VIETNAM NATIONAL UNIVERSITY OF FORESTRY

TRẦN ĐỨC ANH

DEVELOPING NON-TIMBER FOREST PRODUCT PRODUCTION AND BUSINESS IN HA TINH PROVINCE

MAJOR: AGRICULTURAL ECONOMICS

CODE: 9620115

THESIS SUMMARY

HANOI – 2025

The dissertation was conducted at: Vietnam National University of Forestry

Scientific Supervisors:

Supervisor 1: Assoc. Prof. Dr. Nguyễn Văn Tuấn

Supervisor 2: Dr. Nguyễn Thị Hải Ninh

Reviewer 1: .....
.....

Reviewer 2: .....
.....

Reviewer 3: .....
.....

The dissertation will be defended before the University-level Dissertation Evaluation Committee at the Vietnam National University of Forestry at ..... , on ..., ..., 2025.

The dissertation is available at:

The National Library of Vietnam

The Library of Vietnam National University of Forestry

LIST OF SCIENTIFIC PUBLICATIONS BY THE AUTHOR

1. Nguyễn Thị Hải Ninh, Vũ Minh Ngọc, Nguyễn Như Bằng, Chu Thị Hồng Phượng, Trần Đức Anh (2019). *Solutions for the Development of Non-Timber Forest Products in Hà Tĩnh Province*. Journal of Economics and Forecasting, No. 18, June 2019, pp. 36–40.
2. Trần Đức Anh, Nguyễn Văn Tuấn (2023). *Development of Household-scale Non-Timber Forest Product Production and Business in Hà Tĩnh Province*. Journal of Forestry Science and Technology, No. 5/2023, Vol. 12, pp. 143–151.

INTRODUCTION

1. Rationale of the Research Topic

Non-timber forest products (NTFPs) refer to biologically derived products other than wood, which are harvested from natural or planted forests and hold multifaceted value, contributing to socio-economic development. The development of NTFPs not only helps increase income and enhance socio-economic efficiency in forestry development, but also plays an important role in biodiversity conservation, gene resource preservation, enhancing forest protection functions, and promoting other forest values. According to FAO statistics, in 2015, the global trade value of NTFPs was estimated at approximately USD 7.5 billion [86].

Vietnam is a country with great potential for forestry development in general and for NTFPs in particular. As of 2023, the country had a total forest area of 14,677,215 hectares, including 10,129,751 ha of natural forests and 4,730,557 ha of planted forests, with a forest coverage rate of 42.02%. Vietnam's forest resources in general and NTFP resources in particular are considered highly diverse and abundant. Scientists have recorded many valuable plant-based NTFPs in Vietnam, including 3,830 medicinal plant species, 500 essential oil species, 620 mushroom species, and 820 algae species. Among these, there are 186 endemic plant species found only in Vietnam and 823 species endemic to Indochina [24].

In recent years, the development of NTFPs in Vietnam has been identified as one of the key orientations and solutions to achieve sustainable forest resource development in terms of economic, social, and ecological aspects. Currently, Vietnamese NTFP products are present in more than 90 countries worldwide, with an export value reaching USD 1.02 billion in 2024.

The government has recently issued and implemented various policies to orient and encourage the development of NTFPs, notably the Project on Developing the Multifunctional Value of Forest Ecosystems to 2030 with a vision to 2050. This project sets the goal of increasing the value of processed NTFPs by 1.5 times compared to 2020 by 2030 and by 2 times by 2050; export value of NTFPs is expected to account for 15% by 2030 and 25% by 2050 of the total export turnover of forestry products.

Hà Tĩnh province, located in the North Central and Central Coastal Forest Ecological Region, is considered to have significant potential and advantages in forest resources. The total forest area of the province is 338,063 hectares, including 217,276 ha of natural forests and 120,787 ha of planted forests, with a forest coverage rate of 52.58%. Hà Tĩnh's forest resources are highly diverse and rich, with natural forests holding a wood reserve of 27.87 million m^3 and 58.15 million bamboo culms.

Despite its great potential, NTFPs in Hà Tĩnh have not been adequately developed. Forest usage still relies heavily on timber extraction, while the development of NTFPs receives limited attention. Most NTFP products in the province are harvested from natural forests in small, scattered quantities, with no established stable raw material areas. Processing facilities are few, technologies and equipment are outdated, and product quality remains low, resulting in weak competitiveness in both domestic and

international markets. The income and livelihoods of forest-dependent communities remain low and unstable. Furthermore, NTFP resources are being overexploited, with many species becoming scarce and threatened with extinction, negatively affecting the sustainable development of the province's forest resources.

In practice, the NTFP production and business activities in Hà Tĩnh face many difficulties and limitations in terms of production organization, market development, and technology application. These issues stem from various subjective and objective causes that require further research and analysis to identify appropriate directions and solutions.

In order to address the above practical needs, and based on the analysis and clarification of scientific and practical grounds, the author has chosen the topic: "Developing Non-Timber Forest Product Production and Business in Hà Tĩnh Province" as the subject of this doctoral dissertation.

2. Research Objectives

2.1. General Objective

To develop the production and business of non-timber forest products (NTFPs) in Hà Tĩnh province, thereby enhancing the multifunctional value of forest ecosystems, improving local livelihoods, and promoting the sustainable development of the provincial forestry sector in the coming period.

2.2. Specific Objectives

- To systematize and clarify the theoretical and practical foundations for the development of NTFP production and business.
- To assess the current status of NTFP production and business development in Hà Tĩnh province.
- To analyze the factors affecting the development of NTFP production and business in the province.
- To propose orientations and solutions for developing NTFP production and business in Hà Tĩnh province in the future.

3. Research Questions

This dissertation seeks to address the following research questions:

- What are the theoretical and practical foundations for studying the development of NTFP production and business?
- What is the current status of NTFP production and business in Hà Tĩnh province?
- What factors are influencing the development of NTFP production and business in Hà Tĩnh?
- What orientations and solutions are needed to promote NTFP production and business in the province?

4. Research Subjects

Research subject: The results, effectiveness, and influencing factors related to the development of NTFP production and business in Hà Tĩnh province.

Survey subjects: Enterprises, organizations, and households involved in NTFP production and business in the province.

5. Scope of the Study

5.1. Content Scope

NTFPs include many types and can be categorized into various groups. This dissertation focuses on the development of production and business of plant-based NTFPs currently being cultivated, harvested, or traded in Hà Tĩnh province.

5.2. Spatial Scope

The research is conducted within Hà Tĩnh province, which lies in the North Central forestry economic development region. The focus is mainly on mountainous districts where NTFP production and business activities are most concentrated.

5.3. Temporal Scope

Secondary data covers the period from 2021 to 2023.

Primary data were collected through surveys conducted from December 2022 to December 2023.

The proposed solutions are intended for implementation in the period 2026–2030, with a vision to 2050.

6. Research Content

- Theoretical and practical foundations for developing NTFP production and business.
- Current status of NTFP production and business development in Hà Tĩnh province.
- Factors influencing the development of NTFP production and business in the province.
- Orientations and proposed solutions for promoting NTFP production and business in Hà Tĩnh province.

