



**Food and Agriculture Organization
of the United Nations**

LETTER OF AGREEMENT

Between
the Food and Agriculture Organization of the United Nations (FAO) and
Chamber of Forest Engineers (OMO)

on

Developing Regional Guidelines on Value Chain Development and Market Access for NWFPs,
implementing a Regional Capacity Building Workshop, and Conducting Online Training on the Use of the
Guidelines

Milestone 3: Stocktaking Report

Ankara, December 31, 2024
First Revised on January 17, 2025
Second Revised on February 3, 2025

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1. Summary

The Stocktaking Report under Milestone 3 provides the outcomes of reviewing and analyzing existing studies and data on non-wood forest products (NWFP) value chains, NWFP value chain tools, approaches, best practices, and methodologies through desk research and literature review. The review focused on the region's best practice examples and globally accepted best practices, including FAO's existing publications in value chain development. We also assessed the certification schemes that could be adapted directly or with minor modifications for the countries.

The stocktaking report includes the following main chapters and sub-chapters:

- Literature review in the region on value chain and market access of NWFPs
 - Best practice examples from the region
 - Best practice examples globally
 - Recommendation for the adaptation of the best practice examples identified
 - Description, analysis, and thematic grouping of the references
 - Analysis of some of the best practices based on the literature review
 - Criteria for identification of value chains based on the literature review
- The results of the literature review with the beneficiary countries in South and Eastern Europe, Central Asia, and Caucasus to complement the literature review
- A comprehensive report based on the outcomes of the technical regional workshop and literature review
 - Analysis of the regional technical workshop report
 - SWOT analysis on NWFPs in South and Eastern Europe, Central Asia, and the Caucasus regions
 - NWFP certification schemes
 - Selected NWFPs to provide examples of value chain development and a set of recommendations to improve market access
 - Outline of the guidelines

The draft version of the stocktaking report was coordinated with the beneficiary countries in South and Eastern Europe, Central Asia, and Caucasus through online meetings and exchange of information to complement the literature review. These communications also included the identification of strengths, weaknesses, opportunities, and threats (SWOT) regarding the NWFPs value chain, certification, and market access.

2. Introduction

The Food and Agriculture Organization of the United Nations (FAO) and the Chamber of Forest Engineers of Türkiye (OMO) signed a Letter of Agreement (LoA) on August 29, 2024, for *"Developing Regional Guidelines on Value Chain Development and Market Access for NWFPs, Implementing a Regional Capacity Building Workshop and Conducting an Online Training on the Use of the Guideline."*

Forest-based value chains, particularly NWFP value chains, are essential elements of the bioeconomy. They provide sustainable and environmentally beneficial products that can substitute for non-renewable products and energy. Developing legal and sustainable forest-related value chains bears the potential to underpin carbon-neutral economies while generating decent employment and livelihoods for millions of people.

In this regard, the overall aim of the LoA is to support the development of a regional approach to identify and implement value chains for NWFP and create opportunities to improve market access in the region. The LoA activities are expected to enhance member states' knowledge and capacity in South and Eastern Europe, Central Asia, and the Caucasus regarding value chain development in NWFP. This will be achieved by formulating comprehensive Guidelines on value chain development and market access for NWFPs and implementing targeted training programs focused on improving value chain management and market access tailored to NWFPs. The work will also foster close cooperation and capacity sharing among South and Eastern Europe, Central Asia, and Caucasus countries in value chain development, market access, and economic income from NWFP.

In addition to the above purposes, the main objective is to prepare the Guidelines on value chain development and market access in NWFPs. The guidelines will be ready for South and Eastern Europe, Central Asia, and Caucasus countries. Capacity-building activities for beneficiary countries, including the organization/delivery of the related training, will also accompany the guidelines.

3. Outputs and Leading Activities

OMO undertakes the following three main outputs:

- Organizing a regional capacity building workshop to be informed about the current situation in the participating countries and gather information for their needs related to NWFPs,
- Developing regional guidelines and
- Conducting online training with the participation of respective countries from South and Eastern Europe, Central Asia, and the Caucasus.

The Guidelines will enable countries to improve value chains and maximize the benefits of NWFPs. NWFPs contribute to countries' sustainable development, cultural preservation, and environmental conservation efforts. Recognizing the importance of NWFPs and supporting policies and initiatives that promote their sustainable management can contribute to the well-being of the region's people and the environment.

OMO will achieve these outputs through the following activities:

- A Regional Capacity Building Workshop for country representatives from South and Eastern Europe, Central Asia, and the Caucasus,
- Preparation of stocktaking report based on the workshop outputs and outcomes,
- Drafting the Guidelines,
- Preparation of final Guidelines,

- Preparation of training materials,
- Delivery of the training.

OMO reflects on delivering all outputs in milestone reports (deliverables). Each milestone report includes information on the main activities specified in the LoA, including the submission date of the reports. In this sense, the Stocktaking Report under Milestone 3 consists of the information on the following:

- Literature review in the region on value chain and market access of NWFPs
 - Best practice examples from the region
 - Best practice examples globally
 - Recommendation for the adaptation of the best practice examples identified
 - Description, analysis and thematic grouping of the references
 - Analysis of the some of the best practices based on the literature review
 - Criteria for identification of value chains based on the literature review
- The results of the literature review with the beneficiary countries in South and Eastern Europe, Central Asia, and Caucasus to complement the literature review
- A comprehensive report based on the outcomes of the technical regional workshop and literature review
 - Analysis of the regional technical workshop report
 - SWOT analysis on NWFPs in South and Eastern Europe, Central Asia, and the Caucasus regions
 - NWFP certification schemes
 - Selected NWFPs to provide examples of value chain development and a set of recommendations to improve market access
 - Outline of the guidelines

The draft version of the stocktaking report was coordinated with the beneficiary countries in South and Eastern Europe, Central Asia, and Caucasus through online meetings and exchange of information to complement the literature review. These communications also included the identification of strengths, weaknesses, opportunities, and threats (SWOT) regarding the NWFPs value chain, certification, and market access.

4. Methodology

OMO followed the below methodology to develop the Stocktaking Report.

- Establish a team of experts and nominate resource persons from the countries,
- Organize a regional workshop on NWFPs in South and Eastern Europe, Central Asia, and the Caucasus (7-12 October 2024),
- Literature review in the region on value chain and market access of NWFPs,
- Coordinate, collect, and verify the results of the literature review with the beneficiary countries through meetings and exchange of information in South and Eastern Europe, Central Asia, and the Caucasus to complement the literature review,
- Analyze the regional technical workshop report,

- Conduct a SWOT analysis based on the regional workshop report and feedback from countries,
- Review certification schemes for NWFPs,
- Compile the draft stocktaking report,
- Receive feedback from countries on the stocktaking report,
- Revise the stocktaking report,
- Receive validation from all countries.

5. A Literature Review of the Best Practice Examples from the Region, as well as Globally Accepted Best Practices, including FAO's Existing Publications in Value Chain Development and Market Access of NWFPs

5.1. Parameters for the Literature Review

The stocktaking study was initiated by determining the parameters for the search to collect and review NWFP value chain development and market access information available online. These parameters are listed below.

- NWFP
- Non-timber forest product (NTFP)
- Value chain development
- Market access
- SWOT analyses related to NWFP
- Global, regional, and national best practice examples,
- NWFP certification schemes
- Southern and Eastern Europe, Central Asia, and the Caucasus, including the country names in the sub-region

We searched databases to collect information on NWFP value chain development and market access globally and in Southern and Eastern Europe, Central Asia, and the Caucasus. These include Google Scholar, Web of Science, Scopus, and ScienceDirect. We also reviewed FAO publications and reports from the countries. We reached 54 scientific papers and other reports during the stocktaking study. In this regard, the Stocktaking Report depends mainly on the literature review focusing on NWFP's value chain development and market access and the synthesis of the technical regional workshop.

5.2. Best Practice Examples from the Region

Di Cori, V.; Robert, N.; Franceschinis, C.; Pettenella, D.M.; Thiene, M., 2022. Framework Proposal to Quantify the Contribution of Non-Wood Forest Products to the European Union Forest-Based Bioeconomy. *Forests* 2022, 13, 362. <https://doi.org/10.3390/f13030362>

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5.3. Best Practice Examples Globally

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5.4. Recommendations of the Best Practice Examples and Certification Schemes that could be Adapted Directly or with Minor Modifications for the Countries

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5.5. Summary of Some Selected Publications

5.5.1. Summary of Regional Publications

1. Di Cori et al., 2022

Key Points

- Proposes a framework for quantifying the economic, social, and environmental contributions of Non-Wood Forest Products (NWFPs) to the EU's forest-based bioeconomy.
- Highlights the challenges of data collection and the heterogeneity of NWFPs across Europe.
- Discusses potential indicators for measurement, including employment, revenue generation, and ecosystem services.
- Recommends improved policy integration to enhance the sustainable management and commercialization of NWFPs.

2. GoF and UNDP, 2015

Key Points

- Provides an in-depth value chain analysis of NWFPs in the Mitrovicë/a Region.
- Examines different stages of the value chain, from harvesting to final market integration.
- Identifies key actors, including local collectors, processors, and traders.

- Highlights constraints such as inadequate infrastructure, market access, and policy support.
- Suggests interventions for strengthening the NWFP sector, including capacity building and improved regulatory frameworks.

