaboration and building strategic partnership to generate functional regulatory framework.

7.6 Support regulatory bodies with easy access to a suite of policy and regulatory tools, templates and decision trees to enact and enforce their decision.

7.7 Advocate the development of participatory regional and national strategies for NTFP development and supporting the implementation of priority activities of NTFP development strategies.

7.8 Advocate and do campaigns to increase interest in the acquisition of legal and certified NTFPs.

10.Guide to Strategy Implementation

10.1. Awareness Creation, Motivation and Empowerment

One way to educate the public, the media, and others about NTFPs is to first increased awareness about the role of NTFPs for sustaining the livelihood and the forest ecosystems. Once the consequences of miss-management of NTFPs are realized, it is easy to communicate with the community. The local communities must understand that harvesting practices should be ecologically and economically sustainable. This shall be supported by repeated an action learning based training programs given for the communities, so that they shall internalize the whole strategy and goal of conservation of YCFBR. On the other hand, for sustainable management of NTFPs projects to be successful the involvement of motivated local communities is inevitable. However, despite this knowledge, local people are still in many cases not actively or genuinely involved in development initiatives in the sense that project initiators remain the main decision makers. Choices between different values will have to be made in each action plan in response to local social, cultural and economic circumstances. Whatever management strategy

is chosen, local communities should be motivated, fully participated in the planning and decision-making processes. This can be done first by awareness creation, and then through a participatory process where the local community are involved in planning, design, and implementation of the management plan. Participation is, in essence, the empowerment of the people to effectively involve themselves in developing programs that serve the interest of all as well as to effectively contribute to the development process. Particularly, women's economic empowerment can have a positive impact on their social and political involvement through their increased respect, status, and self-confidence and increased decision-making power in households, communities, and institutions. The exchange of information and creation of partnerships will help to build confidence and provide reassurance that the programs are relevant to their needs and ensure that they have a sense of responsibility to the project. Participation of individuals are higher if they felt they had shared control and benefits from resource management. Such initiatives have proved to be and also result successful partnerships in NTFPs conservation and utilization development.

Recommended Strategies

- Use appropriate communication channels and tools: The effectiveness of awareness creation, knowledge sharing and capacity building initiatives depends heavily on the communication channels and tools used. Some effective communication channels and tools include local, traditional, social and religious institutions and mass media (e.g., locally available FM radio) for information exchange and communication, and traditional institutions, social media platforms, etc.
- Support for broadening community's access to basic education and information.
- Increases women's access to economic resources and opportunities and also enhances their rights and participation in the value chains of NTFPs.
- Work with respected body to ensure good governance, transparency and accountability.
- Plan events that will bring the whole community together such as with local chiefs, elders, Kebele assembly officials, and women, students and farmers group etc.

- Facilitate community engagement to inform and legitimize the decision-making process.
- Ensure that the community develops strategic thinking and works for the long-term benefits of natural resources.

10.2. Knowledge Sharing and Capacity Building

Knowledge sharing amongst NTFPs collectors ensures that individuals get access to relevant and timely information to improve their practices. But one of the major reasons why NTFPs collectors fail to share knowledge with their colleagues is protecting their competitive edge. It is therefore imperative that these issues are adequately addressed among themselves to improve knowledge sharing between and among them. On the other hand, there is big interest by the regional government, national and international organizations to collaborate in conservation of YCFBR as it is a global issue affecting all sections of the globe. Cognizant of this fact, the regional government developed YCFBR management plan and integrates the three functions of the biosphere reserve: conservation strategies of the biodiversity resource, the sustainable ways of achieving the development goals of the local communities by considering the traditional, cultural and spiritual aspects and the possible logistic functions. The issue of capacity building has become a major priority in attempting any intervention in sustainable management practice. Capacity building is of course part of a broader development context. This strategy considered capacity building as one of the strategies in partnership with other development organizations, for the preparation of a comprehensive approach for developing the capacities needed in the zone to meet the challenges of NTFPs management and commercialization intervention. Commercialization of both local and international markets holds promise in some cases, but it requires a number of important capacity building preconditions, including well-developed and accessible infrastructures. In this regard the Civil Service Organization (CSO) and international partners: Environment and Coffee Forest Forum (ECCF), Hanns R. Neumann Stiftung (HRNS), International Coffee Partners GMBH, (ICP), Nature And Biodiversity Conservation Union (NABU), Ethiopian Coffee and Tea Authority (ECTA), UNIQUE land use, the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP), World Bank Institute (WBI), Climate, Community and Biodiversity Alliance (CCBA), International Development Association (IDA), African Union (AU), the European Union (EU), and

governments of different developed countries, such as Germany, Austria, Japan, etc. play vital role to collaborate with. The capacity building intervention shall be based on a short-term and medium-term project plans of actions for sustainable management of NTFPs and infrastructure development. The intervention projects are expected to clearly indicate the parties to involve in terms of training, finance, expertise, or material supply. The YCFBR management plan document developed by the region emphasis that, a coordinated and sustained effort by all parties are necessary. As mentioned above, all these efforts cannot be effective without a confident participation of members of the local communities. For them to participate, adequate dialogue needs to be made beforehand.