7. Novel Contributions of the Thesis

- Theoretical Contributions

The dissertation systematizes and clarifies the theoretical foundations of NTFP production and business development from the perspective of forest economics and resource management. By synthesizing domestic and international literature, it identifies the core content and key factors affecting the development of NTFP production and business. These findings contribute to improving the theoretical foundation for NTFP research and policy-making in the current context.

- Practical Contributions

Practically, the dissertation provides a comprehensive analysis of the current situation of NTFP production and business in Hà Tĩnh province—covering collection, cultivation, processing, and marketing—along with the influencing factors. It proposes orientations and solutions aimed at enhancing the multifunctional value of forest ecosystems and promoting sustainable forestry development in the province.

8. Scientific and Practical Significance of the Thesis

- Scientific Significance:

The dissertation provides useful information and serves as a valuable reference for scientific research and education in the field of NTFP development, especially in the

context of enhancing forest ecosystem values and promoting sustainable forestry development.

- Practical Significance:

The research findings can serve as a useful reference for policymakers and managers in formulating and implementing strategies to develop NTFP production and business in Hà Tĩnh province and other regions with similar conditions.

CHAPTER 1: THEORETICAL AND PRACTICAL FOUNDATIONS FOR THE DEVELOPMENT OF NON-TIMBER FOREST PRODUCT PRODUCTION AND BUSINESS

1.1. Theoretical Foundations for the Development of NTFP Production and Business

1.1.1. Basic Concepts

- Non-Timber Forest Products (NTFPs)

NTFPs are biological materials, excluding wood, that are harvested from forests for various human uses. These include plant and animal species used for food, medicinal purposes, essential oils, resins, waxes, adhesives, latex, rubber, tannins, dyes, fats, ornamental plants, paper materials, fibers, etc.

- Development
- NTFP Production and Business

1.1.2. Roles of Non-Timber Forest Products

- Economic Role of NTFPs
- Social Role of NTFPs
- Ecological and Environmental Role of NTFPs

1.1.3. Classification of Non-Timber Forest Products

- Classification based on biological taxonomy
- Classification based on use value

1.1.4. Main Aspects of NTFP Production and Business Development

1.1.4.1. Expanding the scale of NTFP production and business

1.1.4.2. Developing organizational models for NTFP production and business

1.1.4.3. Promoting economic linkages in NTFP production and business

1.1.4.4. Applying science and technology in NTFP production and business

1.1.4.5. Developing NTFP processing and marketing

1.1.4.6. Improving the efficiency of NTFP production and business

1.1.5. Factors Influencing the Development of NTFP Production and Business

1.1.5.1. Natural conditions

1.1.5.2. Policies promoting NTFP development

1.1.5.3. Human resources for NTFP development

1.1.5.4. Market development

1.1.5.5. Development of infrastructure and public services

1.2. Overview of Research on NTFP Production and Business Development

1.2.1. International Research Overview

There are numerous international studies on NTFP development, notably by authors such as De Beer, J. H., & McDermott, M. J. (1989); Wickens, G. E. (1991); Balick, M. J., and Mendelsohn, R. (1992); Brian Belcher (2003); Adedayo A. G. (2018); Pandey, A. K., Tripathi, Y. C., & Kumar, A. (2016); Manzoor R., Niaz A. K, and Mahmood H. (2022), among others.

In general, global research confirms the potential and significant roles of NTFPs, especially in developing countries and mountainous regions. NTFP production and business are increasingly considered an effective livelihood strategy and a tool for socio-economic development by many nations.

1.2.2. Domestic Research Overview

In Vietnam, several studies have been conducted on NTFPs, including works by Hoàng Hòe et al. (1998); Triệu Văn Hùng et al. (2007); Đỗ Huy Bịch (2017); Thanh Van Nguyen et al. (2020); Đỗ Huy Bình (2017), among others.

These studies highlight the importance of NTFP development. Most focus on technical aspects, while fewer address the production and business dimensions. Furthermore, statistical data on NTFP production and trade remain very limited.

1.3. Practical Experiences in Developing NTFP Production and Business in Vietnam

1.3.1. Experience from Thừa Thiên Huế Province

1.3.2. Experience from Phú Thọ Province

1.3.3. Experience from Nghệ An Province

1.3.4. Lessons Learned for Hà Tĩnh Province.

CHAPTER 2: RESEARCH METHODOLOGY

2.1. Basic Characteristics of Hà Tĩnh Province

2.1.1. Natural Characteristics of Hà Tĩnh Province

Hà Tĩnh is a province located in the North Central Region of Vietnam, consisting of 13 district-level administrative units, including 1 city, 2 towns, and 10 districts.

The total natural land area of the province is 599,067 hectares, of which forest land and land designated for forestry planning account for 330,040 hectares, representing 60.12% of the province's total area.

Hà Tĩnh is considered a locality with diverse and abundant natural resources and possesses significant potential for exploitation and development.

2.1.2. Socio-Economic Characteristics of Hà Tĩnh Province

Hà Tĩnh has a population of 1,290,263 people, with a population density of 215 people per km². The labor force consists of 707,186 people.

In recent years, the province’s economy has experienced strong growth, with its economic structure rapidly shifting toward industrialization and modernization. The material and spiritual life of the people has been steadily improving.

2.1.3. Influence of Basic Characteristics on the Development of NTFP Production and Business in the Province

+ Advantages:

- Hà Tĩnh has a large area of forest land, with its natural forest area ranking among the largest in the country. The forest resources are diverse and rich.

- The high biodiversity of forests provides favorable conditions for diversifying forest-derived benefits, including the development of NTFPs.

- The province possesses a relatively well-developed and diverse transportation system, facilitating socio-economic development and business operations.

- The province's economic development in recent years has laid a solid foundation for promoting NTFP production and business.

+ Challenges:

- The mountainous terrain is complex and fragmented, significantly affecting forestry operations, including NTFP development.

- Harsh climate conditions, including frequent natural disasters such as storms, floods, and droughts, create difficulties for agricultural and forestry production, including NTFPs.

- Rural labor serves as the main human resource for forestry, but the proportion of trained workers remains low, posing challenges for the development of NTFP production and business in the current context.

2.2. Research Methods

2.2.1. Research Approach and Analytical Framework

In the research process, the dissertation adopts the following approaches:

- Systemic Approach
- Regional Approach
- Institutional Approach
- Participatory Approach
- Sustainable Development Approach
- Value Chain Approach
- Analytical Framework of the Thesis

