



# Industrial Development Roadmap of Bhutan

10X National Industrial Vision  
August, 2025

Ministry of Industry, Commerce and Employment





*"An important thing for the people to understand is that we are pursuing "One Country, Two Systems" by establishing the GMC as a Special Administrative Region. However, we do not intend to maintain the "two systems" forever. Ultimately, they must converge into "One Country, One System." The innovations emerging from the GMC must be mirrored across the rest of Bhutan for the nation to succeed as a whole. But this convergence will only succeed if we implement parallel reforms throughout the country. Strengthening democracy, aligning the bureaucracy with future needs, improving laws, and reforming the education system to empower our people."*

*His Majesty the King's Royal Address on the 117th National Day*



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**Ministry of Industry, Commerce and Employment**  
**Royal Government of Bhutan**

## FOREWORD

The *Industrial Development Roadmap (IDR) of Bhutan* marks a pivotal step in our national journey toward economic diversification, industrial transformation, and sustainable development. Aligned with the vision of Gross National Happiness and the aspirations of the 21st Century Economic Roadmap, this document provides a strategic blueprint for building a dynamic, resilient, and inclusive industrial economy in Bhutan.

The roadmap identifies ten high-potential priority sectors, including agro industries, creative industries, data center industries, education industries, forest-based industries, ICT industries, medtech wellness industries, mineral-based industries, renewable energy, and tourism. These sectors have been chosen for their potential to generate employment, increase domestic value addition, reduce import dependency, and promote exports, while ensuring social equity and environmental sustainability.

Crafted through an evidence-based and participatory process, the IDR integrates data and existing government report analysis, global benchmarking, and stakeholder consultations. The result is a comprehensive strategy that addresses critical structural constraints and lays out targeted interventions across policy, infrastructure, technology, finance, skills, market access, and branding.

We believe that the successful implementation of this roadmap will position Bhutan not only as a competitive player in the regional economy but also as a model of green, mindful, and inclusive industrialization.

We extend our sincere gratitude to all those who contributed to this important initiative. Together, let us work toward building a prosperous, self-reliant, and future-ready Bhutan.

**Lyonpo Namgyal Dorji**



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Your efforts have ensured that the IDR reflects the aspirations of the Bhutanese people, the realities of our economy, and the vision of a green, innovative, and inclusive industrial future.

With your continued collaboration, we remain confident in our shared journey toward a prosperous and sustainable Bhutan.

Tashi Wangmo

Secretary

Ministry of Industry, Commerce and Employment



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# ABBREVIATIONS

4IR	Fourth Industrial Revolution	EC	Environmental Clearance
ABI	Association of Bhutanese Industries	EDI	Electronic Data Interchange
ABTO	Association of Bhutanese Tour Operators	EDL	Essential Drug List
AI	Artificial Intelligence	FAB	Film Association of Bhutan
AIRA	Artificial Intelligence Readiness Assessment	FDI	Foreign Direct Investment
API	Active Pharmaceutical Ingredient	FIIs	Financial Institutions
AWS	Amazon Web Services	FoTM	Faculty of Traditional Medicine
BEA	Bhutan Exporters Association	FTOs	Foreign Travel Agents
BFDA	Bhutan Food and Drug Authority	GDP	Gross Domestic Product
BICMA	Bhutan Information, Communications and Media Authority	GI	Geographical Indication
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation	GMC	Gelephu Mindfulness City
BLDCL	Bhutan Livestock Development Cooperation Limited	GMP	Good Manufacturing Practices
BPC	Bhutan Power Corporation	GNH	Gross National Happiness
BPO	Business Process Outsourcing	GovTech	Government Technology Agency
BSB	Bhutan Standards Bureau	GSP	Good Storage Practice
CCNA	Cisco Certified Network Associate	HAB	Handicrafts Association of Bhutan
CDMO	Contract Development and Manufacturing Organization	IBLS	Integrated Business Licensing System
CNR	College of Natural Resources	ICMA	Information, Communications, and Media Act
CSI	Cottage and Small-Scale Industries	IDR	Industrial Development Roadmap
CSMIs	Cottage, Small and Medium Industries	IP	Intellectual Property
DAMC	Department of Agricultural Marketing and Cooperatives	IPLC	International Private Leased Circuit
DGM	Department of Geology and Mines	ISSP	Inclusive Sourcing Service Provider
DHI	Druk Holding and Investments	IoT	Internet of Things
DGPC	Druk Green Power Corporation	JNEC	Jigme Namgyel Engineering College
DoA	Department of Agriculture	KGUMSB	Khesar Gyalpo University of Medical Sciences of Bhutan
DoECC	Department of Environment and Climate Change	KPO	Knowledge Process Outsourcing
DoEE	Department of Employment and Entrepreneurship	LDC	Least Developed Country
DoE	Department of Energy	LGs	Local Governments
DoFPS	Department of Forest and Park Services	MICE	Meetings, Incentives, Conferences, and Exhibitions
DoI	Department of Industry	MoAL	Ministry of Agriculture and Livestock
DoID	Department of Infrastructure Development	MoENR	Ministry of Energy and Natural Resources
DoL	Department of Labour	MoESD	Ministry of Education and Skills Development
DoL	Department of Livestock	MoF	Ministry of Finance
DoMCIIIP	Department of Media Creative Industry and Intellectual Property	MoFAET	Ministry of Foreign Affairs and External Trade
DoST	Department of Surface Transport	MoH	Ministry of Health
DoT	Department of Trade	MoHA	Ministry of Home Affairs
DoTr	Department of Tourism	MoICE	Ministry of Industry, Commerce and Employment
DoWFSD	Department of Work Force and Skills Development	MoIT	Ministry of Infrastructure and Transport
DRC	Department of Revenue and Customs	MPU	Medicinal Processing Unit
DSP	Desuung Skilling Programme	NBC	National Biodiversity Centre
		NDI	National Digital Identity
		NLCs	National Land Commissions
		NRDCL	Natural Resources Development



	Corporation Limited
NSB	National Statistics Bureau
OAG	Office of the Attorney General
OCASC	Office of the Cabinet Affairs and Strategic Coordination
OTA	Overseas Travel Agent
P&M	Production and Manufacturing
PPP	Public-Private Partnership
R&D	Research and Development
RIA	Regulatory Impact Assessment
RMA	Royal Monetary Authority
ROI	Return on Investment

RUB	Royal University of Bhutan
SDF	Sustainable Development Fee
SOEs	State-Owned Enterprises
SOP	Standard Operating Procedures
TCB	Tourism Council of Bhutan
TTIs	Technical Training Institutes
TVET	Technical and Vocational Education and Training
UNIDO	United Nations Industrial Development Organization
UPI	Unified Payments Interface
WBI	World Bank Institute
WHO	World Health Organization

# EXECUTIVE SUMMARY

The Industrial Development Roadmap (IDR) presents a strategic and forward-looking plan to transform Bhutan's industrial sector into a key pillar of sustainable, inclusive, and innovation-driven economic growth. Anchored in the principles of Gross National Happiness (GNH) and aligned with the 21st Century Economic Roadmap, the IDR aims to diversify Bhutan's narrow economic base, generate quality employment, enhance productivity, reduce import dependency, and build a more competitive and resilient economy.

Despite some progress, Bhutan's industrial sector remains underdeveloped. In 2023, the secondary sector contributed only 29.6% of GDP, reflecting structural issues such as limited value addition, weak diversification, low technology adoption, skills mismatches, and poor integration with regional and global markets. The sector also faces challenges related to a narrow export base and low private sector participation.

The IDR envisions an industrial sector that is green, competitive, and resilient by 2035, contributing meaningfully to national development while preserving Bhutan's environmental integrity and cultural values. It identifies ten high-potential sectors for focused development, based on criteria such as value addition, job creation, export potential, resource efficiency, and environmental sustainability:

- Agro Industries
- Creative Industries
- Data Center Services
- Education Services
- Forestry-Based Industries
- ICT Industries
- MedTech Wellness Industries
- Mineral-Based Industries
- Renewable Energy
- Tourism

To achieve its vision, the IDR adopts a dual-track implementation strategy. The first track focuses on strengthening the industrial ecosystem, among others, by improving policies and regulations, expanding access to finance, enhancing infrastructure and logistics, promoting technology and innovation, and developing human capital. The second track involves sector-specific strategies tailored to unlock the growth potential of each priority sector by addressing their unique challenges and value chain gaps.