Recommended Strategies

- Identify specific goals and objectives that align with the sustainable management of NTFPs. This will help ensure that the initiative is focused and has measurable outcomes.
- Promote a culture of learning and continuous improvement: Successful knowledge sharing and capacity building initiatives promote a culture of learning and continuous improvement.
- Encourage key informants to discuss on indigenous knowledge and leverage local people's experience that may help on various NTFPs harvesting, processes and marketing issues.
- Link women with micro finance and facilitate provision of soft loans to engage in women friendly NTFPs development activities.
- Demonstration of best practices on farmlands and farmer training center.
- Establish a repositories knowledge resource that is user friendly to all stakeholders through compilation of best practices and success stories.
- Create a knowledge exchange platform or hub that allows for information sharing of sustainable practices between community members, scientists, and stakeholders involved in sustainable management of NTFPs.

- Involve stakeholders at all levels to implement effective knowledge sharing and capacity building initiatives. This can be achieved by involving stakeholders in the planning process, soliciting their input, and ensuring that they have the necessary resources and support to succeed.
- Collect and organize the feedback, sorting and categorizing it according to the decision criteria, and finally communicate the feedback with the local communities and other stakeholders to build trust, transparency and remedial action if necessary.
- Sharing and applying knowledge by capturing, analyzing, and sharing best practices, highlighting innovative approaches, and facilitating learning.
- Improve community infrastructure development through local resource-based approaches.

10.3. Identify Research Priory Areas & Develop Comprehensive Proposal

Researchable issues that range from addressing household problems to big industries; catalyzes and supports the communities, business owners and local industries. A collective understanding of how we undertake research to sustainably manage NTFPs in YCFBR remains critical if the impact to be more visible locally, nationally and globally. To best manage the role and fully leverage the surrounding economy and to improve competitive position in research endeavor, one needs to understand the composition of the local, regional resource and economy. Thus, the research priority areas need to be developed based on comparative advantage using priority orders. While the prioritized research themes may be led by major focus areas, their successful implementations require contributions from all pertinent stakeholders. This demanding the research priority area needs to be formulated to carry out actionable research. Just as community management is an ideal model for organizing sustainable forest management, action research is an ideal method for furthering our knowledge and skills base related to sustainable management of NTFPs in YCFBR. On the other hand, in prioritizing the research topic it should also be supported by a range of different initiatives that fit into the regional, national and international sustainable development agenda.

Apart from addressing the local needs in prioritizing the research theme, we need also anticipate and act on unexplored and overlooked NTFPs that have a great potential in local and international markets. Adoption of best practices need also be considered together with research area prioritization. Best practices that have been proven successful elsewhere and that have the capacity to be reproduced, or replicated, do not guarantee success – not every intervention works in every community. To adopt those practices, they have to be contextualized and the complexity of social-ecological relations must be taken into account in proposal development. Once research and adoptable best practices are prioritized, proposal development follows. To ensure maximum participation, involving the combined abilities of potential stakeholders is vital at various stage of proposal development. Within this context, all stakeholders can make an important contribution toward understanding, adapting to, and shaping the myriad social, cultural, environmental, and technological transformations. Although sustainable management of NTFPs broadly similar functions in the ultimate goals, a successful practice in one environment may not be a successful practice in another since resources, cultures, environments and priorities vary from place to place, community to community, and region to region. The following are recommended strategies to address some of the points discussed above.

Recommended Strategies

- Establish an advisory/steering group to oversee the research priority setting process. The advisory group includes diverse actors comprising the local communities which ensure women representation.
- Facilitate the development of research priorities that address the challenges and gaps based on past research recommendations. In addition consult with stakeholders to review the research priorities. Consider and carefully account for the different understandings of women NTFPs collectors.
- Analyze critical factors such as the resources available to undertake the priority setting process and time constraints.

- Developed a standard protocol design and determined the purpose, scope and timeframe using different data collection methods such as surveys, interviews, focus groups, workshops etc.
- Understanding the existing research environment. This will help to identify evidence gaps of relevance to decision makers and can also draw attention to areas of low research activity and highlight opportunities to build on existing research strengths or avoid duplication of research efforts.
- Develop an agreed and integrated priority list of research themes focused on an area of need, and that the findings have the potential to be translated into practice. Avail the list of research priorities to key stakeholders who have contributed to their development.
- Clarifying the research question and objectives. This allows engaging community members and other stakeholders, and makes it easier to find information and reports of similar studies.
- Organize deliberative workshops and bringing together multiple participants. This approach facilitates the presentation of the research proposal to the relevant authorities, community members and partners.
- Build a collaborative network. This requires careful consideration of the research areas that are of interest to all parties involved.

10.4. Integrate Traditional Knowledge into Natural Resource Management

Local communities are aware of the natural resources on which they rely. The lands on which they live and the natural resources on which they depend are inseparably linked to their identities, cultures and livelihoods. Local communities had lived for a long period of time in their environments by observing all the changes, including climate change, happening in a particular ecosystem. Because of that they have acquired and preserved through generations how to use the natural resource and they were also among the first to notice the early signs of climate change. The TK and practices provide a crucial foundation for community-based climate change adaptation measures and in meeting the demands of successfully managing natural resources and

hence build resilience. They rely on locally available skills and materials and often require little or no cash outlay. In cognizant of this, the Secretariat of the Convention on Biological Diversity (SCBD) and the Intergovernmental Panel on Climate Change (IPCC) have accepted the importance of traditional knowledge in both the sustainable use and conservation of biological diversity and in adapting to climate change. Local community's active participation in biodiversity conservation and climate change adaptations and mitigations programs is hence essential to be more effective and cost-efficient. Sustainable utilization of NTFPs could be among the effective climate change adaptation strategies, and it would be wise to consider the values of indigenous knowledge and practices. Governments must fully recognize the rights of local communities provide them with direct access to climate finance and integrate indigenous knowledge into climate policy. Various policies and programs addressing climate change have centered on non-timber forest products. According to the UN, NTFPs are one of the co-benefits of REDD + (Reduced Emissions from Deforestation and Forest Degradation plus). This suggests the potential of YCFBR for multiple-use management of diverse NTFPs and forest carbon offset through avoided conversion, and improved forest management.