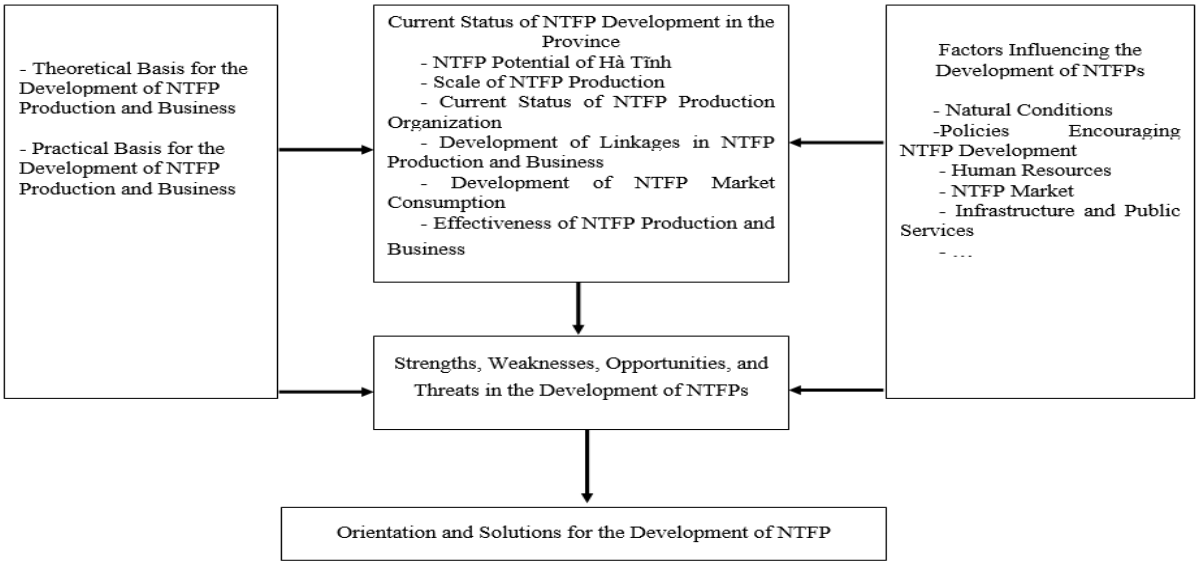

Figure 2.2: Analytical Framework of the Thesis

2.2.2. Specific Research Methods

2.2.2.1. Method for Selecting Survey Sites

The dissertation selects three districts representing different regions for the development of various types of NTFPs, including:

- Hương Khê District: representing areas specializing in NTFPs for raw material supply.
- Hương Sơn District: representing areas developing NTFPs for medicinal purposes.
- Hồng Lĩnh Town: representing areas developing NTFPs for resin production.

2.2.2.2. Methods of Data and Document Collection

Secondary documents supporting the research were collected, screened, and synthesized from officially published sources.

Primary information was mainly obtained through direct surveys and interviews with organizations and individuals involved in NTFP production and business in the study areas, using structured questionnaires and interview forms. The dissertation surveyed 200 households and 10 organizations representing stakeholders involved in NTFP production and business in Hà Tĩnh province. Survey samples were selected using a stratified sampling method.

2.2.2.3. Data Processing Method

2.2.2.4. Data Analysis Methods

- Descriptive Statistics Method
- Comparative Analysis Method
- SWOT Analysis Method
- Regression Analysis Method

2.2.2.5. Indicators Used in the Research

+ Group of indicators reflecting the current status of NTFP production and business
    - Scale and structure of NTFP production areas
    - Output and structure of NTFP yield
    - Revenue and revenue structure from NTFPs

+ Group of indicators reflecting results and efficiency of NTFP production and business
    - Production and business costs for NTFPs
    - Income from NTFP production and business
    - Profit from NTFP activities
    - Income per unit area for each type of NTFP
    - Income per labor working day in NTFP activities
    - NPV (Net Present Value)
    - BCR (Benefit-Cost Ratio)
    - IRR (Internal Rate of Return)
    - …

Chapter 3:
RESEARCH RESULTS AND DISCUSSION

3.1. Potential for the Development of Non-Timber Forest Products in Hà Tĩnh Province

3.1.1. Forest and Forestry Land Potential in Hà Tĩnh Province

3.1.1.1. Area and Structure of Forests and Forestry Land in Hà Tĩnh Province

Table 3.3. Area of Forestry Land by Management Entities in Hà Tĩnh Province

No.	*Land/Forest Type*	*Area (ha)*	*By Forest Owner*					
			National Park & Nature Reserve	*Forest Management Board*	*Military Unit*	*Enterprises*	*Household*	*Commune People's Committee*
I	Special-use Forest	74.509	74.510					
1	Forestry land with forest cover	73.926	73.926					
a	Natural forest	73.311	73.311					
b	Planted forest	616	616					
2	Bare land	583	583					
II	Protection Forest	113.218	19.553	70.896	0	15.211	3.115	4.441
1	Forestry land with forest cover	102.821	17.710	65.132	0	14.866	2.090	3.022
a	Natural forest	80.806	12.070	53.591	0	14.014,8	105,3	1.027
b	Planted forest	22.015	5.641	11.543	0	852,4	1.984,8	1.994,6
2	Bare land	9.658	1.816	5.639	0	328,8	909,9	965,7
3	Other land	739	29	125	0	16	115,1	454
III	Production Forest	172.976	5.037	16.062	290	54.377	68.295	28.915
1	Forestry land with forest cover	136.687	4.102	13.163	224	47.888	51.895	19.417
a	Natural forest	64.143	2.442	7.715	0	26.883,8	18.225,5	8.875,2
b	Planted forest	72.544	1.660	5.447	224	21.003	33.669,4	10.541,3
2	Bare land	30.391	915	2.818	63	6.145,7	13.578,1	6.871,2
3	Other land	5.898	20	79	3	345,6	2.822,4	2.626,8
	Total Forestry Land	360.703	99.100	86.957	290	69.588,1	71.410,5	33.356
1	Forestry land with forest cover	338.063	95.738	78.295	224	62.753	53.985	22.438,2
a	Natural forest	217.276	87.823	61.306	0	40.898,6	18.330,8	9.902,2
b	Planted forest	120.787	7.916	16.991	224	21.854,4	35.654,2	12.535,9
2	Bare land	16.004	3.313	8.456	63	6.473,5	14.488	7.837
3	Other land	6.636	49	204	3	360,6	2.937,4	3.080,8
	Percentage (%)	100,00	27,47	24,11	0,08	19,29	19,80	9,25

Source: *Hà Tĩnh Provincial Department of Agriculture and Rural Development*

3.2.1.2. Forest Stock Status in Hà Tĩnh Province

The current reserves of major forest products in Hà Tĩnh province include approximately 32.1 million m³ of timber and 58 million bamboo trees. The province's timber stock is mainly concentrated in natural forests (27.87 million m³), particularly in medium-quality forest stands (16.91 million m³) and special-use forests (7.25 million m³). Timber reserves from planted forests, primarily production forests, amount to 3.37 million m³.

Meanwhile, bamboo reserves are mostly found in production forests, with 53.9 million culms, accounting for 92.64% of the province's total bamboo stock.

3.1.2. Current Status of NTFP Area and Reserves in Hà Tĩnh Province

According to the NTFP inventory data of Hà Tĩnh province, the region hosts 93 species of economically valuable plant-based NTFPs that need to be conserved and have strong development potential.

Table 3.5. Status of Economically Valuable Plant-Based NTFP Species in Hà Tĩnh

Unit: Number of species

No.	*NTFP Group*	*Number of Species*	*By Stock Status*			
			Abun-dant	*Mode-rate*	*Scarce*	*Endan-gered*
1	Fiber-producing group	19	6	6	7	
2	Essential oils, resin, latex group	11		4	7	
3	Medicinal plant group	32		16	15	1
4	Food group	19	3	10	4	2
5	Other product group	12		6	4	2
	Total	***93***	***9***	***42***	***37***	***5***

Source: *Hà Tĩnh Provincial Department of Agriculture and Rural Development*

The total area of non-timber forest product (NTFP) plants in Hà Tĩnh province is relatively large, reaching 41,184.21 ha, distributed across various groups, specifically:

- The group of resin-producing NTFP species occupies the largest area, with 22,880.74 hectares, distributed across seven districts: Đức Thọ, Can Lộc, Hương Khê, Hương Sơn, Kỳ Anh, Thạch Hà, and Vũ Quang.