3. Lovrić et al., 2020

Key Points

- Provides a comprehensive statistical analysis of NWFP production and trade in Europe.
- Categorizes NWFPs into edible products (e.g., mushrooms, berries), medicinal plants, and industrial materials.
- Examines policy frameworks supporting NWFP commercialization.
- Identifies regional disparities in NWFP production and their economic significance.
- Highlights research gaps and suggests further studies on the economic valuation of NWFPs.

4. Mutke et al., 2019

Key Points

- Examines how innovation networks support the development of NWFPs in the Mediterranean region.
- Identifies key stakeholders, including research institutions, government bodies, and private enterprises.
- Discusses barriers to innovation, such as knowledge fragmentation and weak policy enforcement.
- Highlights successful case studies where networking led to product diversification and market expansion.
- Suggests strategies for improving knowledge exchange and research collaboration in NWFP sectors.

5. Rovira et al., 2022

Key Points

- Investigates how NWFPs can be leveraged for sustainable rural tourism development.
- Review marketing strategies that link NWFPs with regional identity and cultural heritage.
- Highlights the role of geographical indications and eco-certifications in promoting NWFPs.
- Discusses the economic impact of NWFP-based tourism in rural areas.
- Suggests policy recommendations for integrating NWFPs into regional development plans.

6. Sacchelli et al., 2021

Key Points

- Conducts a systematic review of existing literature on NWFPs in Europe.
- Identifies research trends, gaps, and future opportunities in NWFP studies.

- Analyzes different methods used for economic and ecological assessments of NWFPs.
- Highlights the role of NWFPs in rural livelihoods and biodiversity conservation.
- Calls for more interdisciplinary research to bridge knowledge gaps.

7. UNDP, 2019

Key Points

- Provides a value chain analysis of the carob industry, focusing on key production and trade dynamics.
- Examines processing methods, market demand, and pricing trends for carob products.
- Identifies constraints such as supply chain inefficiencies, lack of investment, and quality control challenges.
- Proposes policy recommendations to enhance the competitiveness of carob-based NWFPs.

8. Wolfslehner et al., 2019

Key Points

- A comprehensive report on NWFPs in Europe, analyzing their role in rural economies and biodiversity conservation.
- Discusses policy frameworks and governance structures that influence NWFP sustainability.
- Highlights case studies of successful NWFP enterprises across Europe.
- Examines the socio-economic impact of NWFP harvesting on local communities.
- Suggests recommendations for integrating NWFPs into forest management strategies.

5.5.2. Summary of Global Publications

1. Aferdi Dadebo et al., 2024

Key points

- Examines the role of forest resources in biodiversity conservation and sustainable forest management in Ghana.
- Analyzes value chains of forest products, focusing on economic and ecological impacts.
- Identifies challenges such as deforestation, weak governance, and market barriers.
- Suggests policy recommendations for enhancing value chain efficiency and sustainability.

2. AFF and FAO, 2021

Key points

- Conducts a value chain analysis of NWFPs in six African countries within the Great Green Wall initiative.
- Identifies key products, market opportunities, and economic benefits.
- Examines constraints such as climate change, land degradation, and lack of infrastructure.

- Provides policy recommendations for improving market access and sustainable harvesting.

3. Ahenkan & Boo, 2011

Key points

- Analyzes weaknesses in the NWFP supply chain in Ghana.
- Identifies gaps in infrastructure, regulatory frameworks, and market access.
- Suggests improvements such as better processing facilities, quality control measures, and policy reforms.

4. Anders Jensen, 2009

Key points

- Explores methodologies for valuing NWFPs in forest-based economies.
- Discusses economic modeling approaches for assessing market dynamics.
- Highlights case studies of successful NWFP commercialization.

5. Da Re et al., 2015

Key points

- Examines regional markets for NWFPs and their impact on small and medium-sized enterprises (SMEs).
- Identifies major market players and distribution networks.
- Recommends strategies for strengthening the NWFP business environment.

6. Di Vita et al., 2023

Key points

- Analyzes the aromatic plant sector in Italy through stakeholder engagement.
- Identifies gaps in the value chain and suggests policy interventions.
- Highlights consumer trends and preferences in the aromatic plant market.

7. El Tahir & Vishwanath, 2015

Key points

- Evaluates marketable agroforestry products in Eastern Sudan.
- Identifies barriers to commercialization, including lack of funding and regulatory challenges.
- Provides policy recommendations to enhance market competitiveness.

8. Faisal I. Musa et al., 2023

Key points

- Reviews the role of NWFPs in rural household economies in Sudan.
- Identifies key products contributing to income generation.
- Discusses challenges such as climate variability and market access.

9. FAO, 1995

Key points

- Examines the importance of NWFPs for rural economies.
- Discusses sustainable management practices.
- Identifies policy measures to support NWFP-based livelihoods.

10. FAO, 2014

Key points

- Provides guiding principles for sustainable value chain development in the food sector.
- Explores how NWFPs fit within global food systems.
- Offers case studies on successful implementation.

11. FAO, 2017

Key points

- Examines biodiversity conservation efforts in Fiji through NWFP-based livelihoods.
- Identifies potential crops and value-adding opportunities.
- Provides marketing strategies for sustainable products.

12. Meinhold & Darr, 2019

Key points

- Reviews factors affecting NWFP processing in SMEs.
- Discusses the role of technology, financing, and policy support.
- Highlights case studies of successful NWFP processing enterprises.

13. Sharma & Bharti, 2020

Key points

- Uses network analysis to examine NWFP value chain trends.
- Identifies key actors and bottlenecks.
- Suggests strategies for improving efficiency and sustainability.

5.5.3. Summary of Other Publications

1. Patricia Shanley, Alan Pierce & Sarah Laird, 2003

Key points

- Explores the potential of NWFP certification as a tool for conservation and sustainable development.
- Discusses the limitations of market-driven certification models.
- Identifies barriers such as high costs, limited consumer awareness, and complex certification standards.
- Suggests alternative approaches, including government support and community-based certification.

2. Patricia Shanley, Alan Pierce & Sarah Laird, 2005

Key points

- Provides an in-depth analysis of NWFP certification mechanisms.
- Highlights case studies of certified NWFPs across different regions.
- Examines ecological, social, and economic impacts of certification.
- Recommends improvements in certification standards to enhance sustainability.

3. Patricia Shanley, Alan Pierce, Sarah Laird & Dawn Robinson, 2008

Key points

- Extends the discussion from the 2005 report by focusing on the management aspects of certified NWFPs.
- Explores governance frameworks for certification.
- Identifies challenges such as balancing economic viability with conservation goals.
- Proposes policy recommendations for enhancing the impact of NWFP certification.

4. Paul Vantomme & Sven Walter, 2003

Key points

- Analyzes the global market trends for certified NWFPs.
- Discusses the role of certification in promoting sustainable forest management.
- Highlights economic challenges, including price premiums and limited consumer demand.
- Suggests strategies for integrating certification into existing conservation programs.

5. Walter S., 2006

Key points

- Reviews certification standards applicable to NWFPs.
- Presents case studies from different countries.
- Identifies key lessons learned from early certification efforts.
- Discusses potential improvements in certification policies.

6. Pierce, Shanley & Laird, 2008

Key points

- Questions the effectiveness of certification for NWFPs.
- Analyzes the contradictions between certification objectives and market realities.
- Highlights challenges related to certification costs and consumer awareness.
- Calls for a reevaluation of certification approaches.

7. Singh & Chatterjee, 2022

Key points

- Examines the certification of Rhododendron-based NWFPs in the Western Himalayas.
- Analyzes sustainability challenges associated with overharvesting.

- Suggests strategies for improving the certification framework in India.

8. Stark, Min, Weyerhaeuser & Yongping, 2006

Key points

- Evaluate the feasibility of NWFP certification in Southwest China.
- Identifies trade-offs between economic benefits and environmental conservation.
- Discusses consumer perceptions of certified NWFPs in China.
- Recommends policy interventions to strengthen certification programs.

9. Schmitt, Pokorny & Ying, 2008

Key points

- Analyzes the impact of NWFP certification on food safety and forest conservation in China.
- Examines economic benefits for rural communities involved in NWFP production.
- Discusses policy gaps and potential improvements in certification mechanisms.

10. Yadav & Dugaya, 2013

Key points

- Explores the state of NWFP certification in India.
- Identifies major challenges, including lack of standardization and limited market demand.
- Discusses opportunities for enhancing certification through policy reforms and market incentives.

6. Description, Analysis, and Thematic Grouping of the References

6.1. NWFPs in the Context of Bioeconomy and Rural Development

Key Themes:

- **NWFP Contributions to Bioeconomy:**
 - Di Cori et al. (2022): Framework for quantifying NWFP contributions to the EU bioeconomy.
 - Wolfslehner et al. (2019): Overview of NWFP roles in European economies, linking NWFPs to bioeconomic strategies.
 - Sacchelli et al. (2021): Quantitative review of European NWFPs and their socio-economic value.
 - Weiss et al. (2020): Exploring new values for NWFPs.
- **Rural Development and Livelihoods:**
 - Mutke et al. (2019): Innovation networks for NWFPs in Mediterranean rural regions.
 - Rovira et al. (2022): Using NWFPs to enhance sustainable rural tourism through territorial marketing.

Analysis:

- These studies highlight NWFPs' dual role as economic drivers and tools for rural development. They stress integrating NWFPs into broader bioeconomies, improving livelihoods, and creating rural development opportunities.