In addition to sector development, the IDR includes dedicated measures to improve access to affordable finance, offer targeted fiscal incentives, attract foreign direct investment (FDI), and establish a monitoring and evaluation (M&E) framework to ensure accountability and results.

The IDR outlines a clear strategic framework and phased implementation plan (covering the short, medium, and long term) to drive the transformation of Bhutan's industrial sector. By 2036, the IDR is expected to significantly increase the industrial sector's contribution to GDP, create thousands of quality jobs, boost productivity and innovation, diversify exports, and promote industrial development that is environmentally sustainable and culturally aligned.

The IDR represents a critical national initiative to reimagine and reshape Bhutan's economic future. It offers a clear, inclusive, and actionable strategy to shift from a narrow, aid- and hydropower-dependent economy to a diversified, innovation-led, and resilient industrial landscape, firmly grounded in Bhutan's identity, values, and long-term vision for prosperity and happiness.

# CHAPTER 1

## OVERVIEW OF THE INDUSTRIAL DEVELOPMENT ROADMAP

### 1. Introduction

Bhutan's industrial sector plays a critical role in the national economy, contributing nearly 53% of the country's GDP. It includes a wide range of activities such as energy, manufacturing, construction, mining and services. However, the sector faces several challenges, including fragmented growth, underutilized potential, and the lack of a comprehensive strategic framework.

Macroeconomic indicators reveal significant structural imbalances. In 2023, the tertiary sector accounted for 55.49% of GDP, growing at a strong 8.61%. In contrast, the secondary sector, which is central to economic diversification, contributed just 29.55% and even recorded a slight contraction of -0.03% in 2023.

The primary sector, though it employs 41% of the population, contributed only 15% of GDP, highlighting a large productivity gap. Meanwhile, youth unemployment stands at 17.7%, and rising outmigration suggests a mismatch between workforce skills and labor market needs, especially in industrial sectors.

The hydropower sector remains the largest contributor within the industry, forming the backbone of energy exports and public revenue. Construction, including public infrastructure and hydropower-related projects, adds around 8% to GDP. The services sector (excluding wholesale and retail trade) contributes about 23%, driven by public administration, education, health, finance, hotels and restaurants, communication and transport etc.. However, production and manufacturing remain underdeveloped, with low diversification and limited complexity, contributing only 8% to GDP.

### 2. Rationale for the Industrial Development Roadmap (IDR)

Bhutan's industrial sector is at a crossroads. Improving Bhutan's industrial development ecosystem is essential for several reasons. Despite growth in sectors such as hydropower and construction, the sector remains underdeveloped and vulnerable to external shocks. A



long-term, coordinated industrial roadmap is essential to address the following national priorities.

1. **Economic Diversification:** Bhutan's over-reliance on hydropower and imports exposes the economy to external risks. Diversifying into value-added manufacturing, sustainable mining, and industrial services is necessary to build economic resilience.
2. **Private Sector Development:** The private sector faces challenges including limited access to finance, inadequate infrastructure, crowding-out by State-Owned Enterprises (SOE) and a shortage of skilled labor. A conducive policy and institutional environment is needed to encourage innovation and entrepreneurship.
3. **Youth Employment and Demographic Shift:** Bhutan has a growing youth population, which requires the creation of meaningful and sustainable jobs. Without a focused strategy, the country risks high youth unemployment, particularly in rural areas.
4. **Export Competitiveness and Trade Balance:** The country faces a persistent trade deficit. Enhancing domestic production and promoting exports can help reduce import dependence and improve Bhutan's trade position.
5. **Balanced Regional Development:** Industrial activities are concentrated in only a few Dzongkhags, leading to regional disparities. Expanding industrial development to Dzongkhags with high poverty incidences can foster more inclusive and equitable growth.
6. **Environmental Sustainability and Alignment with GNH:** Bhutan's development must align with the philosophy of Gross National Happiness (GNH). This requires promoting green, inclusive, and low-carbon industrial growth.

### **3. Goals and Objectives of the IDR**

#### **3.1. Scope & Strategic Goals**

The Industrial Development Roadmap aims to achieve the following strategic goals:

1. **Enhance Governance and Policy Alignment:** Strengthen institutional coordination, regulatory clarity, and policy coherence across sectors.

2. **Build a Resilient and Supportive Industrial Ecosystem:** Improve access to finance, infrastructure, skills, and technology to create a thriving industrial environment.
3. **Increase Industrial Productivity and Competitiveness:** Promote innovation, technology adoption, and process efficiency to improve industrial performance.
4. **Generate Quality Employment and Foster Value Addition:** Support industries that create decent jobs and move up the value chain, especially in high-potential sectors.
5. **Advance Green, Inclusive, and Sustainable Growth:** Ensure that industrial development is environmentally sound, socially inclusive, and aligned with Bhutan's GNH principles.
6. **Promote Balanced Regional Development:** Reduce disparities by encouraging industrial growth across all Dzongkhags.

### 3.2. Key Objectives

The objectives of the Industrial Development Roadmap are to:

1. **Conduct a Comprehensive Situational Analysis:** Examine the current state of Bhutan's industrial sector to identify structural gaps, institutional challenges, and emerging opportunities.
2. **Strengthen the Industrial Ecosystem:** Enhance key enablers such as policies, infrastructure, finance, technology, and skills to create a more supportive and competitive environment for industrial development.
3. **Identify and Prioritize High-Potential Sectors:** Focus on sectors with strong potential for value addition, job creation, export diversification, and sustainable growth, aligned with Bhutan's unique strengths and resources.
4. **Chart a clear strategic pathway:** Define clear strategies and implementation plans to guide industrial transformation over the short, medium, and long term.

## 4. Methodology

The methodology adopted for developing the Industrial Development Roadmap for Bhutan is comprehensive and evidence-based, ensuring the roadmap is both strategic and grounded in Bhutan's socio-economic realities.

1. **Data Analysis:** It begins with data analysis, where key indicators such as sectoral GDP contributions, employment patterns, and historical growth trends were reviewed. This step helped identify challenges within various industrial sub-sectors and establish a factual basis for strategic planning.
2. **Stakeholder Consultations:** Stakeholder consultation was a core component of the methodology, involving extensive engagement with relevant government agencies, private sector representatives, state-owned enterprises (SOEs), and civil society organizations. These consultations ensured that diverse perspectives, practical challenges, and on-the-ground insights were incorporated into the roadmap, enhancing its relevance and feasibility.
3. **Benchmarking Best Practices:** To guide policy direction and align with global standards, benchmarking was carried out using regional and international best practices. This helped identify successful models of industrial development and adapt them to Bhutan's unique context, including its environmental values and Gross National Happiness (GNH) philosophy.
4. **Gap Assessment:** A gap assessment through situational analysis (using SWOT) was then undertaken to pinpoint major constraints facing industrial development. These included gaps in policies/regulatory frameworks, infrastructure, financial access, technology adoption and workforce skills. The assessment allowed for the identification of critical bottlenecks that need targeted interventions.
5. **Phased Planning:** Finally, the roadmap was designed through phased planning, organizing key activities/actions and reforms into short, medium, and long-term timelines with clear milestones, lead agency and collaborating agencies. This phased approach ensures that the roadmap is actionable, monitors progress over time, and remains adaptable to emerging challenges and opportunities. Collectively, this methodology provides a robust foundation for a transformative, inclusive, and sustainable industrial future for Bhutan.

## 5. Expected Outcome

By 2036, Bhutan's Industrial Development Roadmap envisions a fundamentally transformed industrial sector that acts as a key engine of inclusive, resilient, and sustainable economic growth. Anchored in the principles of Gross National Happiness (GNH), the roadmap sets out a strategic shift toward a more diversified and balanced economic structure, with increased contributions from manufacturing, energy, green industries, services, and high-value-added production. It seeks to catalyze a vibrant and dynamic private sector by improving the business environment, enhancing access to finance, and fostering entrepreneurship.

A central goal of the IDR is to generate quality employment opportunities at scale—particularly for youth, women, and rural populations—thereby supporting inclusive human capital development. The roadmap promotes spatial equity by encouraging regionally balanced industrial growth across all Dzongkhags, reducing socio-economic disparities, and stimulating rural and sub-national economies.

Environmental sustainability is a foundational pillar, with a strong emphasis on clean energy adoption, circular economy principles, green industrial standards, and the development of climate-resilient infrastructure. The IDR also aims to enhance Bhutan's export competitiveness by reducing import dependence, deepening domestic value chains, and integrating into regional and global markets.