- The food-producing NTFP group covers an area of 7,824.66 ha, of which 7,124.66 hectares are used for bamboo shoots. These are found in five districts: Cẩm Xuyên, Hương Khê, Hương Sơn, Kỳ Anh, and Vũ Quang.

- The fiber-producing NTFP group occupies 7,673.81 ha, distributed across six districts: Hương Sơn, Hương Khê, Kỳ Anh, Cẩm Xuyên, Can Lộc, and Vũ Quang.

- The medicinal plant group covers 2,155 hectares, distributed across all districts in the province.

3.2. Current Status of NTFP Production and Business Development in Hà Tĩnh

3.2.1. Expansion of NTFP Production and Business Scale in Hà Tĩnh Province

The harvested output of several major NTFP types in the province is presented in Table 3.7.

Table 3.7. Harvested Output of Key NTFPs in Hà Tĩnh Province

No.	*NTFP Type*	*Unit*	*2019*	*2020*	*2021*	*2022*	*2023*	*Average Growth Rate (%)*
I- Raw Material NTFPs								
1	Bambusa species	Thousand trees	18	17	17	18,5	18,4	100,55
2	Bamboo	Thousand trees	716	739	708	766	769	101,80
3	Dendrocalamus	Thousand trees	2037	2015	2180	2110	2200	101,94
4	Neohouzeaua	Tons	1872	2016	2088	2232	2250	104,71
5	Rattan, Calamus sp	Tons	530	481	474	433	422	94,46
II- Resin/Oil-Producing NTFPs								
1	Pine resin	Tons	878	613	612	620	626	91,89
2	Cajeput	Tons	758	1011	822	1318	1395	116,47
III- Medicinal NTFPs								
1	Homalomena	Tons	1976	2635	2141	2964	2880	109,88
2	Sargentodoxa	Tons	847	1129	917	1270	1125	107,35
3	Gynostemma	Tons	4,94	6,58	5,35	7,41	7,55	111,19
4	Amomum	Tons	0,76	0,94	0,76	1,06	1,15	110,91
5	Stemona tuberosa	Tons	0,84	1,13	0,92	1,27	1,18	108,87
6	Ardisia silvestris	Tons	17,64	23,53	19,12	26,47	25,41	109,55
7	Holarrhena	Tons	35,29	47,06	38,23	52,94	41,5	104,14
8	Ganoderma	Tons	0,27	0,36	0,29	0,41	0,33	105,14
9	Plantago major	Tons	1,76	2,53	1,91	2,65	2,71	111,39
10	Panax pseudoginseng	Tons	5,08	6,78	5,51	7,62	7,8	111,32
IV- Food-producing NTFPs								
1	Bamboo shoots	Tons	915	871	859	912	995	102,12
2	Mushrooms	Tons	19	17	18	19	21	102,53
3	Canarium spp	Tons	7,06	9,41	7,65	10,59	10,65	110,82
4	Yam roots	Tons	6,88	9,05	6,78	9,55	10,5	111,15
5	Momordica	Tons	1,41	1,88	1,53	2,12	2,5	115,39
V- Other NTFPs								
1	Palm leaves	Tons	3878	3109	3099	2970	3100	94,56
2	Phrynium placentarium	Tons	216	288	234	324	350	112,82
3	Conical hat leaves	Tons	360	396	468	504	505	108,83
4	Vetiver roots	Tons	52,94	70,59	57,35	79,12	81,5	111,39

Source: Hà Tĩnh Provincial Department of Agriculture and Rural Development

Revenue from Non-Timber Forest Products (NTFPs) in Hà Tĩnh Province during the 2019–2023 period is presented in Table 3.8.

Table 3.8. Revenue from the Sale of Non-Timber Forest Products in Hà Tĩnh Province

(Unit: Million VND)

No.	*NTFP Type*	*2019*	*2020*	*2021*	*2022*	*2023*	*Average Growth Rate (%)*
1	Raw Material NTFPs	97.544	105.824	138.755	185.669	198.432	119,43
2	Resin/Oil-Producing NTFPs	9.950	10.908	11.108	14.485	15.898	112,43
3	Medicinal NTFPs	23.256	23.158	26.330	28.694	29.882	106,47
4	Food-producing NTFPs	3.356	3.760	3.425	3.336	3.670	102,26
5	Other NTFPs	18.665	17.450	17.690	13.719	15.091	94,83
	Total	***152.773***	***161.101***	***197.310***	***245.906***	***262.975***	***114,54***

Source: Hà Tĩnh Provincial Department of Agriculture and Rural Development

3.2.2. Organizational Models of NTFP Production and Business in Hà Tĩnh Province

3.2.2.1. NTFP Production and Business Activities of Institutional Forest Owners

Institutions in Hà Tĩnh province that have been allocated forest land and forest areas by the State include 21 units, comprising 6 public service units, 3 forestry companies, 8 enterprises, and 4 other organizations. These units currently manage a total of 254,183 ha of forest and forestry land, of which 74,501 ha are special-use forests, 108,659 ha are protection forests, and 71,022 ha are production forests.

The area and forest structure managed by institutional forest owners are summarized in Table 3.9.

Table 3.9. Status of Forest and Forestry Land Use by Institutional Forest Owners in Hà Tĩnh Province

No.	*Organization Name*	*Total Managed Area (ha)*				*Area with NTFP Business*	*Area with NTFP Potential*
		Total	*Natural Forest*	*Planted Forest*	*Bare Land*		
I	**Public Service Units**	**184.905,07**	**148.603,79**	**30.586,86**	**5.714,42**	**41.806**	**105.240**
1	Vũ Quang National Park	57.029,84	56.391,48	397,01	241,35	13.402	28.515
2	Kẻ Gỗ Nature Reserve Management Board	41.606,83	31.137,19	9.471,57	998,07	8.737	24.964
3	Hồng Lĩnh Protection Forest Mgmt. Board	9.671,02	574,39	6.733,16	2.363,47	1.509	5.803
4	Hương Khê Protection Forest Mgmt. Board	31.276,39	27.406,66	3.200,52	669,21	7.131	18.766
5	Nam Hà Tĩnh Protection Forest Mgmt. Board	20.314,51	13.108,61	6435,9	770,01	4.875	12.189
6	Ngàn Phố Protection Forest Mgmt. Board	25.006,48	19.985,47	4348,7	672,31	6.152	15.004
II	**Forestry Companies**	**35.492,03**	**33.412,63**	**1.689,09**	**390,31**	**7.967**	**21.030**
1	Hà Tĩnh Forestry Co.	663,08	102,01	383,03	178,04	40	133
2	Chúc A Forestry and Services Co.	15.095,73	14.007,64	1.002,42	85,67	4.257	9.057