One of the most important TK which is vital for successful management of NTFPs includes ethnobotanical knowledge and cultural beliefs and taboos on how to deal with the forest that can be integrated into national resource management policies. To make use of this knowledge system, the practices need to be kept viable because information so far recorded is fragmentary. Few ethnobotanical studies have been carried out in YCFBR. The current existence of YCFBR has been the efforts of long-time conservation of the forest by the diverse communities inhabiting in and around the forests. These traditional knowledge systems play a crucial role in enhancing the resilience of ecosystems and communities, as well as integrating suitable technologies into indigenous decision making processes. By coupling traditional knowledge and wisdom with modern science and conservation strategies, the integration of those knowledge promote biodiversity conservation and enhance sustainable utilization of NTFPs in YCFBR. Traditional knowledge in some cases could also help to guide scientific experiments. A balance between local and formal institutions can result in empowerment, security and opportunities for local people. To understand the significance of such knowledge systems and determine how they can possibly be integrated into natural resource management systems, a sectorial understanding

of contributions of TK will be useful. Hence institutional arrangements are inevitable for sustainable knowledge co-production in natural resource management, which also touched in the following recommendation strategies.

Recommended Strategies

- Gathering traditional knowledge information and practices about NTFPs through household surveys, interviews with local people, and group discussions.
- Developing a platform for universities and research organizations to collaborate with governments to systematically collect codify and document all forms of TK.
- Analyzing local peoples' perspective on TKs and evaluate the communities' views, needs and aspirations in terms of applying the TK on NRM.
- Establishing shared rules between local communities and governments on what activities should be permitted, restricted or prohibited in NRM and utilization.
- Integrating traditional knowledge, practices, skills, and social mechanisms as part of the natural resource management planning, mainstream conservation policies, decisions, and practices.
- Initiate REDD+ projects (together with reputable organization e.g., Farm Africa and SOS Sahel Ethiopia) focus on optimizing the management practices of YCFBR to enhance carbon sequestration, biodiversity, and overall ecosystem health.

10.5. Develop Sustainable Harvesting

When it comes to effective NTFPs management, one crucial aspect that cannot be overlooked is the quantity or amount of sustainable yield that can be prescribed for harvesting. Good NTFPs harvesting practices are to be integrated with good production practices to ensure genuine and essential products for society. Since demands are unlimited, a dominance of the commercial interests would always lead to unsustainable exploitation. It is crucial to find a balance between satisfying the growing demand for these goods and maintaining the long-term health of the forests and the next generation. This implies that sustainable harvesting of NTFPs necessitates

careful management, controlled harvesting, and periodic resource monitoring. Though there are several NTFPs harvested from YCFBR, some reliable harvest data only available for Coffee, which is often in the category of nationalized by the country, because of that collection of other NTFPs by local people go unrecorded either in zonal/regional or federal government data bank.

So far, no one has carried out a complete inventory on the status of NTFP resources in YCFBR. It is known that NTFPS are not found uniformly throughout the forest. Strategies for sustainable harvesting must consider not only the species being harvested but also other uncollected species that coexist with them within the ecosystem. This necessitates more careful assessment of resource base and sustainable harvesting scheme to respond to multi-species plant form and product types, as well as a holistic consideration of social and ecological factors. Additionally, it is important to take into account environmental variation, which climate change presents particular challenges for sustainable harvesting and for maintaining ecosystem functions. In this regard, large-scale integrative research projects are necessary to understand the impacts of complex interactions among various factors on the dynamics of species and ecosystems at different spatial scales. People within the community need to be trained in these procedures, as well as in the methodology to monitor the impact of utilizing the resources. In this regard, traditional knowledge is particularly important with respect to biology, phenology, distribution, uses and several other aspects that can facilitate speedy inventory of NTFPs. Ethnoecological studies are vital to document rich knowledge of the local communities in terms of classification, harvesting practices, use and management of resources. Thus, research and higher learning institute participation is an avoidable task to document the TK. Engagement of the local government and other NGOs could equally play a pivotal role to facilitate the sustainable and non-destructible harvesting of NTFPs.

Recommended Strategies

- Understand the nature and extent of use of various NTFPs by the local communities.
- Carry out a complete participatory assessment/inventory on the status of diverse NTFP resources using appropriate sampling procedures.

- Map the resources using state-of-the-art technology such as Geographical Information System (GIS) and relate it with the issues on livelihood and gender.
- Develop participatory operation plan with communities, government bodies and other interested development partners.
- Designing a plan to undertake participatory action research to identify the best harvest intervals and collection methods that depending on the types NTFPs in question.
- Develop bylaw and devising a sustainable harvesting scheme (quantity of harvest, methods, seasons, techniques of harvesting etc.) along with legal and social issues.
- Develop operational and monitoring plan to assess the outcomes of sustainable harvesting scheme.
- Provide local communities with the necessary tools and training to implement sustainable harvesting practices.
- Implement pilot programs in selected areas of the forest to test the effectiveness of sustainable harvesting methods and adapt them based on community feedback and ecological monitoring.
- Ensuring that the harvesting of NTFPs is done in a sustainable manner benefits both the NTFPs bearing species and ecosystems involved, making it a mutually beneficial goal for nature and humans.
- Devise tailor made sustainable harvesting strategies for each NTFPs and enacting forest regulations in order to reduce pressure on the forest.