Strategic investments in next-generation industrial parks, modern trade logistics, digital and e-commerce platforms, and robust innovation and skills ecosystems will position Bhutanese industries to be competitive, adaptive, and future-ready. Ultimately, the IDR aspires to lay the foundation for Bhutan to transition into a high-income, innovation-driven economy—deeply rooted in national values and guided by long-term ecological, social, and economic well-being.

## 6. Study Task Force

The Industrial Development Roadmap (IDR) study was conducted by a 13-member taskforce over a four - month period. This inter-departmental team, comprising officials from various departments within the Ministry, is listed below:

1. Mr. Chhime Tshering, Director General, Department of Industry, MoICE
2. Mr. Tandin Wangdi, Chief Industries Officer, Department of Industry, MoICE
3. Mr. Jigme Dorji, Chief Trade Officer, Competition & Consumer Affairs Authority, MoICE
4. Ms. Jamyang Tshomo, Dy. Chief Planning Officer, Policy & Planning Division, MoICE
5. Mr. Sonam Phuntsho, Chief Communication Engineer/ Officer, Bhutan Infocomm and media Authority, MoICE



6. Mr. Binod Pradhan, Chief Information and Media Officer, Department of Media Creative Industry and Intellectual Property, MoICE
7. Mr. Tashi Tenzin, Chief Tourism Officer, Department of Tourism, MoICE
8. Mr. Tshering, Dy. Chief Trade Officer, Department of Trade, MoICE
9. Mr. Kesang Phuntsho Namgay, Dy. Executive Engineer, Bhutan Standard Bureau, MoICE
10. Mr. Phuntsho Wangdi, Assistant Employment Officer, Department of Employment & Entrepreneurship, MoICE
11. Ms. Tenzin Euden, Assistant Industries Officer, Department of Industry, MoICE
12. Ms. Tshering Lhamo, Assistant Industries Officer, Department of Industry, MoICE
13. Ms. Karma Wangmo, Assistant Industries Officer, Department of Industry, MoICE



## CHAPTER 2

# INDUSTRIAL DEVELOPMENT ECOSYSTEM

### 1. Background

Bhutan's industrial sector is at a formative stage of development, reflecting the country's unique socio-economic priorities and geographic context. While the sector has gradually evolved over the past few decades, it remains relatively small and underdeveloped. Manufacturing and production activities in Bhutan are primarily concentrated in a few key areas, notably the production of cement, ferrosilicon, wood-based products, agro-processing, and traditional handicrafts. Much of this activity is localized in the southern belt, particularly in industrial hubs like Phuntsholing, Samtse and Samdrupjongkhar, where proximity to India and access to relatively better infrastructure provide logistical and trade advantages.

The evolution of industry in Bhutan has been shaped by the country's overarching development philosophy of Gross National Happiness (GNH), which emphasizes holistic well-being, environmental sustainability, cultural preservation, and good governance over purely economic growth. This guiding principle has encouraged a cautious and sustainability-oriented approach to industrialization, helping Bhutan avoid many of the negative social and environmental impacts often associated with rapid industrial growth. However, it has also led to a slower pace of industrial development and limited diversification within the sector.

Despite some progress, Bhutan's industrial sector continues to face a range of structural challenges. These include a narrow industrial base, high dependence on imports for raw materials and finished goods, skill mismatches between the labor force and industry needs, limited access to affordable finance, burdensome licensing procedures, dominance of State-Owned Enterprises, inadequate industrial infrastructure, and a small domestic market.

Moreover, the dominance of state-owned enterprises (SOEs) in key sectors has often limited private sector dynamism and innovation.

## 2. Current Industrial Landscape

### 2.1. Industry Distribution by Scale and its Operational Status

In 2023, Bhutan’s industrial sector was overwhelmingly dominated by small and cottage industries (CSIs), which together accounted for over 95% of all operational businesses. Small-scale industries alone made up 70%, followed by cottage industries at 25%. In contrast, medium and large industries represented only 3% and 2%, respectively. While there were over 31,000 active industrial licenses across all scales, nearly 59% were non-operational (*Industry Census 2024*). This indicates that a significant portion of registered businesses are inactive, particularly within the small and cottage categories.

**Table 1. Structure of the Operational and Non-operational Industries by Scale, 2023**

Scale	Number of Industries Operational	% of the Total Industries Operational	Number of Active License	Number of Non-Operational Industries with active license
Cottage	3,219	25	10163	6944
Small	9,183	70	20142	10,959
Medium	392	3	679	287
Large	214	2	364	150
Total	13,008	100	31348	18340

The high rate of non-operational licenses among smaller industries suggests structural challenges such as limited access to markets, financing constraints, infrastructure deficits, and regulatory hurdles. These factors make it difficult for CSIs to sustain operations and grow. Despite its potential, the sector faces deep-seated challenges.

This imbalance highlights the urgent need for a coordinated industrial strategy that supports the growth of small and cottage industries while promoting scale, innovation, and value addition.

### 2.2. Industry Distribution by Dzongkhag

In 2023, Bhutan’s industrial activity was heavily concentrated in a few key Dzongkhags. Thimphu, the capital, holds the largest share, with almost 25% of all active industrial licenses. Other important industrial areas include Chhukha, Sarpang, Samtse, and Paro. Together, these

Dzongkhags hold more than half of the country's industries. This shows that industrial activity is mostly focused in certain Dzongkhags where there are better roads, resources, and business opportunities. On the other hand, remote districts like Gasa, Haa, Lhuentse, and Trashigang have very few industries, likely because they face challenges like poor infrastructure and limited markets. Even though every district has some industries, the numbers vary significantly.

**Table 2. Distribution of Operational Industries by Dzongkhag, 2023.**

Dzongkhag	Number of Operational licenses	Percent
Bumthang	448	3.44
Chhukha	1,378	10.59
Dagana	382	2.94
Gasa	45	0.35
Haa	174	1.34
Lhuentse	175	1.35
Monggar	650	5
Paro	797	6.13
Pema Gatshel	354	2.72
Punakha	421	3.24
Samdrup Jongkhar	671	5.16
Samtse	1,011	7.77
Sarpang	1,141	8.77
Thimphu	3,105	23.87
Trashigang	173	1.33
Trongsa	471	3.62
Tsirang	350	2.69
Tsiring	309	2.38
Wangdue Phodrang	617	4.74
Zhemgang	336	2.58
<b>Total</b>	<b>13,008</b>	<b>100</b>

This suggests Bhutan could benefit from policies that help spread industrial growth more evenly across the country, especially by improving infrastructure and supporting smaller businesses in less developed Dzongkhags. A clear policy and institutional framework is essential to address regional disparities, boost job creation, and build a more balanced and resilient industrial ecosystem.

## 2.3. Sectoral Performance and Contribution to GDP

Bhutan's industrial sector is broadly categorized into five key sectors - Production & Manufacturing, Hydro-power/Electricity, Services, Mining & Quarrying, and Construction. *Figure*



1 illustrates the growth of Bhutan’s GDP and the industrial sector’s contribution from 1980 to 2023. Both have increased significantly, especially after the early 2000s, reflecting the impact of hydropower projects and broader economic development. Overall, while the industrial sector has expanded in absolute terms, its (i.e. the secondary sector) relative contribution remains modest, highlighting the need for diversification, value addition, and industrial policy reforms to strengthen its role in Bhutan’s economy.