3	Hương Sơn Forestry and Services Co.	19.733,22	19.302,98	303,64	126,6	3.670	11.840
III	**Other Enterprises**	**30.336,79**	**5.348,55**	**21.965,82**	**3.022,42**	**3.338**	**17.572**
1	Hà Tĩnh Rubber Co.	11.831,77	658,64	9.545,01	1.628,12	1.491	7.099
2	Hương Khê Rubber Co.	16.010,22	4.282,58	11.003,05	724,57	1.633	9.606
3	Việt Hà JSC	659,46	0	338,93	320,53	53	264
4	Bình Hà JSC	535,36	0	333,5	201,86	48	161
5	Military Co.	549,05	356,56	160,06	32,43	99	329
6	Thanh Vân Co.	10,65	0	10,49	0,16	0	0
7	Hồng Lam Co., Ltd.	174,13	0	74,75	99,38	0	0
8	Tây Sơn Tea Enterprise	566,17	50,77	500,03	15,37	15	113
IV	**Other Organizations**	**3.448,91**	**1.790,32**	**1.521,77**	**136,81**	**442**	**2.029**
1	T34 Base	290,41	11,04	271,15	8,22	17	58
2	Phúc Trạch Resettlement Village	178,25	63,44	84,22	30,59	27	89
3	Tây Sơn Youth Volunteer Team	2.669,54	1.407,49	1166,4	95,65	336	1.602
4	Highland Ecological Center	310,7	308,35	0	2,35	62	280
	Total	**254.182,79**	**189.155,29**	**55.763,54**	**9.263,96**	**53.554**	**145.871**
	Percentage %	**100,00**	**74,42**	**21,94**	**3,64**	**21,07**	**57,39**

Source: Hà Tĩnh Provincial Department of Agriculture and Rural Development

At these units, with the advantage of having large areas of natural forests, the potential for non-timber forest products (NTFPs) is quite significant. NTFP production and business activities are mainly based on harvesting from natural forests by households contracted to protect the forests or by local residents living near forest areas. Some units have organized the extraction of pine resin from plantation forests by contracting forest protection and resin tapping to local households.

3.2.2.2. NTFP Production Activities by Household Forest Owners

Currently, there are 27,283 households in Hà Tĩnh province allocated forest land, totaling 71,344 ha, including 18,379 ha of natural forests, 45,633 ha of plantations, and 7,332 ha of bare land.

The collection and cultivation of NTFPs mainly take place in areas with natural forests. Harvesting and collecting NTFPs have contributed to job creation and income generation for households to support their livelihoods. However, these activities are mostly spontaneous and scattered, mainly based on foraging for subsistence purposes. In many cases, the exploitation is excessive and unsustainable, entirely dependent on the free market without being properly organized or managed.

3.2.2.3. NTFP Business Activities of Agricultural Cooperatives

Currently, Hà Tĩnh province has 888 active cooperatives, of which 570 are engaged in agriculture and forestry. In general, these agricultural cooperatives have limited capital, operate on a small scale, and generate low revenues, resulting in modest income distribution for their members.

However, some cooperatives have begun to play the role of connecting and partnering with enterprises to develop agricultural production chains—from production to market access—including NTFP value chains.

3.2.3. Linkages in NTFP Production and Business in Hà Tĩnh

NTFP production and business in Hà Tĩnh is still in its early stages of development, remaining fragmented and small-scale, mostly following traditional practices. However, the following types of economic linkages are being implemented:

- Linkages between enterprises – forest-owning organizations – households
- Linkages between enterprises – cooperatives – farmer households
- Linkages between enterprises – households
- Linkages between enterprises – agents – households

The formation and operation of these linkages to connect production with markets have contributed to the creation of supply chains. They enable producers to be more proactive in business planning, place greater emphasis on improving product quality, yield, and market access, reduce intermediary costs, minimize risks, stabilize prices and input–output flows, and enhance product value.

3.2.4. Application of Science and Technology in NTFP Business

Currently, Hà Tĩnh province has introduced policies to support the implementation of projects that apply new technologies in NTFP production and business. These projects have made positive contributions in promoting scientific and technological progress in the development of certain types of NTFPs across the province.

However, there remain several limitations in the application of science and technology to NTFP production and business:

- In general, cultivation, care, and harvesting of NTFPs are still based on traditional knowledge and practices, with tools and equipment remaining largely manual and rudimentary.
- The introduction of technological innovations in NTFP business is mainly project-based, with a limited scale and lack of widespread dissemination or experience-sharing at the household level.
- There are no standardized guidelines or technical procedures for cultivating, tending, harvesting, or preliminary processing of NTFPs—especially in terms of sustainable collection under forest canopies, and conservation of rare and endangered species.

Technological advances in pre-processing, storage, and processing of NTFPs have not yet been thoroughly researched or transferred to farming households, resulting in inconsistent product quality.

3.2.4. Development of Processing and Markets for NTFPs

Currently, Hà Tĩnh province has several facilities involved in NTFP processing at various levels, including: one pharmaceutical company, eight facilities processing cajeput essential oil, two facilities processing Thiên niên kiện (Homalomena occulta), five facilities processing pine resin, and several individual household-based processors. In general, the NTFP processing system in Hà Tĩnh is both limited in number and outdated in terms of technology.

The distribution channels for the main NTFP product groups can be illustrated through the diagrams shown in Figure 3.1.

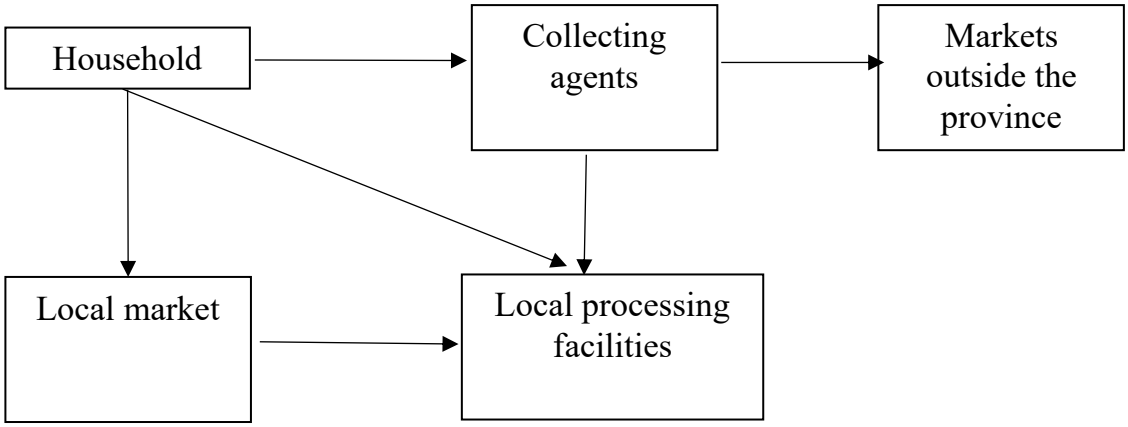

Figure 3.2. Main NTFPs Marketing Channels in Ha Tinh Province

In general, the market for plant-based non-timber forest products (NTFPs) in Ha Tinh province remains quite fragmented and lacks strong organization. The unstable consumption of these products negatively affects producers.

2.2.6. Results and Effectiveness of NTFP Production and Business Activities in Ha Tinh

2.2.6.1. Forest Use Efficiency in NTFP Production and Business in Ha Tinh

Some indicators reflecting the economic efficiency of forest use in Ha Tinh—of which NTFP business activities contribute a part—are presented in Table 3.12.