10.6. Promote Domestication and Commercialization

Though the commercial dimension of NTFP is very impressive, there is growing concern regarding the fact that overharvesting fueled by an increasing population and market demand, premature collection, climate change impact accelerating stock depletion. Stock depletion is also associated with forest degradation that forced women to go far from their neighborhood to collect NTFPs. Domestication of NTFP bearing plants is an alternative strategy to reduce

pressure on the wild products and at the same time generating income as well as it could play a vital role in conservation. Before embarking on the domestication, one needs to ascertain whether the NTFP produced by the plant is used by the local communities and have also the required knowledge for processing or it is likely that there is strong demand market for its products. At the same time, in the domestication process it is becoming increasingly important to consider the adaptation potential of the species to habitat shift as well as the negative or positive effects of Climate Change. Domestication is also crucial to improve genetic quality of the plant in order to realize higher yields, extended periods of production, enrich and sustain stock which is essential for sustainable commercialization and marketing. These examples indicate that one possible way of increasing the welfare of the local communities would be to undertake research on two complementary topics (Domestication and commercialization). Therefore, to promote domestication careful studies are required from biological, technological and marketing perspective. This includes propagation techniques; pre- and post-harvest processing and storage technologies, supply requirements, price fluctuations, market knowledge and market understanding.

Concerning the marketing, few of NTFPs in YCFBR have entered the market such as Coffee, Honey and Korarima. This is because of the high market demand of these products within and beyond the national territory. Typically, these products are gathered by local communities with traditional knowledge and skills. According to the scale and demand for the products, wholesalers, retailers, local markets, or export markets may be included along the value chain. On the other hand, some of the NTFPs have a strong potential to be commercialized and can be introduced into the industry thereby bringing benefits to producing communities. For example, the genus Ganadorma fungus widely grown in the YCFBR, its medicinal reputation has merited it with numerous attributes and titles internationally. This fungus can be blended with organic coffee and join the international market with a new branding name; it can also be introduced into the local market. There are a number of other NTFPs (e.g., root crops and wild edible fruits) that have an immense potential for marketing and industrial applications but only few individuals harvest them for consumption and hence the communities miss the opportunity for additional income. These NTFPs seldom may be an obvious source of cash for people because their production and harvest require promotion. Furthermore, in both commercialized and non-

commercialized NTFPs collected from YCFBR, adding values is often overlooked in the value chains.

Value addition with domestication is the most important alternative strategy to gain economic benefits and minimize harvesting pressure of valuable NTFPs from the wild habitat. Support should have to be geared towards exploitation of additional values due to secondary or tertiary products apart from raw harvesting and marketing of NTFPs. Empowering women through introduction of new value added NTFPs, they can not only help to improve the resilience and profitability of already ongoing activities but also become the first mover into completely new business models. By providing women with a more comprehensive understanding of the value chain and customers' needs, the opportunities for establishing successful scalable businesses will increase dramatically. Nevertheless, introducing innovative new value added product is not quite sufficient for women. It should be followed by strengthening business capital for women as their most basic problem was limited capital for their business development. Financial support in the form of micro-credit or small-scale loans from various sources could be arranged to develop NTFP-based enterprises. Albeit the MFIs play positive role in providing access to credit to the communities, most them are not open to small-scale borrowers, to use flexible credit packages and to give priority to women and vulnerable groups in the society. Consequently they are serving mostly those who have a certain amount of wealth and hence compromising the social objectives for which they were initially established. So all relevant actor, the government and NGOs, should answered this matter by providing alternative approaches such as promoting public private partnership (PPP), arranging revolving fund facility, development of soft loan initiatives akin to the Grameen Bank approach or procedures (a financial innovation system based on trust and collateral-free and the opposite of the conventional banking system), which is already diffused in some parts of the country and specifically targeted, as in Professor Yunus's model, to women.

Recommended Strategies

- Listing the NTFPs available and prioritize them based on abundance, local use and market potential and industrial application.

- Involving local communities in identifying the superior types, standardizing propagation techniques and cultivation practices.
- Providing an opportunity for collectors to interact with GOs, NGOs, scientists and traders and strengthening capacity of these groups' exposure visits, training workshops and regular meetings.
- Provide local communities with the necessary support such as establish nurseries, provide high quality seeds and seedlings, tools and training to the production groups.
- Devise a strategies where NTFPs cultivation and forest management support each other and work on improvement of harvesting techniques and reduction of post - harvest losses and storage facilities.
- Implement pilot programs in selected areas of the forest to test the effectiveness of domestication and adapt them based on community feedback.
- Carry out assessment on quality standards required by consumers and add value to products before commercialization.
- Improve extension services and access to input financing, introduce quality standards and to develop value chains through establishing farmers' cooperatives
- Adoption of a simple production / marketing strategy which yields assured and good revenue, facilitating the development of marketing of the product.
- Provide financial support, information and marketing facilities that enable women to plan their production more in line with market demand, to schedule their harvests at the most profitable times, to decide which markets to send their produce to.
- Educate and make women aware of available resources, fabricate new combinations of marketing tools, allocating resources, or looking at the value creation process from a different point of view.