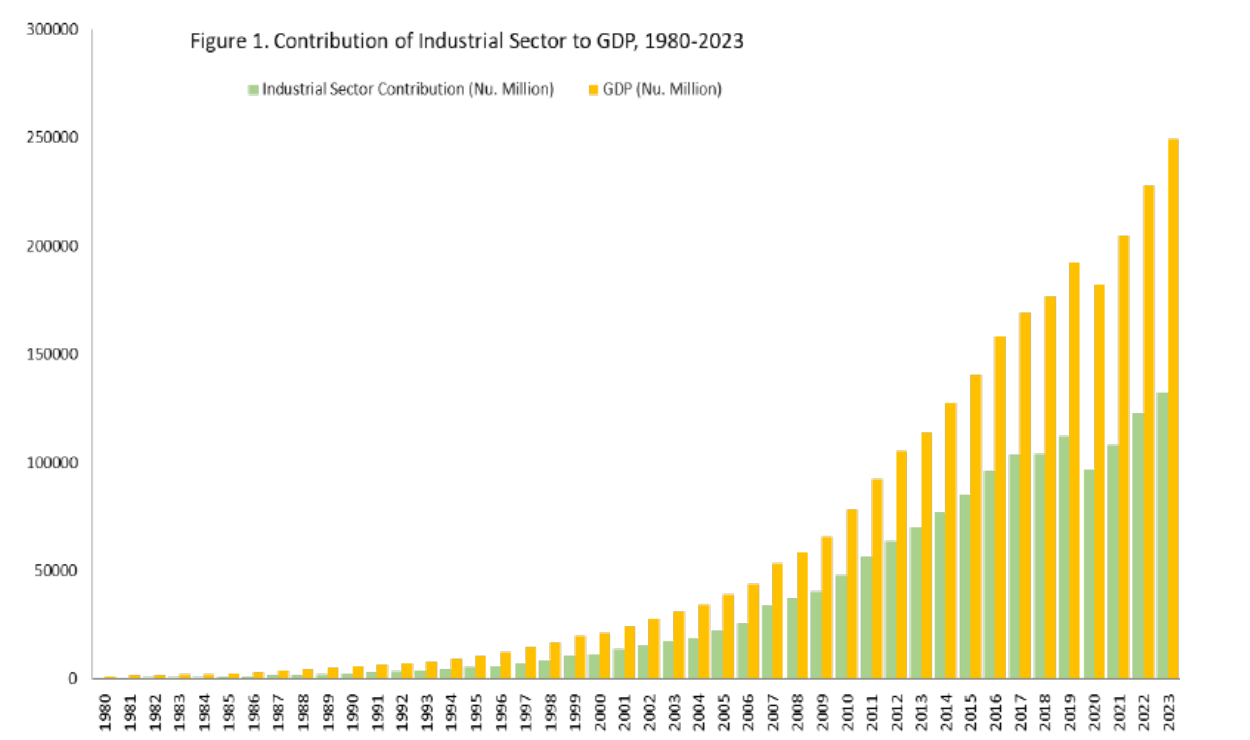
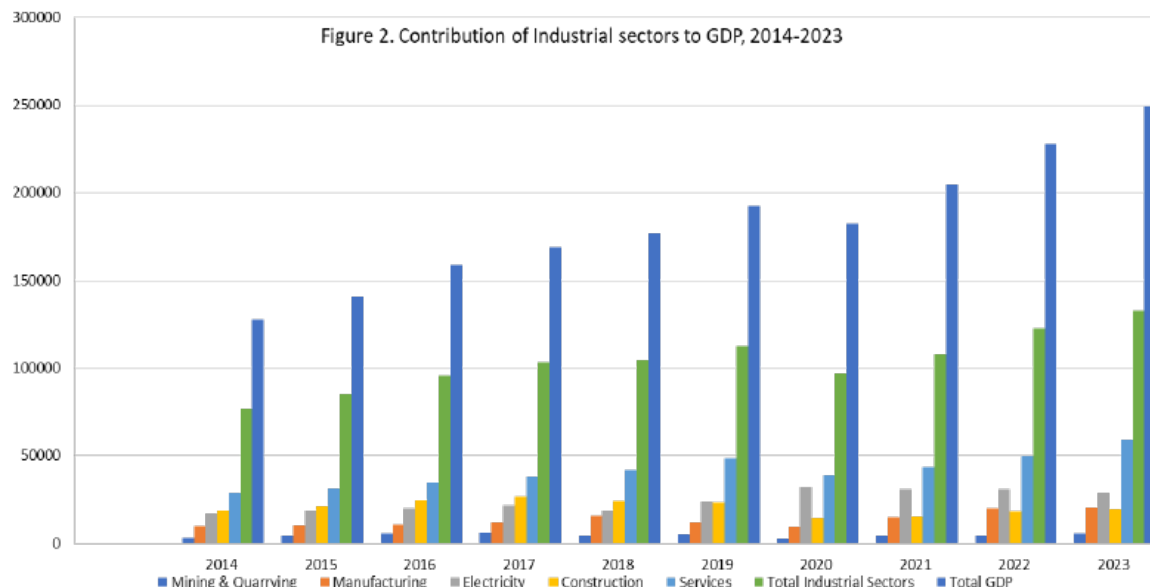


Figure 2 below shows the contribution of various industrial sub-sectors to Bhutan’s GDP in the past 10 years (2014-2023), highlighting trends across mining & quarrying, manufacturing, electricity, construction, and services, along with total industrial output and overall GDP. Over the period, total GDP and total industrial sector contributions have steadily increased, with noticeable growth after 2021. Among sub-sectors, electricity and construction consistently contribute the most to industrial GDP, reflecting Bhutan's reliance on hydropower and infrastructure development. Manufacturing shows moderate but steady growth, while mining & quarrying remains relatively small and stable. The services sector, shows substantial growth—especially after 2021—underscoring its rising significance in the economy. The dip in 2020 across most sectors likely reflects the impact of the COVID-19 pandemic, followed by a strong recovery. Overall, the graph demonstrates Bhutan’s increasing industrial capacity, driven largely by energy and construction, while signaling opportunities to further diversify through manufacturing and value-added production.



Bhutan's industrial base is highly dualistic. While over 95% of industries are cottage and small industries (CSIs), more than 90% of the sector's turnover is generated by a few large firms. This concentration limits the potential of smaller industries and hampers inclusive economic development, particularly in rural areas where many CSIs operate. Furthermore, despite their large numbers, CSIs contribute only a modest share to industrial GDP. In contrast, the relatively few medium and large industries drive the bulk of economic output, underscoring the productivity gap across different industry scales.

## 2.4. Industrial Parks and Estates

Industrial parks (IP) and estates serve as foundational enablers for Bhutan's industrial growth. They provide dedicated spaces with critical infrastructure to support manufacturing, services, and cottage-scale industries. As of June 2025, Bhutan has developed four industrial parks and two industrial estates, distributed strategically to attract investments, and generate employment.

These parks/estates are supported by core infrastructure such as roads, electricity, water, and digital connectivity. However, the level of development and operational readiness varies across parks.

**Table 3. Summary of Industrial Infrastructure**

Name	Location	Area (Acres)	Industries (June 2025)	Status
Phuntshorabtenling IP	Samdrup Jongkhar	159	28	Operational
Dhamdum IP	Samtse	349	64	Operational
Norbugang IP	Samtse	183.86	10	Under development
Changchey CSI Park	Tsirang	2.49	1 (license processing)	Underutilized
Pasakha IE	Phuntsholing	188	37	Operational
Bjemina IE	Thimphu	32.75	32	Operational

**Table 4. Infrastructure and Connectivity Overview**

Infrastructure Component	Status across Parks/Estates
Road Access	All industrial parks/estates are connected by road networks.
Electricity and Power	All parks are connected to the national grid. Power reliability is generally good, but Pasakha faces occasional supply and load issues due to heavy industrial demand.
Water Supply	Adequate in most locations, though supply issues are reported in Pasakha and Bjemina during dry seasons. Infrastructure is under development in Norbugang.
Telecommunications & Internet	Connectivity available in all Parks/Estates
Sewerage and Waste Management	Partially developed. Pasakha has the most robust system. Others, like Dhamdum and Norbugang, require investment in sustainable waste and effluent treatment systems.
Logistics Infrastructure	Proximity to India (Phuntshorabtenling, Dhamdum, Norbugang, Pasakha) supports logistics. However, lack of integrated warehousing and logistics hubs remains a critical gap.
Common Facility Centres (CFCs)	Present in Changchey CSI Park (e.g., drying/packaging machines).

The current network of industrial parks and estates forms the backbone of Bhutan’s industrial base. While several parks like Dhamdum and Phuntshorabtenling are showing strong growth, Changchey requires further policy support, incentives, and marketing to attract investors. Moving forward, enhancing service delivery, improving infrastructure, and offering cluster-based value chain development will be essential to maximize the socio-economic benefits of these parks/estates.