Table 3.12. Trends of Selected Economic Efficiency Indicators in Forest Utilization in Ha Tinh Province

No.	*Indicators*	*Unit*	*2019*	*2020*	*2021*	*2022*	*2023*	*Average Growth Rate (%)*
1	Forest land area	ha	328906	333040	335485	313434,7	338063	100,69
a	*Natural forest area*	ha	*216927*	*217776*	*217367*	*218259*	*217276*	*100,04*
b	*Planted forest area*	ha	*111979*	*115264*	*118118*	*95175*	*120787*	*101,91*
2	Revenue from forest products	tr.đ	410039	471309	496115	545181	558575	108,03
a	*Revenue from timber harvesting*	*tr.đ*	*257266*	*310208*	*298805*	*299275*	*295600*	*103,53*
b	*Revenue from NTFPs*	*tr.đ*	*152773*	*161101*	*197310*	*245906*	*262975*	*114,54*
3	Income per hectare of forest land	tr.đ/ha	1,247	1,415	1,479	1,739	1,756	108,94
a	*Income from timber exploitation*	*tr.đ/ha*	*0,782*	*0,931*	*0,891*	*0,955*	*0,929*	*104,40*
b	*Income from NTFPs*	*tr.đ/ha*	*0,464*	*0,484*	*0,588*	*0,785*	*0,827*	*115,51*

Source: Hà Tĩnh Provincial Department of Agriculture and Rural Development

Based on the data in Table 3.12, it can be observed that the indicators reflecting the effectiveness of forest land use in the province have shown an upward trend in recent years. Notably, income from non-timber forest products (NTFPs) per hectare of forest has made an important contribution, with a relatively rapid increase.

3.2.6.2. Results and Efficiency of NTFP Production and Business among Surveyed Households

+ Results and Efficiency of Planting Amomum by surveyed households

Some information on costs, outcomes, and economic efficiency of planting 1 hectare of Amomum under natural forest canopy is presented in Table 3.14.

Table 3.14. Economic Efficiency of 1 ha Amomum at the Survey Site

Unit: VND/ha

No	*Year*	*Cost (Ci)*	*Revenue (Bi)*	*Bi-Ci*
1	Năm 1	61.000.000	0	-61.000.000
2	Năm 2	5.250.000	0	-5.250.000
3	Năm 3	12.250.000	62.500.000	50.250.000
4	Năm 4	12.250.000	62.500.000	50.250.000
5	Năm 5	12.250.000	62.500.000	50.250.000
6	Năm 6	12.250.000	62.500.000	50.250.000
7	Năm 7	12.250.000	62.500.000	50.250.000
8	Năm 8	12.250.000	62.500.000	50.250.000
9	Năm 9	12.250.000	62.500.000	50.250.000
10	Năm 10	12.250.000	62.500.000	50.250.000
	Total	164.250.000	500.000.000	335.750.000
	NPV	134.670.618	366.395.281	231.724.663
	BCR			2,72
	IRR (%)			49,93

Source: Compiled from survey results

The calculated indicators show that cultivating Amomum roxburghianum brings relatively high economic efficiency for farming households: The Net Present Value (NPV) reaches +231,724,663 VND/ha (at a discount rate of 5%/year); The Benefit-Cost Ratio (BCR) is 2.72; The Internal Rate of Return (IRR) is 49.93%.

+ Results and efficiency of NTFP harvesting activities in natural forests by surveyed households

The survey results of 120 households engaged in NTFP harvesting in natural forests are summarized in Table 3.16.

Table 3.16. Production Activities and Income of Households Harvesti

TT	*Indicator*	*Unit*	*Value*	*Proportion %*
1	Number of surveyed households	households	102	
2	Average land area per household	m2	34.655	100,00
a	Agricultural land	m2	1.285	3,71
b	Forestry land	m2	32.700	94,36
c	Other types of land	m2	670	1,93
3	Average number of household members	persons	4,97	
4	Average number of laborers	laborers	2,37	
5	Average household income	VND/year	81.070.000	100,00

a	*From crop production*	VND/year	*19.700.000*	*24,30*
b	*From livestock raising*	VND/year	*4.650.000*	*5,74*
c	*Income from forestry activities*	VND/year	*50.470.000*	*62,25*
+	From contracted forest protection payments	VND/year	1.770.000	2,18
+	From NTFP harvesting	VND/year	47.450.000	58,53
+	From other forestry activities	VND/year	1.250.000	1,54
d	*From other sources*	VND/year	*6.250.000*	*7,71*
6	Average income per laborer	VND/year	34.254.930	
7	Average income per capita	VND/year	16.322.819	

Source: Compiled from survey results

+ Results and Efficiency of Pine Resin Harvesting Activities by Surveyed Households

Information on pine resin harvesting activities by 30 surveyed households is summarized in Table 3.18.

Table 3.18. Pine Resin Harvesting Situation of Surveyed Households

No.	*Indicator*	*Unit*	*Value*
1	Number of surveyed households	households	30
2	Average contracted pine forest area per household	ha	2,38
3	Number of labor workdays for resin tapping	workdays/year	131
4	Average household resin output	kg/year	3.694
5	Household income from resin tapping	VND/year	51.718.333
6	Average income per workday	VND/workday	394.545

Source: Compiled from survey results

3.2.6.3. Factors Affecting the Income of Households Collecting NTFPs from Natural Forests.

A linear regression model in logarithmic form (an extended Cobb-Douglas function) is used to demonstrate the correlation between the income from NTFPs of the surveyed households and several influencing factors, as follows:

$$LnTN = b_1LnLD + b_2LnHV + b_3LnKIT + b_4LnBKT + b_5LnLK + B$$

The variables included in the model are explained and described in Table 3.19.

Table 3.19. Explanation of variables used in the model

No.	*Variable Name*	*Variable Description*	*Data Source*	*Expected Sign*
I	Dependent Variable			
1	LnTN	TN: Household income from NTFPs	Survey	
II	Independent Variables			
1	LnLD	LD: Number of household laborers	Survey	+
2	LnDTR	DTR: Area of household's natural forest	Survey	+
3	LnHV	HV: Education level of household head	Survey	+
4	LnKIT	KIT: Technical knowledge of household head on NTFPs	Survey	+
5	LnBPK	BPK: Technical measures applied by the household in NTFP production	Survey	+
6	LnLK	LK: Level of household participation in NTFP production linkages	Survey	+

The variables KIT, BPK, and LK were surveyed through a supplementary questionnaire, using a 10-point scale for each variable. The regression results are presented in Table 3.24.

Table 3.24: Regression Coefficients of the Model

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	11,562	,943		12,257	,000
	LnLD	,715	,107	,403	6,698	,016
	LnDTR	,408	,095	,217	4,293	,022
	LnHV	,076	,088	,044	,867	,388
	LnKIT	,320	,073	,233	4,380	,017
	LnBKT	,223	,071	,176	3,141	,012
	LnLK	,244	,064	,200	3,830	,020

Source: Extracted from SPSS regression results

Based on Table 3.24, the unstandardized coefficients indicate the degree of influence of each independent variable on the dependent variable as follows:

- Variable LnLD has coefficient b1 = +0.715, indicating that if other factors remain unchanged, a 1% increase in labor leads to a 0.715% increase in household income.

- Variable LnDTR has coefficient b2 = +0.408, showing that a 1% increase in natural forest area results in a 0.408% increase in household income.

- Variable LnKIT has coefficient b4 = +0.320, meaning that a 1% increase in technical knowledge score raises household income by 0.320%.