6.2. Governance, Value Chain, and Market Analysis

Key Themes:

- **Governance Impacts:**
 - Tieguhong et al. (2015): Examines governance and its influence on NWFP value chains in Cameroon.
 - UNDP (2015): Value chain analysis of NWFPs in Kosovo, focusing on governance and local market development.
- **Value Chain Optimization:**
 - Jensen (2009): Valuation of NWFP value chains and their impact on forest policies.
 - Meinhold & Darr (2019): Processing challenges and opportunities in NWFP value chains.
 - Da Re et al. (2015): Regional market assessments and SME impacts within NWFP value chains.
- **Market Development:**
 - Hamade (2016): NWFP market and value chains in Lebanon.
 - Sharma & Bharti (2020): Use of network analysis to explore NWFP value chain linkages.

Analysis:

- These references emphasize the importance of governance frameworks and efficient value chain analysis for successful commercialization and sustainable NWFP development.

6.3. Sustainability and Biodiversity Conservation

Key Themes:

- **Sustainability Frameworks:**
 - FAO series (various years): Methodologies for sustainable value chain development, including gender-sensitive and youth-sensitive approaches.
 - UNEP & WCMC (2006): Commercialization strategies for NWFPs with lessons from Mexico and Bolivia.

- Mahmoud (2016): Strategies for NWFP-based microenterprise development in Sudan.
- **Biodiversity and Conservation:**
 - Ahenkan & Boo (2011): Linking NWFP supply chains to biodiversity conservation in Ghana.
 - FAO (2017): Strategies for linking biodiversity conservation and NWFP markets in Fiji.

Analysis:

- This group focuses on balancing economic development with environmental conservation. The emphasis is on sustainability strategies and aligning NWFP initiatives with broader biodiversity goals.

6.4. Case Studies and Regional Insights

Key Themes:

- **Africa:**
 - AFF & FAO (2021): NWFP value chains in the Great Green Wall region of Africa (e.g., Burkina Faso, Mali, Nigeria).
 - Dadebo et al. (2024): Alternative pathways for NWFP development in Ghana.
 - Faisal et al. (2023): Contribution of NWFPs to rural household incomes in Sudan.
- **Europe:**
 - Sacchelli et al. (2021): Assessment of NWFP markets across Europe.
 - Lovrić et al. (2020): Quantitative analysis of NWFPs in European forest policies.
- **Asia-Pacific:**
 - FAO (2017): Sustainable livelihood strategies and NWFP value addition in Fiji.

Analysis:

- These regional studies provide practical insights into NWFP development, highlighting context-specific challenges and opportunities, such as African governance or SME integration in Europe.

6.5. Innovation and Emerging Trends

Key Themes:

- **Digital and Technological Innovations:**
 - Di Vita et al. (2023): Stakeholder analysis for enhancing the aromatic plant sector in Italy.
 - FAO & UNIDO (2024): Innovative approaches to sustainable food value chains.

- **Geographical Indications and Marketing:**
 - FAO-oriGIn (2020): Sustainable management of wild-collected NWFPs for geographical indications.
 - Trigkas et al. (2023): Marketing strategies for NWFPs in Greek mountain communities.

Analysis:

- This group focuses on innovations in marketing and technology to enhance the NWFP value chain, particularly through geographical indications and stakeholder collaboration.

6.6. Methodological Approaches and Guidelines

Key Themes:

- **Value Chain Methodologies:**
 - GIZ (2015): Guidelines for integrating economic, environmental, and social criteria into value chain selection.
 - FAO (2025): Rapid assessment methods for prioritizing forest foods and systems.
- **Sustainability Metrics:**
 - FAO-oriGIn series (2020): Metrics for quality-linked NWFP production.
 - GIZ ValueLinks (2018): Practical manual for NWFP value chain development.

Analysis:

- These sources provide foundational tools for assessing and developing NWFP value chains, combining quantitative and qualitative methods with sustainability metrics.

6.7. Analysis of the Some of the Best Practices based on the Literature Review

1. Sustainable Harvesting Practices

- **Ecological Sustainability:** Ensure that harvesting methods do not harm the ecosystem. For instance, Shackleton & Ticktin provide a manual on determining sustainable practices for harvesting plants and fungi to maintain biodiversity and prevent overexploitation.
- **Wild Resource Management:** Schindler et al. (2022) propose assessing risks and opportunities of trade in wild plant ingredients to balance economic gains with environmental stewardship.

2. Value Chain Development

- **Comprehensive Value Chain Analysis:**
 - **Local Context:** FAO's guidelines (2017) highlight understanding local production systems, markets, and actors.
 - **Economic, Social, and Environmental Impact:** GIZ's "Valuelinks 2.0" (2018) manual suggests incorporating these three dimensions when selecting and improving value chains.
 - **Case Studies:** Examples from Sudan (El Tahir, 2015) and Lebanon (Hamade, 2016) demonstrate the application of these analyses in specific regions.
- **Innovation in Processing and Value Addition:**
 - **Small and Medium Enterprises (SMEs):** Meinhold & Darr (2019) emphasize fostering SMEs that process NWFPs, identifying factors that enable or constrain them.
 - **Product Diversification:** Di Vita et al. (2023) recommend extending the value chain by introducing innovative uses for aromatic plants in Italy.

3. Community Engagement and Livelihoods

- **Empowering Local Communities:**
 - Studies like those by Ahenkan & Boo (2011) emphasize improving NWFP supply chains to benefit rural producers in Ghana.
 - Tieguhong et al. (2015) suggest that governance directly impacts community involvement and profits.
- **Gender and Youth Inclusion:** FAO handbooks advocate for value chain strategies that are gender-sensitive and youth-inclusive to ensure equitable benefits.

4. Territorial and Market Development

- **Territorial Marketing for Sustainable Tourism:**
 - Rovira et al. (2022) propose aligning NWFP branding with rural tourism, enhancing both forest conservation and rural economies.
- **Branding with Geographical Indications (GIs):**
 - FAO-oriGIn (2020) webinars explore how sustainably managed wild-collected products can gain premium value through GIs.

5. Policy and Governance

- **Supportive Legal Frameworks:**
 - Policies must enable fair trade, sustainable harvesting, and forest conservation. For example, Wolfslehner et al. (2019) stress integrating NWFPs into broader forest policy frameworks.

- **Collaborative Governance:**
 - Networks such as Innovation Networks (Mutke et al., 2019) show how collaboration between stakeholders—government, producers, and NGOs—enhances innovation.

6. Integration with Bioeconomy

- **Quantifying Contributions:** Di Cori et al. (2022) propose frameworks to measure NWFPs' impact on the EU's bioeconomy, aiding policymakers in allocating resources effectively.
- **Transition to Green Economies:** AFF & FAO (2021) provide examples from the Great Green Wall project on integrating NWFPs into green development pathways.

7. Knowledge Sharing and Capacity Building

- **Education and Training:**
 - Reports like those from the UNEP and WCMC (2006) stress capacity-building programs for NWFP stakeholders.
- **Information Platforms:**
 - Resources like the "Incredible Forest" repository serve as knowledge hubs for best practices and case studies.

6.8. Criteria for Identification of Value Chains Based on the Literature Review

Identifying value chains for Non-Wood Forest Products (NWFPs) or other sectors requires systematic criteria that balance economic, social, environmental, and institutional considerations. Based on the references from your document, here are detailed criteria commonly used for identifying and selecting value chains:

1. Economic Criteria

- **Market Demand:**
 - Evaluate local, national, and international market demand for the product.
 - Consider market trends, price stability, and growth potential (e.g., premium pricing for organic or sustainably harvested products).
- **Economic Value and Profitability:**
 - Assess the value-addition potential across the chain.
 - Focus on products or services with higher profit margins and those that contribute significantly to rural livelihoods (e.g., GIZ Valuelinks 2.0, 2018).
- **Job Creation Potential:**
 - Identify value chains that can generate employment, particularly in rural areas, as emphasized in FAO's guidelines for sustainable food value chains (2014).

2. Environmental Criteria

- **Sustainability of Resources:**
 - Evaluate whether the resource is renewable and whether harvesting practices align with conservation goals.
 - Reference case: Sustainable harvesting techniques outlined by Shackleton & Ticktin.
- **Ecological Footprint:**
 - Assess the environmental impact of production, processing, and transportation, ensuring minimal ecological degradation (e.g., GIZ guidelines, 2015).
- **Climate Resilience:**
 - Focus on value chains that support or adapt to climate resilience, such as drought-tolerant plants or low-emission processing technologies.

3. Social and Cultural Criteria

- **Community Dependence:**
 - Prioritize value chains that benefit the communities reliant on NWFPs for their livelihoods (e.g., Tieguhong et al., 2015, in Cameroon).
- **Cultural Importance:**
 - Consider products with traditional or cultural significance, as they may have stronger local support and unique market positioning.
- **Equity and Inclusion:**
 - Ensure the participation of marginalized groups, such as women, youth, and indigenous communities, in value chain activities (e.g., FAO gender-sensitive approaches).

4. Institutional and Governance Criteria

- **Policy Support:**
 - Identify value chains aligned with government policies, regulations, and programs (e.g., Wolfslehner et al., 2019, on integrating NWFPs into policy frameworks).
- **Existing Stakeholder Networks:**
 - Assess whether functional networks or associations exist to support the value chain (e.g., Mutke et al., 2019, on innovation networks).
- **Access to Infrastructure and Services:**
 - Consider the availability of roads, storage facilities, financing options, and training for value chain actors.