### 3. Situational Analysis (SWOT)

Strengths	Weaknesses
<p><i>Foundational advantages Bhutan can build upon to shape a green, inclusive, and sustainable industrial base.</i></p> <ul style="list-style-type: none"> <li>● Abundant Clean Energy <ul style="list-style-type: none"> <li>– Hydropower provides a stable, renewable, and low-cost energy supply—ideal for green industries and sustainable manufacturing.</li> </ul> </li> <li>● Stable Governance and Low Corruption <ul style="list-style-type: none"> <li>– Strong institutions and low levels of corruption enhance investor trust and policy continuity.</li> </ul> </li> <li>● Strategic Market Access and Regional Integration Potential <ul style="list-style-type: none"> <li>– Proximity to India and Bangladesh, plus existing trade agreements, position Bhutan to integrate into regional value chains.</li> </ul> </li> <li>● Brand Bhutan - Clean, Green, and Peaceful National Brand <ul style="list-style-type: none"> <li>– Bhutan’s image as an environmentally conscious, carbon-neutral nation can differentiate its industrial offerings globally.</li> </ul> </li> <li>● Emerging Industrial Infrastructure <ul style="list-style-type: none"> <li>– Establishment of Gelephu Mindfulness City (GMC), availability of land and planned industrial parks provide a foundation for structured growth.</li> </ul> </li> <li>● Cottage &amp; Small Industries (CSIs) Embedded in Local Economies <ul style="list-style-type: none"> <li>– CSIs support inclusive development and offer potential for scale-up in niche, artisanal and agricultural sectors.</li> </ul> </li> <li>● Potential for High-Value, Niche Products <ul style="list-style-type: none"> <li>– Products based on Bhutanese biodiversity, traditional knowledge, and cultural assets can target premium export markets.</li> </ul> </li> </ul>	<p><i>Core bottlenecks hindering industrial growth—requiring coordinated policy, institutional reform, and investment.</i></p> <ul style="list-style-type: none"> <li>● Inconsistent Policy Environment <ul style="list-style-type: none"> <li>– Frequent policy shifts, regulatory unpredictability, and lack of long-term planning undermine investor confidence.</li> </ul> </li> <li>● Cumbersome and Bureaucratic Licensing Processes <ul style="list-style-type: none"> <li>– Lengthy, unclear, and red tape-ridden procedures delay industrial start-ups and discourage private investment.</li> </ul> </li> <li>● Limited Access to Affordable Finance <ul style="list-style-type: none"> <li>– High interest rates, collateral requirements, and shallow capital markets limit industrial expansion, especially for CSIs.</li> </ul> </li> <li>● Mismatch Between Skills Supply and Industry Demand <ul style="list-style-type: none"> <li>– Education and training systems are not aligned with evolving industrial needs, contributing to 19% youth unemployment and talent outmigration.</li> </ul> </li> <li>● Lack of a Coherent National Industrial Policy <ul style="list-style-type: none"> <li>– The absence of a unified industrial strategy has led to fragmented and reactive development efforts.</li> </ul> </li> <li>● Overconcentration of Output in a Few Large Industries <ul style="list-style-type: none"> <li>– More than 90% of industrial production is controlled by a small number of firms, reducing diversification and competition.</li> </ul> </li> <li>● Concentration of Industries in few Dzongkhags <ul style="list-style-type: none"> <li>- Almost half of industries are located in Thimphu, Chukha, Paro, Samtse and Sarpang</li> </ul> </li> <li>● Underperforming State-Owned Enterprises (SOEs) <ul style="list-style-type: none"> <li>– Despite controlling over Nu 371 billion in assets, SOEs have low returns and crowd out private sector development.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>● High Import Dependency for Industrial Inputs – Bhutan’s industries rely heavily on imported raw materials, machinery, and technology—exposing them to supply shocks.</li> <li>● Small Domestic Market and High Cost Base – Limited scale economies and costly logistics increase production costs and reduce competitiveness.</li> </ul>
Opportunities	Threats
<p><i>Strategic pathways Bhutan can pursue to catalyze industrial transformation aligned with global and local trends.</i></p> <ul style="list-style-type: none"> <li>● Green Industrial Transformation – Position Bhutan as a global hub for sustainable manufacturing and renewable energy-based industries.</li> <li>● Industrial Base Diversification – Expand into high-potential sectors like agro-processing, digital economy, creative industries, and clean tech.</li> <li>● Bilateral and Regional Trade Expansion – Strengthen trade integration to access larger markets and reduce dependence on limited trading partners.</li> <li>● SOE Reform and Private Sector Crowding-In – Privatize or corporatize underperforming SOEs to unlock capital and efficiency gains in the private sector.</li> <li>● Smart Infrastructure and Industrial Clusters – Develop modern, integrated industrial ecosystems, with Gelephu Mindfulness City as a catalytic anchor.</li> <li>● Targeted FDI promotion – Liberalize investment rules and attract green and high-tech investors through strategic incentives.</li> <li>● Import Substitution and Regional Value Addition – Reduce trade deficits by localizing key</li> </ul>	<p><i>External and internal risks that could derail Bhutan’s industrial development without proactive mitigation.</i></p> <ul style="list-style-type: none"> <li>● Rising Regional Competition – Competing countries are attracting investment with larger markets, lower costs, and stronger ecosystems.</li> <li>● Policy and Regulatory Delays – Lack of coordination, lengthy approvals, and bureaucratic inertia frustrate investors and slow project implementation.</li> <li>● Seasonal Variability in Power Supply – While abundant, hydropower is seasonal and may not meet peak industrial demand consistently without diversification.</li> <li>● Labour Policy Constraints and Workforce Shortages – Rigid immigration and labour rules, coupled with youth outmigration, restrict industrial workforce availability.</li> <li>● Loss of Preferential Market Access Post-LDC Graduation – Bhutan’s transition from LDC status could end special trade privileges, impacting export competitiveness.</li> <li>● Public Opposition to Industrial Projects – Cultural and environmental resistance can create hurdles for project approval and social acceptance.</li> <li>● Inadequate Infrastructure and Supply Chain Gaps – Poor internal connectivity and high logistics costs weaken market access and raw material flow.</li> </ul>

inputs and processing regional raw materials. • Link Tourism with CSIs – Integrate traditional crafts and culture with tourism for light manufacturing.	• Premature Deindustrialization Risks – With manufacturing contributing just 6–8% to GDP and recent negative growth trends, Bhutan risks a shrinking industrial base before maturity.
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## 4. Future Prospects and Opportunities

Bhutan stands at a pivotal moment in its development journey, with a unique opportunity to usher in a new era of industrial transformation that is sustainable, inclusive, and aligned with the nation's Gross National Happiness (GNH) values. The country's abundant clean energy resources, growing momentum for green and climate-smart industries, strategic geographic location between two major economies, India and China, and strong institutional commitment to balanced development collectively offer a solid platform for reimagining its industrial landscape.

Emerging national initiatives, such as the Gelephu Mindfulness City and efforts to enhance regional trade connectivity, further position Bhutan to integrate into regional and global value chains. These initiatives offer the potential not only to attract investment but also to foster industrial diversification, innovation, and regional equity.

As Bhutan advances, there is growing consensus on the need to modernize its industrial ecosystem, enhance productivity and competitiveness, and stimulate private sector-led growth. Achieving these goals will require a well-coordinated and forward-looking approach—one that addresses structural bottlenecks, accelerates innovation, builds institutional and human capital, and fosters an enabling environment for responsible industrialization.

Globally, four transformative trends are reshaping the industrial landscape:

1. The transition to clean and renewable energy is accelerating, creating demand for green technologies, low-carbon manufacturing, and sustainable supply chains. Bhutan's hydropower advantage offers a competitive edge to attract energy-intensive but green-oriented industries.
2. The rise of Fourth Industrial Revolution (4IR) technologies—such as artificial intelligence, automation, advanced robotics, and the Internet of Things (IoT)—is redefining industrial processes and business models. These technologies offer opportunities to leapfrog legacy systems and develop smart, high-value-added industries.
3. The restructuring of global value chains (GVCs) toward resilience, regionalization, and digital trade presents new opportunities for smaller economies like Bhutan to integrate



into niche segments of regional and global supply networks—particularly in high-quality, green, or culturally distinctive products.

4. Demographic and labor market shifts, combined with increasing digitalization, are changing the nature of work and skill demands. This underscores the need for Bhutan to invest in its human capital, particularly in digital skills, technical education, and innovation ecosystems.

While these global shifts offer significant opportunities, they also present real risks. Without timely modernization of industrial infrastructure, improvements in logistics and digital connectivity, enhancement of workforce capabilities, and increased investment in R&D and innovation, Bhutan could be sidelined in an increasingly competitive and technologically advanced global economy.

To capitalize on emerging opportunities, Bhutan must chart a path of future-ready industrial development—one that is rooted in its national identity and values but also agile enough to adapt to changing global realities. This will involve leveraging its comparative advantages, strengthening institutional and private sector capacities, and embedding sustainability, inclusivity, and resilience at the core of industrial policy and practice.

## 5. Vision and Mission

**Vision:** To build a green, inclusive, and sustainable industrial ecosystem that drives long-term economic transformation while remaining deeply rooted in the country’s Gross National Happiness principles.