- Variable LnBKT has coefficient b5 = +0.223, meaning that a 1% increase in the application of technical measures leads to a 0.223% rise in income.

- Variable LnLK has coefficient b6 = +0.244, showing that a 1% increase in the linkage participation score increases income by 0.244%.

3.3. Factors Affecting the Development of NTFP Production and Business in Ha Tinh

3.3.1. Natural Conditions of Ha Tinh Province

The favorable natural conditions in Ha Tinh are reflected in the following aspects: The province has a diverse land and soil structure, suitable for the development of various high-value NTFPs. Its forest resources are still relatively abundant and biologically diverse, including many species of high economic value. The natural forest system is well protected and developed, providing an important basis for NTFP production and business development.

However, natural conditions also present certain challenges:The province's terrain is relatively complex, especially in mountainous areas, which hinders socioeconomic activities, particularly transportation, leading to high logistics costs. In addition, Ha Tinh’s harsh climate conditions considerably affect NTFP production and business, particularly large-scale cultivation.

3.3.2. Policies Promoting NTFP Development in Ha Tinh

In general, the current policy system in Ha Tinh has had a positive impact on encouraging NTFP production and business, as evidenced by the following: There is a consistent policy orientation that regards NTFP development as a tool for

sustainable forest resource management and long-term livelihood improvement for producers. The province has established a provincial-level NTFP development plan and corresponding action plans to gradually implement this roadmap. Specific support policies are also in place, such as initial investment subsidies, preferential credit loans, marketing and product promotion assistance.

Nonetheless, the policy system still exhibits shortcomings: Policies largely remain at the level of orientation and planning without concrete regulations to address practical needs. Several support measures primarily target large-scale projects, while lacking preferential support for households and local communities. There is also no clear integration mechanism linking NTFP development policies with other socio-economic policies to optimize resource utilization.

3.3.3. Development of Infrastructure System

Over the years, especially with the implementation of the National Target Program on New Rural Development, the socioeconomic infrastructure system in general—and in the midland and mountainous areas of Ha Tinh in particular—has seen significant improvement, positively influencing NTFP production and business activities.

However, several infrastructure limitations remain: Transportation systems in NTFP-producing areas are still underdeveloped and weak. The energy supply system does not adequately meet the demand for electricity needed to develop small-scale NTFP processing facilities. Supporting infrastructure such as storage facilities, preliminary processing, and preservation centers lack systematic and standardized investment, with most being spontaneously built by local people, leading to reduced product quality and inefficient consumption.

3.3.4. Market for Non-Timber Forest Products in Ha Tinh

In recent years, the NTFP market in Ha Tinh has made certain progress in the following aspects:

- Distribution channels for various types of NTFPs have been established, showing increasing specialization and stability.
- Local authorities at various levels have introduced initiatives to promote product branding, marketing, and market expansion.

However, the NTFP market still faces several issues:

- Management agencies have not yet fully prioritized the development of the NTFP market, failing to recognize it as a breakthrough strategy for sustainable NTFP development in the province.
- The market is still largely self-organized and spontaneous; newly established supply chains and linkages are limited and underdeveloped.
- No agency has taken responsibility for connecting external markets with local NTFP producers.
- Most NTFP products are sold as raw materials with minimal processing, resulting in uneven quality and low market prices.

3.3.5. Infrastructure and Public Services for NTFP Development in Ha Tinh

In recent years, notable improvements in Ha Tinh's infrastructure have positively impacted all stages of NTFP production, from cultivation to transportation, processing, and marketing.

However, current infrastructure still does not meet the requirements for comprehensive NTFP development in the province: Road systems in mountainous areas remain inadequate and underdeveloped. Supporting infrastructure such as storage facilities, preliminary processing and preservation systems lack standardized and comprehensive investment, affecting product quality.

Public services—especially agricultural and forestry extension—play a vital role in promoting the application of science and technology (S&T) in NTFP production and business. However, there are still several shortcomings: NTFP production mainly relies on traditional practices and indigenous knowledge, while tools and means of production are mostly rudimentary.

The application of S&T advancements is still limited to a few centralized projects, with insufficient dissemination to household-scale producers. There are no formal guidelines or technical procedures for the cultivation, care, harvesting, or processing of various NTFPs.

3.3.6. Development of Production Linkages in the NTFP Sector in Ha Tinh

In the current NTFP sector in Ha Tinh, various economic linkages have emerged between actors involved in cultivation, harvesting, processing, and marketing. These linkages have positively contributed to the development of NTFPs in the province.

However, the development of such linkages still faces limitations: External partners often dominate these linkages. Most linkages are established through informal verbal agreements, lacking legal binding, and local farmers are usually in a disadvantaged position.

3.4. Overall Evaluation of NTFP Production and Business Development in Hà Tĩnh

3.4.1. Achievements

In recent years, NTFP production and business development in Hà Tĩnh Province have achieved several fundamental successes as follows:

- There has been a significant shift in awareness regarding the great role of non-timber forest products (NTFPs) and the necessity of developing NTFP production and business in connection with forest management, protection, and development.
- The entire area of forest land in Hà Tĩnh has been allocated or contracted to stable and long-term users, forming an important basis for the development of NTFPs in the province.
- The People's Committee of Hà Tĩnh Province has issued several incentive policies to facilitate and promote NTFP-related activities.
- NTFP production and business have contributed to improving the efficiency of forest resource use, creating jobs, increasing local incomes, and promoting forest protection and development.
- Various forms of production organization and economic linkages at different scales have been formed, contributing significantly to the development and efficiency of NTFP production and business.

- Initial supply chains for specific types of NTFPs have begun to take shape, laying the foundation for sustainable NTFP development in the province.

3.4.2. Limitations and Constraints

- NTFP activities in Hà Tĩnh remain largely spontaneous, small-scale, and lack systematic and coordinated organization.
- State management of NTFP development still faces many shortcomings.
- The NTFP consumption market has not been well organized.
- NTFP production is mainly based on harvesting from natural forests, while planting efforts remain limited.
- Processing, preservation, and value-added activities for NTFPs have not received adequate investment.
- Economic linkages in the NTFP sector are still scarce and weak where they exist.
- Product quality control of NTFPs is not sufficiently addressed.
- The underdeveloped local market for NTFPs poses difficulties for consumption, negatively affecting overall efficiency.

3.4.3. Causes of Limitations and Constraints

- Awareness among some local officials and communities about NTFP development remains limited.
- State management in forestry, particularly in the NTFP sector, lacks consistency and effectiveness, and has not fulfilled its designated roles.
- Current provincial policies on NTFP management and development contain unreasonable elements and fail to create strong motivation.
- Public forest owners (e.g., state forest enterprises) mainly focus on protection and conservation goals and pay little attention to commercializing existing NTFPs.
- Investment in applying scientific and technological advances to the NTFP sector remains insufficient; no specialized extension services exist for NTFPs.
- Marketing, promotion, and trade facilitation efforts are inadequate and do not meet the needs of market development for the NTFP sector in the province.