5. Feasibility Criteria

- **Technical Feasibility:**
 - Evaluate whether local producers and processors have the skills and technologies required for the value chain.

- **Investment and Resource Requirements:**
 - Determine the capital and resource needs versus available funds or potential investments.
- **Scalability:**
 - Identify value chains with potential for scaling up production and market access without compromising sustainability.

6. Competitive Advantage Criteria

- **Unique Selling Proposition (USP):**
 - Focus on value chains with unique characteristics, such as geographical indications (GIs), organic certification, or high-quality products.
- **Comparative Advantage:**
 - Assess whether the region has favorable conditions, such as climate, soil, or labor, that give it an edge over competitors.

7. Risk and Resilience Criteria

- **Market Risks:**
 - Consider risks like price volatility, competition, or market entry barriers.
- **Production Risks:**
 - Evaluate risks such as resource depletion, climate impacts, or pest outbreaks.
- **Adaptability:**
 - Identify value chains that can adapt to changing market, policy, or environmental conditions.

8. Alignment with Broader Goals

- **Sustainable Development Goals (SDGs):**
 - Select value chains that contribute to achieving SDGs, such as poverty reduction, biodiversity conservation, or climate action (e.g., FAO-oriGIn, 2020).
- **Bioeconomy Integration:**
 - Consider NWFPs that fit into the broader bioeconomy strategies (e.g., Di Cori et al., 2022).

These criteria ensure a holistic approach to identifying value chains that are economically viable, socially equitable, environmentally sustainable, and institutionally supported.

6.9. Synthesis and Key Insights

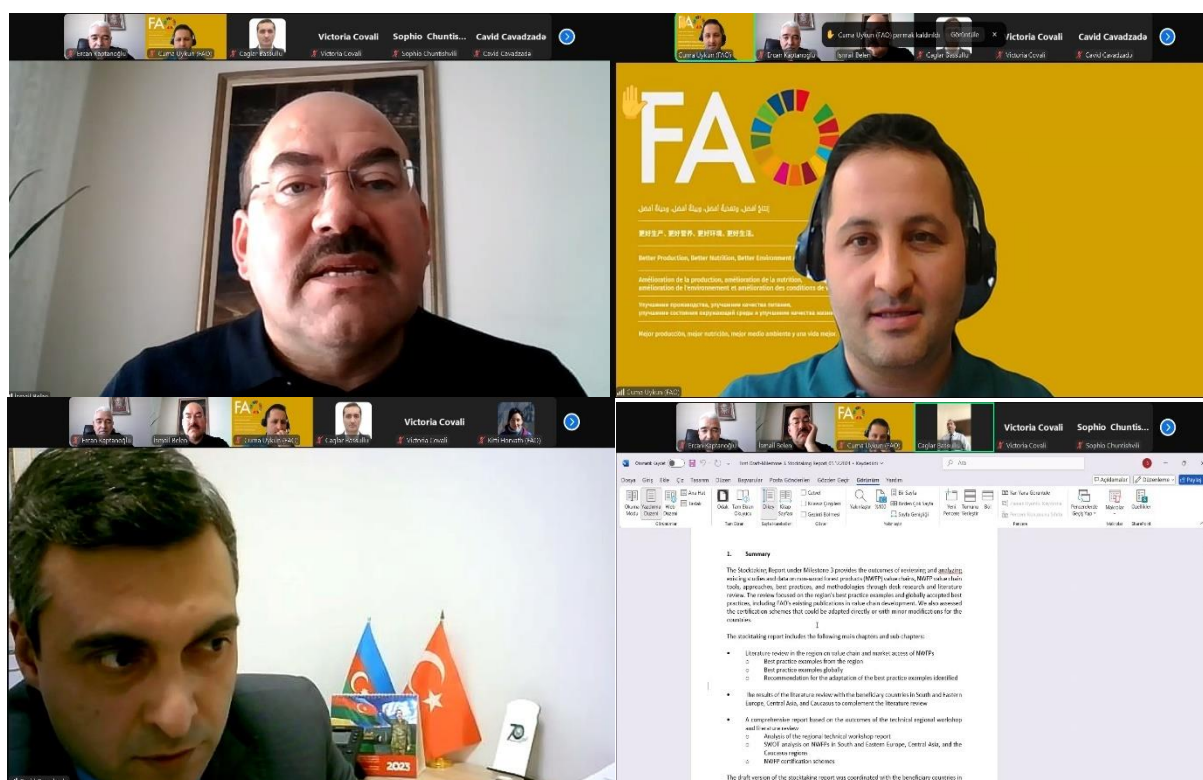
- The references span theoretical frameworks, practical case studies, and innovative strategies, addressing economic, social, and ecological aspects of NWFPs.
- **Key Themes:**
 - Sustainability and bioeconomy integration.
 - Governance and market optimization.
 - Case-specific challenges in Africa, Europe, and Asia-Pacific.
 - Methodologies for robust value chain development.

7. The Results of the Literature Review with the Beneficiary Countries in South and Eastern Europe, Central Asia, and Caucasus to Complement the Literature Review

We coordinated an online meeting (Figure 1) on December 19, 2024, following the preparation of the draft stocktaking report with the beneficiary countries through the exchange of information in South and Eastern Europe, Central Asia, and the Caucasus to collect, complement, and verify the literature review results. We presented the stocktaking report to the stakeholders to receive their feedback.

The results of the online meeting were (i) Reach and receive feedback from all countries; (ii) Revise the Stocktaking Report if necessary based on the feedback from countries, (iii) include a section to the Stocktaking Report for the selection of 3 NWFPs as case studies for the Guidelines.

We received approval or revision requests from the countries and revised the stocktaking report based on the input of the countries. The representatives of the countries will also serve as the resource persons for the development of the Guidelines. We provided the list of persons who contributed to the stocktaking exercise in Annex.



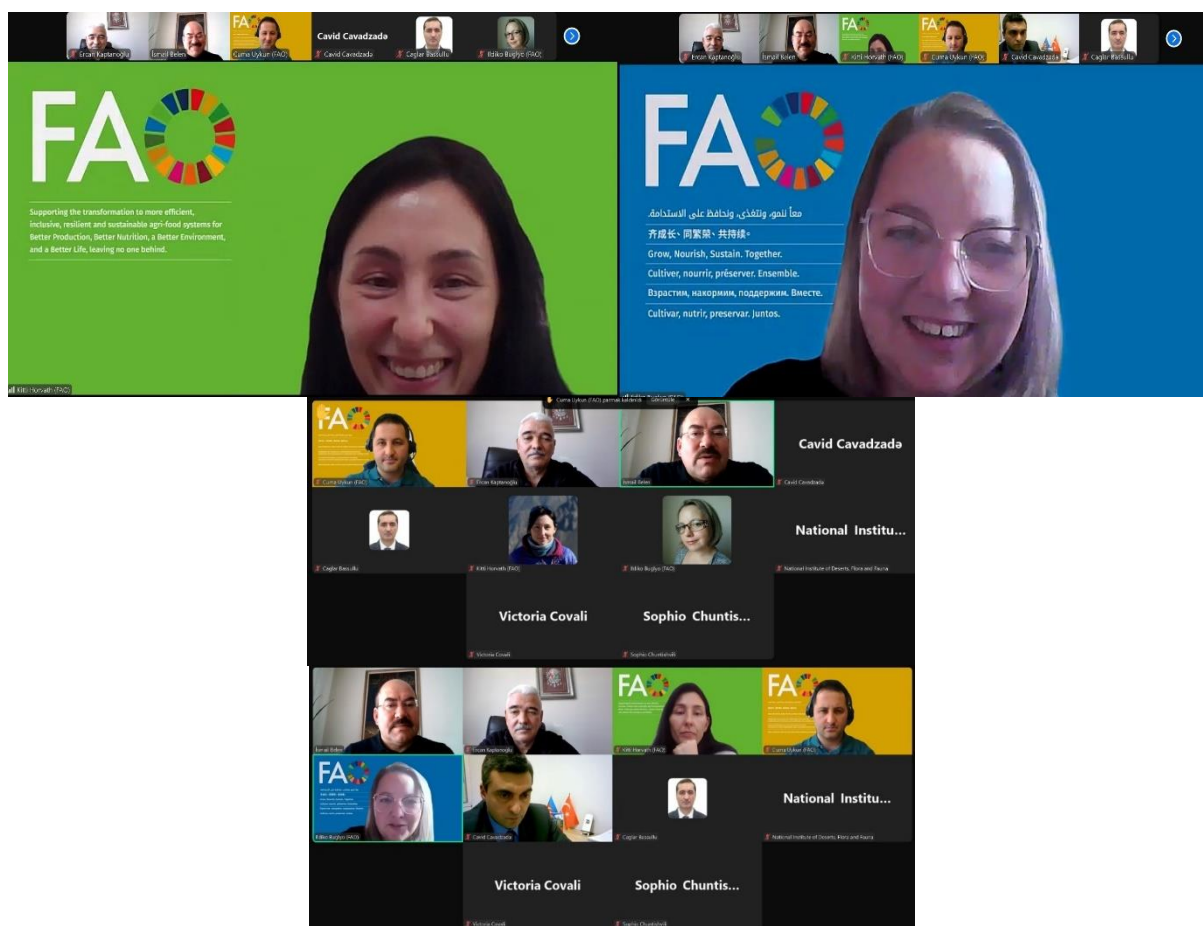


Figure 1. Photos from the online meeting

8. A Comprehensive Report Based on the Outcomes of the Technical Regional Workshop and Literature Review

8.1. Analysis of the Technical Workshop Report

The technical regional workshop report provides a comprehensive overview of presentations related to NWFPs and their role in sustainable development across countries in South and Eastern Europe, Central Asia, and the Caucasus. Here's an analysis of its key components:

8.1.1. Overview of Selected Presentations

The presentations highlighted the importance of NWFPs in supporting sustainable economic growth and environmental conservation across various countries. Key themes included the need for improved policies, innovative processing technologies, and regional cooperation.