The aspiration is to position Bhutan as a global model for sustainable industrialization—anchored in clean energy, equitable regional development, private sector dynamism, and global competitiveness.

**Mission:** To enable resilient industrial growth through strategic policy support, infrastructure and investment facilitation, skill development, technology adoption, resource optimization, and job creation rooted in sustainability and social equity.

## 6. Expected Outcomes and National Targets (by 2035)

Bhutan’s Industrial Development Roadmap (IDR) represents a bold and forward-looking strategy to reposition the industrial sector as a transformative engine of inclusive, sustainable, and innovation-driven economic growth. The roadmap aims not only to catalyze economic

diversification but also to foster industrial resilience, regional equity, private sector vitality, and environmental stewardship.

By 2035, the implementation of the IDR is expected to deliver the following transformative outcomes:

### **1. Build a More Diversified, Value-Added, and Resilient Industrial Economy**

Transform Bhutan's narrow, hydro-reliant economic base into a diversified and shock-resilient industrial ecosystem driven by value addition and sectoral balance.

#### **Targets:**

- Increase the share of manufacturing from 8% to 12%.
- Expand the total contribution of the industrial economy (including energy, construction, and services) from 53% to 60% of GDP.

### **2. Create Inclusive, High-Quality, and Future-Ready Employment Opportunities**

Generate large-scale, decent employment across high-growth sectors while ensuring equitable access for youth, women, and rural populations.

#### **Targets:**

- Generate 65,000 plus new industrial jobs by 2035.
- Ensure 40% of new jobs are filled by youth, women, and rural workers.
- Achieve 100% alignment of TVET and skills training with emerging industrial needs by 2032.
- Improve school-to-work transition and reduce youth unemployment.

### **3. Position the Private Sector as the Principal Engine of Industrial Growth**

Empower the private sector to lead industrial development through investment, entrepreneurship, and innovation.

#### **Targets:**

- Ensure the private sector creates at least 70% of all new industrial jobs.
- Mobilize Nu. 300 billion in domestic and foreign direct investments.
- Facilitate private-led growth through fast-tracked approvals, and dedicated industrial finance mechanisms.

#### **4. Revitalize Cottage, Small and Medium Industries as Drivers of Grassroots Prosperity**

Strengthen and scale up CSMLs as engines of inclusive, regionally distributed, and culturally rooted industrialization.

##### **Targets:**

- Increase the operational rate of licensed CSMLs from 41% to 70%.
- Ensure 50% of CSMLs access affordable credit, business development services, and sustainable markets.
- Integrate CSMLs with tourism, agriculture, and public procurement to boost competitiveness and value chains.

#### **5. Promote Spatially Balanced and Regionally Equitable Industrial Development**

Reduce regional disparities by fostering industrial growth in lagging Dzongkhags and developing decentralized economic hubs.

##### **Targets:**

- Locate 50% of new industrial establishments outside Thimphu and Chukha.
- Develop regional industrial clusters in dzongkhags with a limited number of industries.
- Enhance localized production, rural job creation, and reduce urban-rural economic gaps.

#### **6. Strengthen Export Competitiveness and Advance Strategic Import Substitution**

Expand Bhutan's export capacity while reducing dependency on imports through local production and regional value addition.

##### **Targets:**

- Double the value of industrial exports by 2035.
- Substitute key imports (food, furniture, construction materials) with locally produced alternatives.
- Reduce the national trade deficit and enhance foreign exchange stability and self-reliance.

#### **7. Develop World-Class Industrial Infrastructure and a Convergent Support Ecosystem**

Create a high-performance industrial ecosystem supported by modern infrastructure, logistics, connectivity, and cross-sector synergies.

**Targets:**

- Establish three new integrated industrial parks with state-of-the-art utilities and logistics.
- Operationalize National Single Window, dry ports, and multimodal trade hubs to reduce transaction costs.
- Build strong linkages between industry, agriculture, tourism, and education/TVET for innovation and competitiveness.

## **7. Strategic Interventions, Key Actions, and Implementation Plan**

Bhutan's industrial ecosystem benefits from strong foundational assets, including political stability, green energy potential, and a values-driven development model. However, systemic weaknesses—such as fragmented policies, misaligned skills, limited access to finance, and cumbersome regulatory processes—pose significant constraints to industrial growth.

Following strategic interventions are proposed to enable Bhutan to pursue a distinctive industrial development model—green, inclusive, and innovation-driven.

### **A. Policy, Regulatory, and Institutional Reforms**

Objective: Enhance policy stability, improve governance coordination, and reduce bureaucratic inefficiencies to build a conducive industrial environment.

#### **Key Interventions:**

##### **a. Adopt and Implement the Industrial Development Roadmap (IDR)**

Formally adopt the Industrial Development Roadmap as Bhutan's long-term strategic framework to guide the structural transformation of the economy through inclusive, sustainable, and regionally balanced industrialization.

The following actions are recommended:

- Align industrial priorities with flagship initiatives like the Gelephu Mindfulness City and other strategic national projects.
- Ensure institutional ownership and implementation accountability.

- Embed flexibility for adaptive implementation, allowing for course correction based on periodic reviews, private sector feedback, and evolving global and regional economic trends.

#### **b. Establish a High-Level Coordination Body**

Implementation delays and policy fragmentation undermine investor confidence. Bhutan needs a strong central mechanism to coordinate reforms, resolve cross-sectoral bottlenecks, and ensure accountability.

The following actions are recommended:

- Form an Inter-Ministerial Industrial Development Committee (IDC) chaired by the Prime Minister, or empower the Economic Development Board (EDB) with reform and coordination authority.
- Enable cross-sectoral coordination on land, power, finance, labour and immigration issues, environmental clearances, and location clearances.

#### **c. Digitize and Streamline Industrial Licensing**

Complex and inconsistent licensing processes create delays and deter investment. Bhutan must modernize its approval systems to enhance efficiency, transparency, and investor confidence.

The following actions are recommended:

- Expedite the launch of the Integrated Business Licensing System (IBLS) as a single digital platform for all industrial approvals.
- Integrate AI-enabled compliance checks to automate document validation, reduce manual errors, and flag inconsistencies early.
- Introduce clear timelines (TAT) and deemed approval mechanisms to reduce processing delays and enhance accountability.

#### **d. Improve Regulatory Predictability and Stakeholder Engagement**

Frequent regulatory changes, unclear procedures, and limited dialogue weaken investor confidence. Bhutan must build a more transparent, stable, and responsive regulatory environment.

The following actions are recommended:

- Establish a Regulatory Simplification Taskforce to review and eliminate outdated or burdensome requirements.
- Introduce mandatory public consultations and advance notice periods for any regulatory changes affecting industries.
- Regularly review labour and immigration policies to reflect evolving industrial needs while balancing national priorities.
- Ensure predictable electricity tariffs, especially for strategic and energy-intensive sectors.
- Institutionalize Public-Private Dialogue (PPD) platforms under the IDC/EDB for structured, ongoing industry engagement.

#### **e. Modernize Bhutan's E-Payment and Cross-Border Digital Transactions**

A robust, interoperable digital payment system is critical to unlock the potential of exports, CSMTs, and Bhutan's emerging creative and digital economy.

The following actions are recommended:

- Integrate Bhutan's national payment systems with India's UPI and other regional platforms to enable fast, low-cost cross-border payments.
- Collaborate with global payment service providers like PayPal, Stripe, and Wise to enable seamless and secure cross-border payment access for Bhutanese businesses and entrepreneurs.
- Strengthen regulatory frameworks for data protection, cybersecurity, KYC, and ensure alignment with global fintech and digital trade standards.

#### **f. Extend Land Lease Tenure for Strategic Investments**

Short lease durations deter long-term, capital-intensive investments. Extending lease terms will improve investor confidence and attract high-value projects.

The following actions are recommended:

- Amend the Land Lease Rules (2009) to permit lease terms of 60–99 years for strategic investments.
- Differentiate lease tenures based on project size, sector, and national priority to ensure flexibility and targeted support.
- Incorporate global best practices while maintaining safeguards for land sustainability, national interest, and accountability in land use.

#### **g. Finalize Double Taxation Avoidance Agreements (DTAAs)**

DTAAs are essential to reduce tax risks and enhance Bhutan’s appeal to quality foreign investors.

The following actions are recommended:

- Prioritize concluding DTAAs with key partners such as Singapore, Thailand, Bangladesh, and selected EU countries to strengthen economic ties.
- Focus on strategic sectors including ICT, renewable energy, tourism, and high-value manufacturing to attract targeted investments.
- Actively promote DTAA benefits through clear investor guides, FAQs, and collaboration between MoICE and Ministry of Finance (MoF) to build investor confidence.