10.7. Advocate for Supportive Policies and Regulatory Frameworks

Policy advocacy and regulatory frameworks are integral to the success of sustainable management of natural resources. In the past, the traditional resource management strategy of Ethiopia, known as "fences and fines" and a centralized approach, discouraged community participation and denied them access to forest resources, which exacerbated conflicts between community and government bodies. Currently, Ethiopia's forestry sector operates under a complex policy environment but with a promising landscape for the local communities. For example, the Ethiopian constitution Article 92 provide the communities have the right to be consulted during planning of forest related projects, and can involve in the implementation of forest development and utilization projects. Furthermore, the 2018 national forest law – a revised version of the 2007 forest law, clearly recognizes the rights of communities and acknowledges their role in managing natural forests and establishing plantations. Most importantly, it recognizes participatory forest management (PFM) as a vehicle to enhance the role of communities in sharing responsibilities and benefits of managing natural forests in accordance with agreed-upon management plan.

The 2018 Ethiopia forest policy plays a pivotal role in shaping the adoption and success of sustainable management of NTFPs, but its success depends on how it is implemented. In this regard, implementation of the new policy requires a policy advocacy campaign in the context of enhancing productivity and sustainability in the management of NTFPs. Although there are structures within government that provide accountability, the smooth implementation of rules and regulations potentially stunted by a number of policy issues, hurdles, and gaps at different levels. For instance, in the development of regulatory framework and implementation process the intended participants may not exist in sufficient numbers or may be found to be non-cooperative. Absence of administrative willingness; inter-organizational complexity and conflict; lack of inter-organizational communication; frontline implementers unable to carry out the intervention due to a lack of motivation or expertise, etc., are also some of the challenges need to be circumvented. So, there is a need of mapping the existing forest policy implementation process from start to finish to assure the principles can be implemented on the ground for successful management of NTFPs. The policy and strategy implementation would be meaning making if it

will capacitate forest based institutions which should be located within the forest area or community. As the primary actor is a government body, the NGOs play a complementary role, primarily by providing technical expertise and strategic media support. On the other hand, the Ethiopian MFIs Proclamation No. 626/2009 sated that, NGOs or institutions other than banks are not allowed to provide microfinance services. This proclamation greatly compromises the role of NGOs that are more interested in the social aspect of microfinance than profit-making. In this regard advocating to provide alternative legal frameworks that operate at different levels and scale need to be initiated. Such kind of initiatives provides some flexibility to NGOs that seek to provide access to finance for the women and disadvantage groups to overcome financial limitations and the lack of access to credit.

Recommended Strategies

- Identify key challenges that focused on influencing decisions of generating workable regulatory framework to represent, promote, or defend the interest, or opinion of the local communities to benefits from sustainable management of NTFPs.
- Identify key players and find out which people or organizations make influence decision makers and stakeholders, and build political and public support to understand, be convinced, and take ownership of the ideas presented through the media, grassroots mobilization, and direct engagement.
- Build strategic partnership with the likeminded institutions and development partners for policy amendment, advocacy and lobbying for enforcement of set policies.
- Mobilize resources (includes preparation of complete plans, clarification of performance standards and conduct appropriate action plans in the appropriate directions.
- Consider different factors that may impact regulation, such as the different legal and cultural traditions of the communities; the national and international commitments undertaken by the government; the impact of other legislation that impact the sector; and level of maturity of the market.

- Supporting the implementing bodies with the required human, technical, material and financial resources with appropriate technologies and also provides training for frontline implementers and motivating in their commitment.

11.Action Plan

The Action Plan describes and identifies major activities and actions required under each strategic goal for the development of sustainable management of NTFPs. The Action Plan provides for the following three time frames: Short Term for 1 - 3 years (2025-2027); Medium - Term for 3 - 5 years (2028-2029); and Long – Term for 5+ years (2030-). To this end, the OSSEREA has proposed sixteen major activities and highlight evaluation framework based on different indicators (presented in the appendix) to measure performance and track progress toward strategic goals. The initiatives need to be owned and supported along with other existing programs undertaken by different governmental and NGOs.

- Since the actions will result in additional assignments beyond what the individual organizations typically plan to cover, it is crucial that each organization create a unit within itself to plan, oversee, and follow up on the implementation of the suggested initiatives, particularly in cases where the regular activities carried out greatly deviate from the suggested plan.

- During implementation of the Action Plan, almost all the organization at local, regional, national and international level will have certain or specific roles to play as the impact of the plan affects almost all the stakeholders, public, private, academia and research, Development Partners, NGOs and civil society, etc.

- In developing the details of the Action Plan, it was also necessary to match the roles and mandates of the different local, regional, national and international organizations and key actors.

It is important to note that this instrument is a living document and will be continually edited and updated in consultation with appropriate actors. Non-governmental organizations and

development partners active in YCFBR together with GOs may first agree on a general framework to implement the action plan and then proceed to fill in the details.