Bioeconomy and NWFPs

- Understanding Bioeconomy: Alicja Kacprzak from FAO emphasized that sustainable harvesting and market access for NWFPs are crucial. Innovations in processing technologies are necessary to enhance competitiveness in higher-value markets.

- Contribution of NWFPs: Sven Walter discussed the role of NWFPs in environmental conservation and economic growth, advocating for comprehensive policy frameworks to support sustainable practices.
- FAO REU Study (2021-2024): This study focused on the Western Balkans, identifying fragmented legal frameworks and recommending regional cooperation, stakeholder capacity building, and investment in research to support NWFP management.

Country-Specific Insights

Georgia

- Challenges: Outdated inventory systems and inconsistent regulations hinder NWFP management.
- Opportunities: Rich biodiversity and government policies favoring sustainable management can enhance economic prospects.

Albania

- Challenges: Outdated data and poor infrastructure limit market competitiveness.
- Opportunities: Strong community involvement and growing demand for organic products can drive growth.

North Macedonia

- Challenges: Weak regulations, informal and unsustainable practices, knowledge gaps, low awareness, and limited market access restrict economic potential.
- Opportunities: Rich forest resources support sustainable use and market growth.

Bosnia and Herzegovina

- Challenges: Fragmented regulations and inadequate data hinder sector development.
- Opportunities: Diverse NWFPs provide a foundation for economic growth.

Kazakhstan

- Challenges: Limited data and underdeveloped value chains affect growth.
- Opportunities: Global demand for medicinal plants offers export potential.

Uzbekistan

- Challenges: Inconsistent resource management limits sustainability.
- Opportunities: High-value medicinal plants can boost economic benefits.

Azerbaijan

- Challenges: Inadequate data complicates sustainable management.
- Opportunities: Rich biodiversity supports high-value product development.

Montenegro

- Challenges: Overexploitation and fragmented regulations pose risks.
- Opportunities: Community involvement can enhance sustainability efforts.

Türkiye

- Challenges: Complex regulatory landscapes create confusion.
- Opportunities: Diverse NWFP resources offer substantial potential for product differentiation.

Moldova

- Challenges: Limited data hampers effective management.
- Opportunities: Rich variety of NWFPs can boost the rural economy through community engagement.

Overall, investments in research, processing, certification, and capacity building across these countries could unlock the economic potential of NWFPs while ensuring sustainability.

8.1.2. Challenges and Opportunities in NWFP Management

The technical regional workshop report presents a comprehensive overview of the challenges and opportunities associated with managing NWFPs across Southern and Eastern Europe, Central Asia, and the Caucasus. It identifies key issues affecting sustainable NWFP management and proposes strategic recommendations to enhance its viability.

Key Observations and Challenges

The management of NWFPs across Eastern Europe, Central Asia, and the Caucasus faces several key challenges that hinder sustainable development and the sector's economic potential. Here's a summary of these challenges:

- **Lack of Comprehensive Inventory Data:** Many countries, such as Albania, Georgia, Turkmenistan, and Uzbekistan, suffer from insufficient or outdated data on NWFPs, complicating effective planning and sustainable resource management.
- **Fragmented Regulatory Frameworks:** Inconsistent and complex regulations across different countries (e.g., Turkmenistan, North Macedonia, Bosnia and Herzegovina) create obstacles to sustainable NWFP management and developing a unified legal framework.
- **Underdeveloped Market Access and Value Addition:** Poor infrastructure and limited value addition opportunities in regions like Azerbaijan and Moldova restrict the market potential of NWFPs, reducing profitability for producers.
- **Limited Certification and Quality Standards:** The absence of certification schemes in countries such as Georgia, North Macedonia, and Kazakhstan hinders access to high-value markets and reduces competitiveness. Quota-setting challenges due to the lack

of technical resources and expert knowledge directly affect quality standards and market access.

- **Unsustainable Harvesting Practices:** Without adequate guidelines and enforcement, unsustainable harvesting practices threaten the long-term viability of NWFP resources and biodiversity, as seen in Bosnia and Herzegovina and North Macedonia.
- **Low Awareness and Capacity Building Needs:** There is a significant gap in training on sustainable harvesting and value addition in countries like Montenegro, North Macedonia Albania (i.e., "INCA" (Të Advokojmë për Ruajtjen dhe Promovimin e Natyrës Shqiptare), CNVP, GIZ), and Turkmenistan, which limits effective resource management.
- **Small-Scale Operations and Limited Processing Infrastructure:** Many regions, including Georgia and Moldova, rely on small-scale NWFP operations that lack processing infrastructure, hindering production scalability and value addition.
- **Market Barriers and Limited International Trade:** Weak branding, certification, and poor market linkages in countries like Uzbekistan and Azerbaijan restrict NWFPs from accessing international markets, limiting their economic potential.
- **Weak Monitoring and Control Mechanisms:** Inadequate enforcement of sustainable harvesting practices and regulatory compliance in countries such as Albania and Turkmenistan undermines effective resource management.
- **Lack of Cross-Sector Collaboration:** Weak collaboration between sectors (e.g., forestry, agriculture, tourism, health) in countries like North Macedonia limits the potential for synergies that could enhance NWFP management.
- **Limited Use of Technological Tools for Effective Monitoring:** Limited use of technological tools such as GIS for resource mapping and monitoring in countries like Georgia and Albania hampers efficient data collection and resource management.
- **Need for Strengthening Institutional Capacity:** Weak institutional frameworks (limited technical and financial resources) in countries like Georgia and Bosnia and Herzegovina limit implementing policies and regulations related to NWFP management, implementing proper quota systems, and conducting resource assessments.
- **Economic Dependency and Livelihood Concerns:** In many rural areas (e.g., North Macedonia, Georgia), communities heavily depend on NWFPs for their livelihoods but face limited economic benefits due to a lack of value addition and sustainable market integration.
- **Inadequate Integration with Eco-tourism:** The potential to integrate NWFPs with eco-tourism initiatives is underutilized across regions despite the opportunity to create synergies for sustainable development.
- **Regional Differences in NWFP Resource Management:** Varying resource availability, traditional practices, and regulatory environments across regions create challenges in establishing a standardized approach to NWFP management, especially in Central Asian countries.

These challenges highlight the need for improved data collection, regulatory harmonization, infrastructure development, improved coordination, capacity building, and more robust institutional support to enhance the sustainable management and economic potential of NWFPs in the region.

Strategic Recommendations

To address these challenges, the report proposes several strategic recommendations:

- **Comprehensive Inventory Systems:** Establish reliable inventories for effectively planning and managing NWFP resources. Providing specific guidance on initiating baseline inventories with limited resources would be valuable.
- **Cohesive Regulatory Frameworks:** Develop a unified regulatory framework to ensure consistent regional management practices.
- **Monitoring and Quota Systems:** Implement effective monitoring systems to regulate sustainable harvesting and prevent overexploitation.
- **Secondary Processing Infrastructure:** Develop secondary processing infrastructure to significantly enhance the sector's economic potential.
- **Capacity Building:** Empower local communities through targeted training to enhance sustainable harvesting practices.
- **Certification and Value Addition:** Introduce certification schemes to improve market potential and competitiveness of NWFPs.
- **Integration with Eco-tourism:** Leverage eco-tourism initiatives to generate income while promoting conservation efforts.
- **Technological Adoption:** Utilize technological tools like GIS for better resource mapping and monitoring.
- **Cross-Sector Collaboration:** Foster collaboration between forestry, agriculture, tourism, and health sectors to enhance NWFP management.
- **Financial Incentives:** Provide financial support, such as subsidies, to promote sustainable practices within the NWFP sector and formulate strategies for countries with limited technical and financial resources to establish basic quota systems and monitoring capabilities.
- **Public Awareness Campaigns:** Increase public awareness about the importance of sustainably harvested NWFPs to foster long-term support for conservation initiatives.

Conclusion

The technical regional workshop report highlights significant barriers to effective NWFP management while providing a roadmap for addressing these challenges through strategic recommendations. By improving data collection, regulatory frameworks, community engagement, market access, and technological adoption, stakeholders can enhance the sustainability and profitability of NWFPs in Eastern Europe, Central Asia, and the Caucasus. These efforts will benefit local economies and contribute to broader environmental conservation goals.

8.2. SWOT Analysis of NWFPs in South and Eastern Europe, Central Asia, and Caucasus Regions

A SWOT analysis is a strategic planning tool to identify the Strengths, Weaknesses, Opportunities, and Threats related to a specific sector or organization. This analysis can help stakeholders understand the current landscape and develop sustainable growth and management strategies in the NWFP context.