#### **h. Sign Mutual Recognition Agreements (MRAs) with Key Trading Partners**

To enhance trade facilitation and boost the competitiveness of Bhutanese products, Bhutan should actively pursue Mutual Recognition Agreements that allow reciprocal acceptance of standards, certifications, and conformity assessments.

The following actions are recommended:

- Identify and prioritize key trading partners, such as India, Bangladesh, and select ASEAN and EU countries, for MRA negotiations.
- Negotiate agreements covering product standards, testing, certification, and professional qualifications to reduce technical barriers to trade.
- Establish institutional capacity within Bhutan Standards Bureau and Bhutan Food and Drugs Authority to implement and monitor MRAs effectively.
- Promote awareness among Bhutanese exporters and service providers about the benefits and compliance requirements under MRAs.

## **Implementation Plan - Short Term (2026 - 2028)**

Focus Area	Key Actions	Milestones	KPI	Lead Agency	Collaborating Agencies
Adopt IDR	Adopt IDR and establish monitoring unit	IDR adopted by January 2026	100% of roadmap actions tracked by MoICE monitoring unit by Q2 2028	MoICE	Relevant Agencies, Private Sector and Financial Institutions
High-Level Coordination Body	Establish IDC or empower EDB with reform mandate	IDC operational by Q1 2026	50% of identified cross-sector issues resolved by end 2027	PMO / MoICE	Relevant Agencies



Licensing Reform	Launch IBLs and AI-assisted compliance	IBLS launched by Q4 2026	70% of industrial licenses processed through IBLs by Q4 2026	MoICE	MoICE, GovTech
Regulatory Reform (RR)	Launch RR taskforce, codify consultation rule, start Public Private Dialogue (PPD)	PPD forums functional by Q2 2027	100% of new industrial regulations undergo public consultation by end of 2027	MoICE	Relevant Agencies, Private Sector
Digital Payments	UPI integration; initiate PayPal/Stripe talks	UPI connected by Q4 2026	30% increase in cross-border digital transactions by Bhutanese exporters by Q2 2027	RMA	GovTech, MoICE, MoF, Financial Institutions
Land Lease Reform	Amend Land Lease Rules; draft differentiated lease model	Amendments passed by Q2 2027	100% of eligible strategic projects offered 60–99-year lease options by Q4 2028	NLCS	MoICE
DTAAs	Identify partners and initiate negotiations	Talks launched with 3 partners	At least 2 DTAAs negotiated and 1 signed by Q4 2028	MoF	MoICE, MoFAET
MRAs	Identify sectors; initiate talks and training	MRA negotiations launched	At least 2 MRA negotiations initiated by Q2 2027; 20 trained officials across BSB/BFDA by end of 2028	BSB	BFDA, MoICE, MOFAET

## Implementation Plan - Medium - Term (2029 - 2031)

Focus Area	Key Actions	Milestones	KPI	Lead Agency	Collaborating Agencies
IDR Review	Conduct updates based on feedback	Review completed by Q2 2029	100% of IDR components reviewed; at least 75% of updates implemented by Q4 2031	MoICE	Relevant Agencies, Private Sector
IDR Integration	Embed IDR in national planning framework	Fully integrated by Q4 2029	100% of industrial public investments aligned with IDR priorities by Q2 2030	MoICE	PMO, relevant Agencies

Strengthen Coordination	Track IDC/EDB reforms	Biannual reports by Q1 2030	At least 80% of inter-agency issues resolved within agreed timelines by Q4 2030	IDC/EDB	MOICE, MoF
Expand Licensing	Scale IBLs to all relevant agencies	Full coverage by Q2 2030	100% of regulatory bodies connected to IBLs by Q4 2031	MoICE	GovTech
Digital Payments	Conclude PayPal/Stripe/Wise deals; update regulation	Agreements signed by Q4 2030	50% increase in number of firms using global platforms by Q4 2031	RMA	GovTech, MoICE, MoF, Financial Institutions
Finalize DTAA	Conclude and sign key agreements	3 DTAA signed by Q4 2031	30% increase in FDI inflows from DTAA countries by end of 2031	MoF	MoICE, MoFAET
Sign MRAs	Finalize and pilot implementation	2 MRAs signed by Q4 2031	20% reduction in certification-related export delays by end of 2031	BSB	BFDA, MOICE, MoFAET

## Implementation Plan - Long Term (2031 - 2035)

Focus Area	Key Actions	Milestones	KPI	Lead Agency	Collaborating Agencies
Expand DTAA Network	Broaden DTAA coverage	7+ DTAA signed by 2035	At least 50% of total FDI covered under DTAA jurisdictions	MoF	MoICE, MoFAET
Full MRA Implementation	Broaden MRAs to cover key export sectors	Expanded by Q4 2035	40% of industrial exports under MRAs by 2035	BSB	BFDA, MoICE, MoFAET

## B. Financing, Investment, and Private Sector Enablement

Objective: Expand financing access and crowd in domestic and foreign investment, particularly in green and high-value sectors.

## Key Interventions:

### **a. Establish Industrial Development Finance Facility (IDFF):**

Access to affordable and targeted finance is critical to unlocking industrial growth, particularly for underserved segments and green investments.

The following actions are recommended:

- Set up a dedicated finance facility to offer blended finance instruments, including concessional loans, guarantees, and equity support tailored for industrial development.
- Provide collateral-free or soft loan options through industrial development funds, especially for CSIs, youth- and women-led enterprises, and climate-smart industries.

### **b. Expand Affordable Financing Access:**

Affordable and inclusive financing is essential to enable the growth of CSMIs and broaden private sector participation in industrial development.

The following actions are recommended:

- Mandate sector-specific credit quotas at concessional rates for priority sectors through financial institutions, with a focus on CSMIs, green industries, and Dzongkhags with high poverty incidences and limited number of industries.
- Strengthen financial literacy and business advisory services to enhance the bankability, credit readiness, and investment preparedness of CSMIs and emerging entrepreneurs.

### **c. Implement a Strategic Investment Promotion Program:**

To attract high-quality investments aligned with Bhutan's development vision, a focused and facilitative investment promotion approach is essential.

The following actions are recommended:

- Develop a targeted FDI attraction strategy focusing on high-potential sectors such as clean technologies, creative industries, IT/ITES, renewable energy, wellness, and agro-processing etc., aligned with Bhutan's brand and comparative advantages.
- Establish a fast-track investment facilitation mechanism offering streamlined approvals, tailored fiscal incentives, and access to serviced land in industrial parks and State Reserve Forest (SRF) .

- Promote Bhutan as a green and mindful investment destination through coordinated international outreach, investment roadshows and forums, and digital promotion platforms.

#### **d. Introduce Targeted Fiscal Incentives for Industrial Growth:**

Well-designed fiscal incentives can catalyze investment in strategic sectors and improve Bhutan's competitiveness as an industrial destination.

The following actions are recommended:

- Offer targeted tax holidays, import duty exemptions, investment allowances, and tax rate reductions for investments in priority sectors such as agro-processing, digital industries, wellness, wood-based industries and green manufacturing.
- Link incentives to performance criteria, such as job creation, export generation, technology transfer, and environmental compliance.
- Periodically review and rationalize incentives to ensure fiscal sustainability, transparency, and alignment with national industrial development goals.

#### **e. Create a Collateral-Free Credit Guarantee Scheme:**

Access to credit remains a major barrier for small industrial ventures in Bhutan due to high collateral requirements.

The following actions are recommended:

- Reintroduce and operationalize a dedicated credit guarantee scheme that enables CSMLs, and new industrial ventures to access loans without traditional collateral.
- Design the scheme with risk-sharing mechanisms between the government, financial institutions, and development partners to encourage lending while minimizing default risk.
- Complement the scheme with financial advisory and monitoring support to improve credit discipline and ensure responsible lending.

#### **f. Reform State-Owned Enterprises (SOEs) to Enable Private Sector Participation**

To boost industrial efficiency and mobilize capital, Bhutan should strategically reform SOEs by enabling divestment and public-private collaboration.

The following actions are recommended:

- Divest non-strategic and underperforming SOEs to attract private investment, improve operational efficiency, and foster competition in key industrial sectors.
- Channel proceeds from divestment into recapitalizing the Industrial Development Finance Facility to support broader industrial transformation goals.