Table 1. Roles and Responsibilities of Stakeholders in the implementation of the strategy

Stakeholder	Roles and Responsibilities
Local Communities	Local communities (youth, women, men, and the elderly) negotiate the use, management, harvesting, and conservation of NTFPs. They are also responsible to implement the agreed-upon rules resulting from their negotiations. And they try to resolve disputes that arise in the processes of implementation of rules. They participate in planning, monitoring, evaluation and share and demonstrate their knowledge.
Respective Woreda Office of Agricultures	Woreda agriculture offices in their respective administration areas coordinates all day to day activities; assess progress towards sustainable NTFPs management and identify emerging threats and weaknesses; involved in data gathering to generate appropriate information; enforce policies by extension all related EPSM-NTFP actions. Furthermore the local office of agriculture reports to the Zonal Cabinet. for sustainable management of NTFPs in YCFBR.
Zonal and Regional GOs	Backup and capacitating the local GOs. The zonal and regional GOs provide financial and technical support and also responsibility for collating and analyzing data and reporting on EPSM-NTFP within specified timelines. They also create effective media for on-going communication and dialogue with the secondary implementation partners and other stakeholders. The regional GOs provide logistic support to the TAC and other committees/groups that may be established within EPSM-NTFP implementation. Evaluate management practices, control forest concessions and clarify issues related to certification.
Oromia Forest and Wildlife Enterprise (OFWE)	OFWE is mandated to administer and sustainably manage forests, woodlands & wildlife conservation areas in Oromia. Hence it is appropriate to assigned it as the Secretariat for the EPSM-NTFP. Therefore, OFWE providing technical support to the TAC and other committees/groups that may be established within EPSM-NTFP implementation.
Research- and Higher-Learning Institutions	Lead in the development of comprehensive research proposals, conduct action research, develop sustainable

	NTFPs management guidelines, participate in up scaling action research, and provide technical training. They are also responsible to establish multi-sectorial working groups to coordinate research undertakings. They also invited local communities and GOs as well as TAC to members participate in various working groups and information regarding successful delivery of research findings and best practices.
Technical Advisory Committee (TAC)	Oversight of monitoring, evaluation and reporting - The TAC provides oversight for the EPSM-NTFP. The TAC is also responsible for communicating the progress and setbacks of EPSM-NTFP implementation against its goal and strategic objectives to the BoA, make recommendations for and seek solutions to issues. The TAC carries out its work through OFWE (which acts as its Secretariat) and reports to the local and zonal GOs.
Public stakeholders (NGOs, Private Sector, International Organizations, International Development Partners (IDP), Media, etc.	Provide funding, technical expertise, training, and certifications. Engaged in awareness creations, facilitate market development and commercialization NTFPs, offer investment opportunities, support community-based development interventions of NTFPs. Assist in the development and evaluation of national and/or sub-national forest policies, strategies, plans and programs. They will also receive information from the local, zonal and regional on the progress of EPSM-NTFP implementation and the results achieved. All can also participate in media coverage.

12.Establish Monitoring and Evaluation Systems

Monitoring and evaluation (M&E) are important tools for forward-looking strategic positioning, organizational learning and for sound management. To ensure that implementation of the current strategic plan is on course and relevant to the needs of the communities M & E will be made more systematic. The approach to monitoring and evaluation for the period 2025-2027 is based on the quarter and annual reports in the middle of 2026 and the end of the first action plan but will also be implemented in a more systematic manner and adapted to a number of new requirements whenever necessary. This may be achieved through regular field visits and periodic consultations with the involvement of all stakeholders (community members, researchers, government agencies, NGOs) and assess the effectiveness of management practices, with a focus

on continuous improvement. The following tools and procedures will be standardized and adopted for M&E.

- Quarterly and annual reports,
- Stakeholders review meeting,
- Use of logical framework in research and development project planning, and
- External evaluation every year.

The Technical Advisory Committee (TCA) will be established from various actors to oversight the implementation of the strategy. Based on the results obtained, existing NTFPs utilization knowledge, and YCFBR community's expectations of its forests, the TCA will review the strategy and propose new objectives and actions to progress further achieving sustainable management of NTFPs, of course in consultation with all appropriate authorities and actors. The Strategy may also be subject to revision whenever necessary in the course of implanting the strategy periods that will be due to:

- Recommendations resulting from the Monitoring and evaluation report,
- Deficiencies being identified.
- Change in legislation.

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Forest Development, Conservation and Utilization Proclamation (2018)

Annex

Goal I: Awareness Creation, Motivation and Empowerment			
Activities	**Action required**	**Indicators**	**Key actors**
Identify target audience interests, values, needs, and expectations with regard to sustainable management and development in NTFPs.	Conduct surveys to document the values, needs, and expectations of local communities, with regard to sustainable management and development in NTFPs. Experiment with models for dialogue and discussion between the public and communities on NTFPs issues. Promote gender equality; enhance women's and youth participation.	Report on the interests, values, needs, and expectations expressed in public consultations	ECFF, NABU,PHE, EWNRA EFD, JARC, BARC, TARC, JU, MaU OFWE Local communities
Identify appropriate sustainable management of NTFPs education activity to address the concerns of the community and the public.	Support and guide forest information and education initiatives by partner organizations. Encourage the organization of activities for the local communities and general public and actively participate in them. Design and distribute, in collaboration with partners, information and education tools that address the concerns of the communities.	Report on actions and sustainable management of NTFPs information and education initiatives conducted in the intervention Woredas	EFD, JARC, BARC, TARC, JU, MaU Local communities ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA
Prepare teaching materials, select communication medium, held education activities and evaluate the	Create a campaign slogan (e.g., "NTFPs: A Treasure Worth Protecting." Utilize traditional, social and religious	Completion of a communication plan for public education	EFD, JARC, BARC, TARC, JU, MaU