Strengths

- **Rich Biodiversity:** Regions like Azerbaijan, Montenegro, Georgia, Albania, and North Macedonia boast a wide variety of NWFPs, including medicinal herbs, mushrooms, and wild fruits, nuts (walnut, hazelnut, chestnut, pine nut), which can be sustainably harvested and marketed—unique products such as Turkish pine honey and medicinal plants in Uzbekistan and Turkmenistan.
- **Cultural and Traditional Knowledge:** Many countries (i.e., Albania, Bosnia and Herzegovina, and Türkiye) have a strong cultural heritage associated with using NWFPs, which supports community engagement and sustainable practices and can be leveraged for niche markets.
- **Community Involvement:** Local communities actively participate in sustainable harvesting and management (i.e., Montenegro, Uzbekistan).
- **Economic Potential:** NWFPs contribute significantly to local economies by providing income for rural communities. For instance, Albania's medicinal and aromatic plants represent 20% of its agricultural exports.
- **Export Potential:** High demand for organic and natural products, especially in Europe and Asia, provides export opportunities.
- **Government and International Support:** Increasing government and international initiatives to promote rural development and sustainable forest management will provide a favorable environment for NWFP growth (i.e., EU-funded projects in Montenegro).
- **Strategy Formulation:** Potential integration of NWFPs into national forest and eco-tourism strategies.
- **Certification Potential:** Existing interest in promoting certification schemes for market competitiveness.

Weaknesses

- **Fragmented Regulatory Framework:** Countries like Kazakhstan, Moldova, and Bosnia and Herzegovina face challenges due to inconsistent regulations that hinder the effective management of NWFPs.
- **Lack of Comprehensive Inventory and (Updated) Data:** Insufficient inventory data and outdated methodologies make it difficult to assess resource availability and manage NWFP sustainably.
- **Limited Market Access:** Poor infrastructure and weak market linkages restrict producers from reaching broader markets, affecting their economic viability.
- **Capacity Gaps:** There is often a lack of training for local communities on sustainable harvesting practices and value addition, limiting the potential of NWFPs.
- **Underdeveloped Infrastructure:** Limited processing and value-addition facilities in most countries, restricting competitiveness in global markets.
- **Overharvesting and Sustainability Challenges:** Unsustainable practices are due to inadequate enforcement mechanisms and lack of guidelines and monitoring (e.g., Georgia, Turkmenistan).
- **Limited Certification and Branding:** The absence of certification schemes and poor branding reduces access to premium markets (e.g., Albania, Azerbaijan).

- **Capacity and Awareness Deficits:** Insufficient capacity-building programs and low awareness of sustainable practices among communities and stakeholders.

Opportunities

- **Growing Global Demand (International Markets):** Increasing interest in organic, medicinal, and natural products presents significant export opportunities for NWFPs from regions like Albania and North Macedonia.
- **Expanding Market Access:** Expanding the market potential through certification, traceability, and quality standards (e.g., organic and Fair Trade certifications).
- **Innovation in Processing Technologies:** Investments in processing technologies and certifications can enhance the value of NWFPs and improve product quality and market appeal, allowing producers to access higher-value markets.
- **Community Engagement:** The active involvement of local communities in NWFP collection can support sustainable management practices and enhance local ownership of resources.
- **Cross-Sector Collaboration:** Opportunities exist for collaboration, knowledge sharing, harmonizing practices and regulations, and market integration with neighboring countries (i.e., the Caucasus and Central Asia) in the agriculture, tourism, and forestry sectors to create synergies that add value to NWFPs.
- **Tourism Integration:** Linking eco-tourism and NWFP-related activities (e.g., truffle hunting in Türkiye) could create synergies for economic growth and conservation efforts.
- **Supportive Policy Shifts:** New government policies promoting NWFP sectors and sustainable forest management.
- **Financial Incentives:** Leveraging financial incentives, such as subsidies and microfinance, encourage sustainable practices and innovation.

Threats

- **Unsustainable Harvesting Practices:** Overharvesting due to a lack of awareness, clear guidelines, and weak monitoring and quota systems poses risks to biodiversity and the long-term viability of NWFP resources.
- **Market Competition:** Increased competition from other countries producing similar products may threaten local producers' market share.
- **Environmental Changes:** Climate change and environmental degradation, as well as pests and diseases, can impact the availability of NWFPs, affecting supply chains and economic stability for dependent communities.
- **Regulatory Challenges:** Inconsistent enforcement of regulations can lead to illegal harvesting practices, undermining efforts toward sustainable management.
- **Economic and Political Instability:** Regional conflicts and economic challenges could disrupt NWFP supply chains.
- **Fragmented Stakeholder Coordination:** Lack of collaboration among government, NGOs, and private sectors.
- **Fragmented Cross-sector Cooperation:** Fragmented cross-sector cooperation limits the synergies between forestry, agriculture, tourism, and other sectors.

- **Dependence on NWFPs:** Economic dependency of rural communities on NWFPs without sufficient value addition.

This SWOT analysis highlights the critical factors influencing the NWFP sector. By leveraging strengths and opportunities while addressing weaknesses and threats, stakeholders can achieve a more sustainable future for NWFPs.

8.3. Proposed Solutions to Address Challenges in NWFP Management

The technical regional workshop report outlines a comprehensive set of strategies to address the challenges of managing NWFPs in Southern and Eastern Europe, Central Asia, and the Caucasus. Here are the main proposals:

8.3.1. Strategies in NWFP Management

1. Comprehensive Statistical Systems

- **Establish Comprehensive Statistical Systems:** Develop statistics for NWFP collection, processing, and trade data to support evidence-based policy-making and sector development.

2. Comprehensive Inventory Systems

- **Establish Reliable Inventories:** Create up-to-date inventories of NWFP resources to support effective planning and sustainable management.

3. Cohesive Regulatory Frameworks

- **Develop Unified Regulations:** Implement a clear and cohesive regulatory framework that standardizes management practices across regions, facilitating effective governance.

4. Monitoring and Quota Systems

- **Implement Effective Monitoring:** Establish monitoring systems to regulate sustainable harvesting and prevent overexploitation, including quota systems for resource management.

5. Capacity Building and Community Involvement

- **Empower Local Communities:** Provide training and capacity-building programs to enhance sustainable harvesting practices and encourage stakeholder participation in NWFP management.

6. Certification and Value Addition

- **Introduce Certification Schemes:** Develop certification standards to improve market access and competitiveness, ensuring NWFPs meet quality requirements for domestic and international markets.

7. Integration with Eco-tourism

- **Leverage Eco-tourism Opportunities:** Connect NWFP initiatives with eco-tourism to generate income and raise awareness about conservation efforts.

8. Technological Adoption for Monitoring

- **Utilize Technological Tools:** Adopt technologies such as Geographic Information Systems (GIS) for better resource mapping and real-time monitoring of NWFPs.

9. Cross-Sector Collaboration

- **Enhance Inter-Sector Cooperation:** Foster collaboration among forestry, agriculture, tourism, and health sectors to create synergies that enhance NWFP management.

10. Financial Incentives and Market Integration

- **Provide Financial Support:** Offer financial incentives like subsidies or microfinance to promote sustainable practices and facilitate market integration for NWFPs.

11. Public Awareness and Advocacy

- **Increase Public Awareness:** Launch campaigns to educate stakeholders about the importance of sustainably harvested NWFPs, fostering long-term support for conservation initiatives.

12. Coordination Among State Institutions

- **Improve Government Coordination:** Strengthen communication among government agencies involved in NWFP management to streamline efforts in utilization and conservation.

13. Investment Facilitation

- **Encourage Investment in NWFP Sector:** Facilitate domestic and international investments through financial incentives, supporting startups and small-to-medium enterprises (SMEs) in NWFP value chains.

14. Addressing Overharvesting Concerns

- **Implement Sustainable Harvesting Guidelines:** Enforce guidelines that ensure harvesting is conducted sustainably, including licensing systems and improved oversight.

15. Knowledge Sharing and Regional Cooperation

- **Develop Regional Platforms:** Create platforms for sharing best practices, harmonizing regulations, and exchanging knowledge among countries regarding NWFP management.

16. Addressing Research Gaps

- **Promote Research Initiatives:** Identify gaps in research related to NWFP biodiversity, value chains, and market opportunities, promoting studies that enhance innovation in the sector.

These proposals collectively aim to create an enabling environment for the sustainable management of NWFPs, addressing both ecological concerns and economic opportunities within the region.

8.3.2. Implications of the Technical Regional Workshop Report's Recommendations on NWFP Management

The recommendations outlined in the technical regional workshop report for improving the management of NWFPs carry significant implications for various stakeholders, including local communities, governments, environmental organizations, and the broader economy. Here are the key implications:

1. Enhanced Sustainability

- **Improved Resource Management:** Implementing comprehensive inventory systems and sustainable harvesting guidelines will lead to better management of NWFP resources, ensuring their availability for future generations.
- **Biodiversity Conservation:** By addressing unsustainable harvesting practices and promoting sustainable management, the recommendations contribute to biodiversity conservation in forest ecosystems.

2. Economic Development

- **Increased Market Opportunities:** The introduction of certification schemes and improved market access will enhance the economic viability of NWFPs, allowing producers to tap into high-value markets.
- **Job Creation:** Strengthening NWFP value chains and integrating them with eco-tourism can create new job opportunities in rural areas, helping to alleviate poverty.

3. Empowerment of Local Communities

- **Capacity Building:** Targeted training programs for local communities will empower them with sustainable harvesting and processing skills, fostering a sense of ownership over local resources.
- **Community Engagement:** Involving local stakeholders in decision-making enhances community participation and ensures that their needs and knowledge are integrated into NWFP management.