3.5. Orientations and Solutions for the Development of NTFP Production and Business in Hà Tĩnh Province

3.5.1. Basis for Proposal

3.5.1.1. National Orientation for NTFP Development

- The Vietnam Forestry Development Strategy 2021–2030, with a vision to 2050, emphasizes sustainable forestry, balancing economic, social, and environmental objectives. It aims to increase the value-added of forest products by promoting agroforestry, NTFPs, urban forestry, and ecotourism.
- The Master Plan for Developing Multi-Use Values of Forest Ecosystems by 2030 (vision to 2050) sets out objectives to enhance the potential and multifunctional values of forest ecosystems through sustainable use. It particularly emphasizes developing NTFPs, medicinal plants, and agroforestry models. Specific targets for NTFP development include: increasing the value of processed NTFPs and medicinal plants by 1.5 times by 2030 and twice by 2050 compared to 2020; ensuring that NTFPs account for 10–15% of total forest product export turnover by 2030 and 25% by 2050.

3.5.1.2. Provincial Forestry Development Orientation

The following directions have been set for Hà Tĩnh's forestry sector in the coming years:

- Enhance leadership and governance to effectively manage, protect, and exploit forest and forest land resources; sustainably develop protection and special-use forests; and promote biodiversity and ecosystem services.
- Invest in and efficiently utilize current production forests; strictly enforce bans on natural forest logging; and encourage the cultivation of indigenous, multi-purpose, and NTFP species.
- Encourage enterprises to cooperate in developing raw material areas for NTFPs linked to processing and product consumption, and support the formation of craft villages for branded NTFP products.
- Synchronously develop production-supporting infrastructure, especially transportation in production zones; attract investment in forestry and forest-based ecotourism.
- Promote processing technologies, apply science and technology, improve product quality, and strengthen marketing and trade.
- Strengthen the organizational system and improve the effectiveness of forestry enterprises and forest management boards; promote joint ventures and partnerships.
- Supplement and improve mechanisms and policies to encourage all economic sectors to participate in investment, management, and exploitation of forest resources.

3.5.1.3. SWOT Analysis for NTFP Production and Business Development in Hà Tĩnh

Results of the SWOT analysis for NTFP development in Hà Tĩnh are summarized in Table 3.27.

3.5.2. Development Orientation for NTFP Production and Business in Hà Tĩnh Province

- Leverage the potential and strengths of each ecological zone to develop suitable types of NTFPs, ensuring sustainability and effectiveness.
- Develop NTFPs in harmony with biodiversity conservation goals, resource quality enhancement, and forest sustainability.
- Raise awareness and build the capacity of both managers and local people toward sustainable NTFP development.
- Ensure balanced development across all stages: cultivation, harvesting, collection, transportation, primary processing, and value addition. Promote economic linkages to increase added value and sustainability.
- Expand both domestic and international NTFP markets in a comprehensive and integrated manner.

3.5.3. Solutions for Developing NTFP Production and Business in Hà Tĩnh Province

3.5.3.1. Improve policy systems for NTFP management and development

3.5.3.2. Improve planning and development strategies for NTFP production

3.5.3.3. Strengthen production and business organization in the NTFP sector

3.5.3.4. Promote the application of science and technology to NTFP activities

3.5.3.5. Develop NTFP processing facilities

3.5.3.6. Expand NTFP markets

3.5.3.7. Enhance training and capacity building for human resources

Table 3.27: SWOT Analysis for the Development of NTFPs in Hà Tĩnh Province

	Opportunities (O) - Increasing demand for NTFPs - Expanding export markets - Improved awareness of NTFPs - Greater accessibility to scientific and technological advances	**Threats (T)** - Increasing requirements for biodiversity conservation - Stricter product quality standards - Intensifying market competition
Strengths (S) - Large area of natural forests - Favorable natural conditions - Rich diversity of high-value NTFPs - Forestland has been stably allocated to users - Local people have extensive experience in NTFP production - Government policies support NTFP development	**S-O Strategies** SO1: Promote NTFP business development under natural forest canopy SO2: Encourage cultivation of high-value NTFPs in natural forests SO3: Encourage forest owners to develop NTFPs sustainably	**S-T Strategies** ST1: Develop and implement regulations for NTFP production from natural forests ST2: Develop GAP-based production processes for key NTFPs
Weaknesses (W) - NTFP activities remain spontaneous and fragmented - Heavy reliance on wild harvesting; limited cultivation - Focus on exploitation over conservation - Poor infrastructure - Underdeveloped processing; mainly raw materials sold - Lack of quality control - Weak production-consumption linkages - Underdeveloped markets	**W-O Strategies** WO1: Develop concentrated production zones for NTFPs WO2: Strengthen training and education on sustainable NTFP development WO3: Promote the establishment of NTFP processing facilities WO4: Encourage linkages in production and consumption WO5: Foster domestic and international NTFP market development	**W-T Strategies** WT1: Develop both horizontal and vertical linkages in NTFP production and marketing WT2: Develop and apply production and processing protocols and product standards for NTFPs WT3: Establish NTFP logistic centers

CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

1- The development of non-timber forest products (NTFPs) plays a crucial and significant role in forest management, protection, and development. Promoting NTFP production and business contributes substantially to enhancing the forest-based economy, leveraging the multifunctional values of forest ecosystems, and moving toward sustainable forest resource management.

2- The study of NTFP development in Hà Tĩnh province in recent years shows clear achievements. NTFP production and business have made progress in both scale and depth: expanding in area, product diversity, production volume, and economic value. Production organization has been gradually improved; economic linkages in NTFP activities have been formed at various levels; and market access is steadily improving. As a result, productivity and efficiency in NTFP operations have continuously advanced.

However, there remain several limitations and challenges affecting the sustainability and effectiveness of NTFP production in Hà Tĩnh. These include organizational, policy, infrastructure, and market-related issues, which require timely and comprehensive solutions.

3- Many factors affect the development of NTFP production and business in the province. Key factors identified include: (i) the province's natural conditions; (ii) existing incentive policies for NTFP development; (iii) the current state of NTFP market demand; (iv) infrastructure and public services for NTFP production; and (v) the extent of linkages in NTFP production and business in Hà Tĩnh.

4- To promote NTFP development in Hà Tĩnh province in the coming period, several key measures should be prioritized: (i) Improve the policy system for managing and encouraging NTFP development; (ii) Strengthen planning and development of NTFP production strategies; (iii) Accelerate the application of science and technology in NTFP production and business; (iv) Develop NTFP processing facilities; (v) Expand domestic and international markets for NTFPs; (vi) Enhance training to improve the quality of human resources.

2. Recommendations

- The State should adopt preferential policies for investment in NTFP development, considering such investments as vital for sustainable forest resource development.

- The Ministry of Agriculture and Rural Development (MARD) should take practical steps to implement the National Strategy for Sustainable Forestry Development, with a strong emphasis on NTFPs as a core approach for sustainable forest use.

- MARD should design and implement a dedicated agricultural extension program specifically for NTFPs and allocate sufficient resources to support this program nationwide, including Hà Tĩnh province.

- MARD and the Ministry of Industry and Trade should promote research and trade promotion activities to develop both domestic and international markets for NTFPs, while facilitating linkages to help forest owners in Hà Tĩnh export their NTFP products abroad.

- The People's Committee of Hà Tĩnh province should urgently issue and implement a Provincial Plan for enhancing the multifunctional value of forest ecosystems to support sustainable natural resource development and forestry growth.

- To further improve research quality, the author recommends conducting more in-depth studies on NTFP processing and export activities in the province.