approaches.	institutions (e.g., Edir, Mosques, and Churches etc.). Combine different communication channels, techniques, and tools to target audiences in various settings and situations (e.g., radio talk shows aired in local language). Conduct post survey and track the impact through feedback collections from participants using various formats. Remove barriers to participation in community activity like a lack of access for women, transport and language, encouraging informal community support for people experiencing these barriers.	Number of teaching materials prepared (e.g., manual, brochures The number of radio spot or program per week Media engagement and documentary films Educational programs evaluation report	Local communities ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA ZoA, ZoEPA, ZoL
Expected Outcomes (Goal I): • Local communities, the general public as well as targeted groups have increased capacity regarding sustainable use of NTFPs. • Increased local communities' motivation and enhanced participation in the development of NTFPs. • Empowered women with expanded incomes (direct and indirect) for themselves and their families from NTFPs. **Time frame:** Short Term (1 - 2 years)			
Goal II. Knowledge Sharing and Capacity Building			
Activities	**Action required**	**Indicators**	**Key actors**
Determine existing gaps and establish repositories knowledge resources.	Conduct surveys, interviews and observations to identify gaps that need to be address in utilization and sustainable	Data derived from survey & list of existing gaps	EFD, JARC, BARC, TARC, JU, MaU ECFF, NABU,PHE,

	management of NTFPs. Employ a gap analysis tool to quantify and prioritize the gaps based on their impact and urgency.	documented List of prioritized knowledge gap	EWNRA WoA, WoL, WoEPA
Collaborative development of information sharing and capacity-building materials to target audiences.	Establish a discussion table to facilitate consideration of main stakeholder issues in sustainable management of NTFPs. Create a knowledge exchange platform or hub (e.g., Road show, Farmers field day, Workshop, Training, Public meetings, Exhibitions and Competitions, Mobile Apps, etc.) that allows for continuous learning and sharing. Design and distribute, in collaboration with partners, information and education tools that address the concerns of the local communities.	Number of consultations held Number of knowledge exchange platform created Total number of farmers who receive assistance	EFD, JARC, BARC, TARC, JU, MaU ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA Mass media
Provide information and support to the communities, and other stakeholders through the knowledge exchange platform which ensure that woman inclusion.	Identify and select farmer-trainers on the basis of their skills and interest in sharing information. Measure the satisfaction of participants and the results achieved and potential scalability. Facilitating organizations and local institutions need to be proactive in ensuring that women become farmer-	Number of women participated in capacity building programs No of women participants and level of representation	WoA, WoL, WoEPA, WoF OFWE ECFF, NABU,PHE, EWNRA

	trainers.		
Establish or strengthen the existing demonstration farms and village knowledge centers.	Demonstration of best practices of NTFPs cultivation on farm lands and farmer training center. Develop simple and appropriate reference materials to the farmer-trainers. Organize a farmer-to-farmer extension platform to share model farmers who are champion NTFPs utilization or early adopters of new knowledge.	Number of knowledge centers established Number of extension service exercised	EFD, JARC, BARC, TARC, JU, MaU ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA ZoA, ZoL, ZoEPA
Support and equip women with essential skills in the development of NTFPs suitable for them to engage.	Provide a special training for women such as Korarima cultivation, beekeeping and mushroom production, and business management, basic climate risk analysis for various livelihood strategies. Provide material support and piloting. Carryout participatory assessments with stakeholders, partners and service providers to assess the impact and ensuring the sustainability.	Number of training & material support provided Number of women engaged in piloting program Evaluation report	ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA ZoA, ZoL, ZoEPA
Building capacity of government functionaries on sustainable harvesting of NTFPs and quality delivery mechanisms.	Building capacity of the concerned institutions through training, discussions, policy briefs and working together on ground. Strategic partnerships, complementarity of	Reduced response times on requests for information & support by frontline experts.	ECFF, NABU,PHE, EWNRA OFWE

	skills and expertise.	Project progress and final report	WoA, WoL, WoEPA WoA, WoL, WoEPA
Expected outcomes (Goal II): • Developed knowledge & confidence necessary to actively contribute to the sustainable development of NTFPs. • Business skills of Women in NTFPs increased. • Enhanced sense of ownership and organizational capacity to implement sustainable utilization of NTFPs. • Improved effectiveness, collaboration in sustainable use of NTFPs. **Time frame:** Short Term (1 - 2 years)			
Goal III. Identify Research Priority Areas and Develop Comprehensive Proposal			
Activities	**Action required**	**Indicators**	**Key actors**
Identify candidate research priority areas using a variety of sources (e.g., gaps identified from strategic Goal I and II, published report, etc.).	Organized a public workshop (includes local communities and relevant stakeholders) and collect feedbacks for further refinements of prioritized research areas. Categorize list of prioritized research areas within the framework (E.g., Overharvested NTFPs, Underutilized NTFPs, Demand market availability, Conservation need, Industrial applications, etc.). Set a criterion (e.g., appropriateness-availability of pre-existing data, Relevance-community concern/size of the problem, Feasibility- financial/human/system capacity, opportunity to collaborate-availability of partner infrastructure and resources, inclusiveness, particularly their	No of public workshop held Agreed categorized framework and criteria set document. Exhaustive list of candidate research priority areas Report on actions	EFD, JARC, BARC, TARC, JU, MaU ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA

	sensitive to bring impact on women).		
Build a collaboration network and develop a comprehensive action research proposal.	Working with multiple stakeholders in program and research design. Create thematic and professional networks between partners and target groups. Surfing the web and browsing through published report about the prioritized research topics and also conduct some preliminary research-looking at issues and people in their context. Developed a comprehensive action research proposal.	Number of collaboration initiated Sum of joint action research proposal developed	EFD, JARC, BARC, TARC, JU, MaU ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA
Expected outcomes (Goal III): • Served as a blueprint or roadmaps for conducting action research in sustainable utilization and promotion of NTFPs. • Served as a persuasive document, making a compelling case for why the prioritized research lists are worthy of financial support. • Facilitated communication and collaboration among researchers, advisors, and stakeholders. **Time frame:** Short Term (1 - 2 years)			
Goal IV: Integrate Traditional Knowledge into Natural Resource Management			
Activities	**Action required**	**Indicators**	**Key actors**
Document traditional knowledge and community-based natural resource management for optimum harvesting of NTFPs.	Select specific areas with immense TK practice on NRM Conduct preliminary survey and collect primary data through ethnographic methods such as focus group discussions,	Production of publication and reports supporting the integration of TK Incorporation of TK	EFD, JARC, BARC, TARC, JU, MaU OFWE ECFF, NABU,PHE,

	profile interviews, household survey and participant observation, and secondary data information from published material and grey literatures. Analyse the nature of TK present, its utility, barriers against its use and the role of TK in NRM. Create new knowledge by integrating TK with scientific parameters for optimum harvesting of selected NTFPs within a community-based natural resource management approach.	into NRM Plans.	EWNRA WoA, WoL, WoEPA
Expected outcomes (Goal IV): • Traditional knowledge preserved. • Community involvement and responsibility for sustainable management of natural resources increased. • The effectiveness and inclusivity of NRM monitoring initiatives enhanced. **Time frame:** Medium Term (3 - 5 years)			
Goal V: Develop Sustainable Harvesting			
Activities	**Action required**	**Indicators**	**Key actors**
Develop Protocols for sustainable harvest and management of NTFPs.	Develop enhanced NTFPs resource inventory using a participatory approaches. Identify, prioritize and quantify the growing stock of target NTFPs. Determine sustainable harvesting limits and rates (e.g., annual, biannual etc.) of the	Quality and quantity data available. Amount of NTFPs harvested annually. Number of Guideline document generated	Local communities, EFD, JARC, BARC, TARC OFWE ECFF, NABU,PHE,

	target species of NTFP importance. Adopt key methods and practices, and develop guideline for sustainable harvest and resource management protocol for each NTFPs. Develop a system of record keeping and participatory monitoring.	Track record	EWNRA WoA, WoL, WoEPA ZoA, ZoL, ZoEPA
Expected outcomes (Goal V): • The long-term viability of NTFPs ensured. **Time frame:** Medium Term (3 - 5 years)			
Goal VI: Promote Domestication and Commercialization			
Activities	**Action required**	**Indicators**	**Key actors**
Explore the feasibility and options for high priority NTFPs (e.g., Korarima, Ganoderma etc.) domestication, marketing and certification.	Conduct market scanning and value chain analysis to ensure that domestication benefits the producers and meets market demands. Facilitating multi-stakeholder dialogue among traders, producer groups and commercial or government service providers. Promotion of trade in traditional NTFPs that benefits women. Create opportunities for smallholder producer of organic NTFPs and develop a brand name (e.g., specialty coffee) aiming	A completed assessment report on NTFPs domestication Number of package of practice prepared Number of training provided Number of partner joining PPP alliance	EFD, JARC, BARC, TARC, JU, MaU ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA ZoA, ZoL, ZoEPA OBA, OBF, OCPA, EAS, IES, ECTA

	for certification. Provide training to communities on cultivation, processing, ensuring that they produced the required NTFPs quality standards. Facilitates innovative strategic alliance (e.g., Public Private Partnership and Corporate Social Responsibilities) and linking domestic and foreign NTFP buyers where appropriate.		The Forest Stewardship council Fairtrade International
Mobilize finance and other resources for the development of selected NTFPs such as Korarima, Edible fungi, Honey and wild edible fruits	Identify funding sources to develop selected NTFPs opportunities. Conduct of baseline studies to implement pilot project sites in selected Kebeles. Mobilize measurable increased in investments to finance selected initiatives. Provide appropriate training, equipment, compensation and incentives to early adopter in the development of NTFPs. Address the local government institutional capability in transfer of knowledge.	Number of baseline studies conducted Number of initiative created and operational Number of local communities and sector stakeholders supported Rate of increase in household income	ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA, WoF ZoA, ZoF, ZoL, ZoEPA OBA, OBF, OCPA, OFWE Development partners
Expected outcomes (Goal VI): • Returns and market shares to NTFPs of the local communities increased. • Role of Women in the product value chains of NTFPs increased. • Threatened species saved and conservation practice enhanced.			

Time frame: Medium Term (3 - 5 years)			
Goal VII: Advocate for Supportive Policies and Regulatory Frameworks			
Activities	**Action required**	**Indicators**	**Key actors**
Identify specific policy issue to improve compliance with policy- procedures, standards and guidelines on sustainable utilization and marketing of NTFPs.	Identify major policy issue problems using participatory methods to solve issues on sustainable utilization and marketing of NTFPs that requires advocacy. Identifying potential allies through stakeholder mapping. Building alliances and coalitions between partners, target groups and other like-minded organizations. Embrace a "leaving no one behind" approach to ensure that women and disadvantage communities are able to participate and make their voices heard. Analyzed the political context, created the message and mobilized the necessary resources to start implementing the policy advocacy through the coalition.	Report on actions	ECFF, NABU,PHE, EWNRA OFWE WoA, WoL, WoEPA, WoF ZoA, ZoF, ZoL, ZoEPA OBA, OBF, OCPA, OFWE Development Partners
Expected outcomes (Goal VII): • Local community's complaint in relation to regulatory framework was heard and responded to appropriately. **Time frame:** Long Term (5+ years)			