4. Improved Governance and Policy Frameworks

- **Cohesive Regulatory Environment:** Developing unified regulatory frameworks will streamline governance, making enforcing sustainable practices across regions easier.
- **Interagency Coordination:** Improved coordination among government agencies will facilitate more effective implementation of policies related to NWFP management.

5. Technological Advancement

- **Adoption of Innovative Tools:** Utilizing technologies such as GIS for resource mapping and monitoring will enhance data collection and improve transparency in NWFP management.
- **Research and Development:** Promoting research initiatives will lead to innovations in processing technologies and market strategies, further supporting the sector's growth.

6. Increased Public Awareness

- **Awareness Campaigns:** Raising awareness about the ecological and economic value of NWFPs can foster public support for conservation initiatives, leading to more sustainable consumption patterns.
- **Promotion of Healthy Lifestyles:** Highlighting the nutritional benefits of NWFPs can encourage healthier eating habits among consumers.

7. Strengthened Regional Cooperation

- **Knowledge Sharing Platforms:** Establishing regional platforms for sharing best practices will enhance collaboration among countries, leading to harmonized regulations and improved capacity in NWFP management.
- **Collective Action on Challenges:** Regional cooperation can help address common challenges such as overharvesting and market barriers more effectively.

8. Financial Investment and Support

- **Facilitation of Investments:** Providing financial incentives for startups and SMEs engaged in NWFP value chains can stimulate economic growth and innovation within the sector.

- **Public-Private Partnerships:** Encouraging partnerships between public entities and private investors can lead to infrastructure development that supports NWFP market expansion.

9. Addressing Information Gaps

- **Data Collection Mechanisms:** Establishing robust data collection systems will provide valuable insights into NWFP resources, enabling stakeholders to make informed decisions.
- **Research Initiatives:** Addressing research gaps related to biodiversity and market opportunities will enhance understanding and development within the sector.

10. Long-term Viability of NWFPs

- **Sustainable Economic Models:** Integrating NWFP management into national strategies ensures that these products contribute to broader environmental goals while supporting local economies.
- **Adaptation to Climate Change:** Sustainable practices can enhance resilience against climate change impacts on forest ecosystems, ensuring long-term viability.

In summary, the report's recommendations have far-reaching implications that can lead to sustainable development, economic growth, empowered communities, improved governance, technological advancement, increased public awareness, strengthened regional cooperation, financial investment facilitation, and long-term viability of NWFPs.

8.4. NWFP Certification Schemes

Certification schemes for NWFPs are essential for promoting sustainable harvesting and ensuring the ecological, social, and economic viability of these resources. Here's an overview of the key certification schemes and their implications. Certification also plays a crucial role in enhancing market access for NWFPs by establishing standards that ensure sustainability, quality, and traceability.

8.4.1. Key Certification Schemes

Forest Stewardship Council (FSC)

- **Overview:** The FSC is one of the most recognized certification systems globally, focusing on sustainable forest management. It ensures that forest products, including NWFPs, are sourced from responsibly managed forests that provide environmental, social, and economic benefits.
- **Impact:** FSC certification can enhance market access by appealing to consumers who prioritize sustainability and ethical sourcing.
- **Relevance/potential for NWFP value chains:**
 - Promotes sustainable forest management, ensuring long-term resource availability.
 - Improves traceability and accountability within the value chain.

- Enhances product marketability by leveraging the FSC logo, which appeals to environmentally conscious consumers.
- Facilitates partnerships with global buyers prioritizing certified products.

Programme for the Endorsement of Forest Certification (PEFC)

- **Overview:** PEFC is another leading global certification system that promotes sustainable forest management through independent third-party certification. It supports small and family-owned forests and emphasizes local community involvement.
- **Impact:** Like FSC, PEFC certification helps producers access premium markets by demonstrating compliance with sustainability standards.
- **Relevance/potential for NWFP value chains:**
 - Provides a credible framework for sustainable forest management, tailored for small-scale and community forest owners.
 - Encourages local community involvement, fostering socio-economic development in rural areas.
 - Strengthens trust among supply chain stakeholders by ensuring compliance with sustainability and ethical standards.

Organic Certification

- **Overview:** Organic certification applies to products grown without synthetic pesticides or fertilizers. This certification is particularly relevant for NWFPs such as medicinal and aromatic plants.
- **Impact:** Organic certification increases consumer trust and demand, allowing producers to access higher-value markets focused on organic products.
- **Relevance/potential for NWFP value chains:**
 - Ensures production methods avoid synthetic chemicals, making products healthier and eco-friendly.
 - Adds value by opening access to premium organic markets.
 - Builds consumer confidence in product quality and safety, creating higher demand for certified products.
 - Supports differentiation of products in crowded markets, enabling niche branding.

Fair Trade Certification

- **Overview:** Fair Trade certification focuses on equitable trade practices, ensuring that producers receive fair compensation and work under safe conditions. This is particularly relevant for community-based NWFP initiatives.
- **Impact:** Fair Trade certification can enhance market access by appealing to socially conscious consumers and retailers.
- **Relevance/potential for NWFP value chains:**
 - Ensures equitable income distribution and fair pricing for producers, encouraging sustainable livelihoods.

- Reduces exploitation of small-scale producers, promoting ethical practices across the chain.
- Increases demand for products among socially conscious consumers, improving market access.
- Supports community-based enterprises, fostering local economic growth.

ISO Standards (International Organization for Standardization)

- **Overview:** ISO standards, such as ISO 14001 for environmental management systems, can be applied to NWFP operations to improve sustainability practices.
- **Impact:** Compliance with ISO standards can improve operational efficiency and marketability, facilitating access to international markets.
- **Relevance/potential for NWFP value chains:**
 - Encourages environmentally sound practices across all stages of production, processing, and distribution.
 - Enhances operational efficiency and reduces waste, lowering production costs.
 - Builds credibility in international markets by meeting global quality and sustainability benchmarks.
 - Facilitates partnerships with buyers requiring ISO-compliant suppliers.

Fairwild Certification

- **Overview:** FairWild Certification is a globally recognized standard designed to ensure the sustainable and ethical harvesting, trade, and use of wild-collected plants. It primarily focuses on promoting the conservation of biodiversity, supporting sustainable resource management, and improving the livelihoods of communities involved in wild plant collection.
- **Impact:** FairWild plays a critical role in balancing the growing demand for wild plant resources with the need to protect biodiversity and ensure ethical practices. It is a valuable framework for stakeholders seeking sustainable and socially responsible solutions in wild plant trade.
- **Relevance/potential for NWFP value chains:**
 - Promotes ethical and sustainable wild harvesting practices, ensuring biodiversity conservation.
 - Builds long-term supply chain sustainability by balancing demand with resource regeneration.
 - Supports transparent trade relationships, ensuring fair benefits for local harvesters.
 - Increases consumer trust in the ecological and ethical sourcing of wild plant-based products.

National Certification Schemes

- **Overview:** Many countries have developed certification programs tailored to local conditions and needs. These schemes often focus on sustainable harvesting practices specific to regional NWFPs.

- **Impact:** National certifications can help local producers meet domestic market demands and gradually build their reputation in international markets.
- **Relevance/potential for NWFP value chains:**
 - Tailored to regional or local NWFPs, addressing unique ecological and socio-economic contexts.
 - Supports local producers in meeting domestic regulatory standards, boosting product reputation.
 - Builds stepping stones for producers to enter larger international markets.
 - Encourages sustainable harvesting practices aligned with regional biodiversity goals.

These certification schemes collectively enhance market access for NWFPs by ensuring sustainable practices, improving product quality, and meeting consumer demand for ethically sourced products. Implementing such certifications can significantly benefit producers in South and Eastern Europe, Central Asia, and the Caucasus by providing them with a competitive edge in local and global markets.

8.4.2. Key Roles of Certification

Ensures Sustainable Practices

- **Sustainability Standards:** Certification schemes, such as the Forest Stewardship Council (FSC), promote sustainable harvesting practices. This is essential for maintaining biodiversity and ensuring that NWFPs are sourced without depleting natural resources, which can enhance consumer trust and demand.

Enhances Product Quality

- **Quality Assurance:** Certified products often meet higher quality standards, which can attract premium prices in both local and international markets. Consumers are increasingly looking for products that are certified as organic or sustainably sourced, making certification a valuable marketing tool.

Facilitates Market Access

- **Access to High-Value Markets:** Certification opens doors to markets that require proof of sustainable practices. Many retailers and consumers prefer or mandate certified products, thus increasing the market opportunities for certified NWFPs.

Improves Brand Recognition

- **Brand Differentiation:** Certification helps producers differentiate their products in a crowded marketplace. A recognized certification label can enhance brand credibility and appeal to environmentally conscious consumers, thereby boosting sales.

Supports Regulatory Compliance

- **Alignment with Regulations:** Certification can assist producers in complying with national and international regulations regarding environmental protection and sustainable resource management. This compliance is often necessary for accessing specific markets, particularly in regions with stringent environmental laws.

Encourages Investment in Value Addition

- **Incentives for Processing:** Certified producers may receive more support from governments and NGOs, including funding for processing facilities and training programs to enhance value addition to NWFPs. This can lead to better market positioning and increased profitability.

Fosters Community Engagement

- **Local Empowerment:** Certification processes often involve local communities, encouraging participation in sustainable practices and providing them with a stake in the economic benefits derived from NWFPs. This community involvement can enhance the social aspect of sustainability, further appealing to ethical consumers.

In summary, certification is a vital mechanism that promotes sustainable practices and significantly enhances market access for NWFPs by improving product quality, ensuring compliance with regulations, and fostering community engagement. These factors collectively contribute to the economic viability of NWFP sectors in various regions, including South and Eastern Europe, Central Asia, and the Caucasus.

8.4.3. Key Requirements for Certification

To achieve certification for NWFPs, certain foundational requirements must be met:

- **Limited and Monitored Permit Systems:** Establishing a controlled system for harvesting permits helps ensure that resources are not over-exploited.
- **Clear Tenure Rights:** Defining ownership and access rights is crucial for sustainable management and equitable benefit-sharing among local communities.
- **Quality Control Measures:** Implementing standards for product quality ensures that certified NWFPs meet market demands and consumer expectations.
- **Development of Niche Markets:** Identifying and cultivating markets for high-quality NWFPs can enhance economic viability.

8.4.4. Opportunities and Challenges

Opportunities

- Certification can enhance market access for small producers by providing them with a competitive edge in niche markets.

- It encourages sustainable practices that benefit local ecosystems and communities, fostering greater stakeholder participation in forest management.

Challenges

- The complexity of establishing effective certification standards tailored to diverse NWFPs can hinder progress. Each product may require different criteria based on its ecological and economic context.
- There is often insufficient information on the effectiveness of certification schemes in promoting sustainability among NWFPs, necessitating further research and development of best practices

In conclusion, while certification schemes like FSC and PEFC are vital in promoting sustainable practices in the NWFP sector, their effectiveness depends on addressing the unique challenges associated with these diverse products. Continued collaboration among stakeholders, improved market understanding, and adaptive management strategies will be essential to fully realizing the benefits of certification.

8.5. Selected NWFPs to Provide Examples of Value Chain Development and a Set of Recommendations to Improve Market Access

NWFPs play a significant role in the economies and cultures of South and Eastern Europe, Central Asia, and the Caucasus. These products, which include a variety of edible, medicinal, and other natural goods, contribute to local livelihoods and sustainable development. Below are the most critical NWFPs identified in these regions:

Table 1. The most critical NWFPs identified in these regions

Product	Common species name (if applicable)	Latin species name (if applicable)	Regions for which significant		
			South and Eastern Europe	Central Asia	Caucasus
Honey	Honey	n/a	x	x	x
Licorice root	Licorice	<i>Glycyrrhiza glabra</i>		x	
Porcini	Porcini	<i>Boletus edulis</i>	x	x	x
Chanterelles	Chanterelles	<i>Cantharellus cibarius</i>	x		x
Truffles	Black truffles	<i>Tuber melanosporum</i>	x		
Blueberry	Blueberry	<i>Vaccinium spp.</i>	x		
Raspberry	Raspberry	<i>Rubus idaeus</i>	x		x
Blackberry	Blackberry	<i>Rubus fruticosus</i>			x
Strawberry	Wild strawberry	<i>Fragaria vesca</i>	x		x
Chestnut	Chestnut	<i>Castanea sativa</i>	x		x
Hazelnut	Hazelnut	<i>Corylus avellana</i>	x		x
Walnut	Walnut	<i>Juglans regia</i>		x	x
Apple	Apple	<i>Malus spp.</i>		x	
Apricot	Apricot	<i>Prunus armeniaca</i>		x	
Pistachio	Pistachio	<i>Pistacia vera</i>		x	
Almond	Almond	<i>Prunus dulcis</i>		x	

8.5.1. South and Eastern Europe and Türkiye

Mushrooms: Wild mushrooms are highly valued for both culinary and economic purposes. They are a major source of income for many rural households, particularly in Southeast Europe, where collection practices are well-established. Species like porcini (*Boletus edulis*) and chanterelles (*Cantharellus cibarius*) are widely collected. Besides, truffles have gained importance in the food sector because of their flavor in South and Eastern Europe and Türkiye.

Forest Fruits and Wild Berries: Berries such as blueberries, raspberries, and wild strawberries are collected for consumption and sale. These fruits are essential for nutrition and contribute significantly to local economies.

Honey: Beekeeping is prevalent in many forested areas, making honey a crucial NWFP. It is valued for its health benefits and as a natural sweetener—especially **pine honey** from Türkiye and forest honey from the Balkans.

Nuts: Nuts like **chestnuts** (i.e., Albania), hazelnuts (i.e., Türkiye) and walnuts are gathered from forests and are important as food sources and for their economic value in local markets.

Other NWFPs are laurel, oregano, thyme, rosemary, pine resin, lavender, and cork.

8.5.2. Central Asia and the Caucasus

Nuts: Nuts like chestnuts, hazelnuts and **walnuts** are gathered from forests and are important as food sources and for their economic value in local markets. Kyrgyzstan and Uzbekistan have extensive walnut forests.

Wild fruits: Apples, apricots, and pistachios are gathered from natural forests.

Other NWFPs are wax, propolis, royal jelly, licorice root, ephedra, rhododendron, tarragon, frankincense, and gum Arabic.

The economic contribution of NWFPs is notable; they account for substantial income in rural areas, with estimates suggesting that the market value of these products can reach billions of euros across the region. In addition to their economic value, NWFPs hold cultural importance. They are often tied to traditional practices and local knowledge systems passed down through generations. Collecting these products is a means of subsistence and a way to maintain cultural heritage in many communities across these regions.

8.5.3. Selection Criteria of NWFPs

The diversity of non-wood forest products in South and Eastern Europe, Central Asia, and the Caucasus underscores their vital role in supporting local economies, promoting sustainable practices, and preserving cultural identities. By also considering the SWOT analysis, we selected **apiculture products (i.e., honey, beeswax, propolis), chestnut, and walnut** to provide examples of value chain development and recommendations to improve market access.

Apiculture Products (Beekeeping Products - *Apis* spp.)

Includes honey, beeswax, royal jelly, and propolis, making it a widely relevant category across all subregions.

Rationale: Beekeeping is practiced throughout Eastern Europe, Central Asia, and the Caucasus, and the sector has strong market potential, sustainability benefits, and economic importance.

Walnut (*Juglans* spp.)

Native walnut forests are found naturally, especially in Kyrgyzstan, Georgia, and the Balkan countries, making them a critical component of forest ecosystems.

Rationale: These forests represent an important biodiversity asset and economic resource, with strong market potential for nut production and sustainable forest management.

Chestnut (*Castanea* spp.)

Found across Türkiye, Georgia, Azerbaijan, and the Balkan countries, chestnut forests play a vital role in regional economies and rural livelihoods.

Rationale: Chestnut production is culturally and economically significant for the region, with high demand in local and international markets.

Porcini Mushrooms (*Boletus edulis*)

A highly valued wild edible mushroom, widely distributed across temperate forests in the target region.

Rationale: Porcini mushrooms have high export potential and provide economic benefits to rural communities while supporting sustainable forest management practices.

These products were selected based on their economic importance, sustainability potential, market demand, and regional relevance. Their inclusion in the guidelines will provide a balanced and regionally relevant perspective on NWFP value chain development and market access.

8.6. Outline for the Guidelines

1. Importance of NWFPs in the Region and Beyond

- Highlighting the contribution of NWFP production in the region.
- Examining the global context of NWFP value chain development within the sustainable bioeconomy.
- Understanding the role of NWFPs in contributing to the bioeconomy.

2. Analyzing Existing NWFP Value Chains

- A comprehensive review of studies and data on NWFP value chains.
- Identifying gaps and real needs across production, processing, and marketing.

3. Policies and Innovations for NWFP Development

- Exploring policies, initiatives, tools, and technologies for value chain enhancement.
- Key areas of focus:
 - Research and development.
 - Product diversification.
 - Value-added processing techniques.

4. Global and Regional Best Practices

- Case studies on global methodologies for NWFP value chain development.
- Examples and success stories from the region.
 - Case Studies: Apiculture products (i.e., honey, beeswax, propolis, etc.), Walnut, Chestnut, and Porcini
- Recommendations for adapting best practices to local contexts.

5. NWFP Certification and Sustainable Management

- Certification schemes and their impact on NWFPs in the region.
- Ensuring sustainable harvesting and supply:
 - Resource base management.
 - Sustainable harvest levels.
 - Quality standards and monitoring.

6. Adding Value to NWFPs

- Innovating through business models and co-management practices.
- Enhancing market access with certification and traceability systems.
- Leveraging technology for social and ecological value creation.

7. Creating an Enabling Environment for NWFP Growth

- Strengthening policy coherence and legal frameworks.
- Enhancing data generation, knowledge sharing, and investments.

8. Strategies for NWFP Value Chain Development

- Addressing regional opportunities and challenges.
- Prioritizing actions for a sustainable bioeconomy.
- Creating opportunities for improved market access.

9. SWOT Analysis and Stakeholder Mapping

- Analyzing strengths, weaknesses, opportunities, and threats in NWFP value chains.
- Identifying stakeholders in direct and indirect value chain activities:
 - Direct: Collection, marketing, exporting, and consumption.
 - Indirect: Transport, warehousing, logistics, and food safety institutions.

10. Recommendations for Competitive NWFP Value Chains

- Developing systematic interventions to enhance competitiveness.
- Prioritizing steps to improve market access and streamline value chains.

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