## Implementation Plan - Short Term (2026 - 2028)

Focus Area	Key Activity/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Access to Industrial Finance	Establish a Bhutan Industrial Development Finance Facility (IDFF)	Facility design completed and launched; Blended finance and soft loan products introduced; Target schemes for CSIs, youth/women-led, and green sectors initiated	Launch IDFF facility by Q4 2026; Disburse loans to at least 100 CSIs/youth/women-led projects by Q4 2028	MoF	MoICE, RMA, FIs, Development Partners
Access to Credit	Mandate sector-specific concessional credit quotas	Credit quotas endorsed by RMA; Mandatory implementation guidelines issued to financial institutions	Credit quotas endorsed by RMA and mandatory implementation guidelines issued to FIs by Q4 2026; 100 % compliance by FIs by Q2 2027	RMA	MoF, FIs, MoICE
Financial Literacy & Bankability	Enhance financial literacy and business development services for CSIs	Financial literacy program rolled out in all Dzongkhags; BDS centers established in the Regions	Conduct financial literacy workshops to 300 CSIs by Q4 2028	DOI	MOICE, RMA, Private Sector
Investment Promotion	Develop and launch FDI Attraction Strategy	Strategy finalized and launched; Investor facilitation mechanisms designed; Priority sectors clearly defined	Secure commitments from at least 10 new foreign investors in priority sectors by Q4 2028	DOI	MoFAET, MoICE, Private Sector
Fiscal Incentives	Introduce targeted fiscal incentives for strategic industries	Fiscal Incentives Act approved and notified	Fiscal incentives Act approved and implemented by Q1 2027	MoF	MoICE, RMA, DRC, Office of the Prime Minister, Parliament of Bhutan

Credit Access for CSMIs	Reintroduce collateral-free Credit Guarantee Scheme	Scheme design completed and operational	At least 100 collateral-free loans disbursed by Q4 2028	MoF	RMA, MoICE, FIs
Global Investment Positioning	Brand Bhutan as a destination for green and mindful investment	Global investor roadshows conducted and investment forums organized annually	Conduct at least 1 global roadshow annually from 2026 onwards; Conduct at least 1 annual investment forum in Bhutan	DOI	MoFAET, DoTr, Private Sector
SOE Reform	Initiate SOE restructuring and divestment	Divestment policy framework approved First tranche of non-strategic SOEs restructured	Complete restructuring of at least 3 non-strategic SOEs by 2028	MoF	Relevant Agencies

## Implementation Plan - Medium Term (2029 - 2031)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Finance Ecosystem Strengthening	Expand scope and capitalization of Industrial Development Finance Facility	Additional capital mobilized from multilateral partners; Broader range of financial products introduced	Mobilize USD 10 million in additional capital by Q4 2029; Launch 3 new financial products by 2030	MoF	RMA, MoICE, Office of the Prime Minister and Cabinet, Development Partners
Credit Access Inclusion	Evaluate and expand credit guarantee scheme	Impact evaluation completed; Amendments implemented	Complete impact evaluation by Q4 2029; Increase guarantee coverage by 50% by Q4 2031	MoF	RMA, MoICE, FIs
Private Sector-Led Growth	Scale divestment of non-strategic SOEs	Identified SOEs privatized or restructured; Proceeds reinvested into IDFF for priority sectors	Privatize or restructure at least 6 SOEs by 2031; Reinvest 100% of the proceeds into IDFF by 2031	MoF	MOICE, Relevant Agencies

## Implementation Plan - Long Term (2032 - 2035)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Finance Sustainability	Institutionalize Bhutan Industrial Development Finance Facility (IDFF)	Facility legally formalized as national development finance platform; Fully integrated into national planning and investment cycles	Legal formalization by 2033	MoF	RMA, FIs, MoICE, Office of the Prime Minister and Cabinet, Private Sector

### C. Diversification and Regional Integration

Objective: Diversify Bhutan’s industrial base through green, inclusive, and export-oriented sectors linked to domestic strengths and global trends.

#### Key Interventions:

- a. **Promote high-potential industrial sectors based on comparative advantage and global demand trends.**

Leverage Bhutan’s comparative advantages to grow industries with strong domestic and global demand.

The following actions are recommended:

- Enhance market access and branding by actively promoting “Brand Bhutan” in regional and niche international markets, emphasizing quality, sustainability, and cultural heritage.
- Support product certification and quality assurance to meet export standards and build consumer trust.
- Implement preferential government procurement policies favoring locally produced goods to stimulate demand and nurture domestic industries.

- b. **Integrate Tourism with CSIs:**

Enhance the tourism experience while boosting local CSIs through direct market linkages.

The following actions are recommended:



- Establish “Made in Bhutan” experience centers that showcase artisan clusters and CSIs, creating immersive cultural and shopping experiences for tourists.
- Facilitate partnerships between CSIs and tourism operators to integrate local products and crafts into tourism packages and retail outlets.

**c. Implement Import Substitution and Domestic Value Addition Strategy:**

To enhance economic resilience and reduce trade imbalances, Bhutan must strategically localize production in areas with high import reliance and competitive potential.

The following actions are recommended:

- Identify and promote a targeted set of high-impact products for import substitution based on market size, feasibility, and comparative advantage.
- Localize key inputs and raw materials in priority sectors such as food processing, furniture, herbal wellness, and construction materials to strengthen domestic value chains.
- Offer targeted tax incentives, production-linked subsidies, and procurement support for industries producing substitution goods.

**d. Support CSMLs productivity and scalability:**

To unlock the growth potential of Cottage, Small, and Medium Industries (CSMLs), Bhutan must provide targeted support to enhance their competitiveness, scale, and regional inclusiveness.

The following actions are recommended:

- Provide tailored fiscal and non-fiscal incentives, including access to affordable finance, business development services, and targeted capacity-building programs.
- Introduce location-based incentives—such as tax holidays, subsidies, or infrastructure support—for CSMLs expanding in high-poverty or underdeveloped Dzongkhags, especially in priority sectors.
- Facilitate linkages with larger value chains and public procurement programs to create sustained market access for growing enterprises.

**e. Foster Industry–Academia Collaboration for Innovation and Product Development**

To boost industrial competitiveness and innovation, Bhutan must strengthen linkages between academic institutions and industries.

The following actions are recommended:

- Promote joint research and development (R&D) initiatives to support commercialization of local innovations and technologies.
- Encourage co-development of niche products in areas such as herbal wellness, agro-tech, digital solutions, and green manufacturing.

## Implementation Plan - Short Term (2026 - 2028)

Focus Area	Key Activities/Actions	Milestones	KPI	Lead Agency	Collaborating Agencies
High-potential Sectors & Branding	Launch “Brand Bhutan” promotion in regional markets	Brand guidelines developed and piloted in prospective regional markets	Develop and roll out brand guidelines in India, Bangladesh and Thailand by Q4 2026	DoT	MoFAET, DOI, Private Sector
	Product certification programs for exports	At least 15 export products certified	Certify a minimum of 15 export products by Q4 2028	BSB/BAFDA	DOI, Relevant Agencies, Private Sector
Integrate CSIs with Tourism	Set up 2 pilot “Made in Bhutan” experience centers (in Thimphu, Paro) and Artisan Clusters linked with the centers	Centers launched and operational; MoUs signed with tour operators	Launch and operate 2 centers in Thimphu and Paro by Q2 2027; Onboard 50 CSIs and sign MoUs with 20 tour operators by Q2 2027	Dol/DoTr/DoMCI P	LGs, Private Sector
Import Substitution & Domestic Value Addition	Develop import substitution strategy for food, furniture & herbal wellness	Strategy finalized and approved	Finalize and approve strategy with identification of 3 products for import substitution by Q2 2026; Achieve 30% domestic sourcing target for 3 priority products by Q4 2028	MoICE	MoAF, DoFPS, MoF
	Initiate tax relief for 3 priority products	Policy amendment approved and implemented	Approve relief policy by Q3 2026; Ensure uptake of 3 priority products production in the country by investors by Q2 2027	MoF	DRC, MoICE

	Launch access-to-finance scheme for small producers	100 CSMTs supported through concessional loans	Disburse concessional loans to 100 CSMTs by Q4 2028	Fls	RMA, MoICE
Industry-Academia Linkages	Establish pilot innovation fund for niche product R&D	Fund operational with first 5 projects financed	Operationalize innovation fund by Q4 2026; Finance 5 R%D projects in niche sectors	MoESD	RUB, MoICE, Development Partners

## Implementation Plan - Medium - Long Term (2029 - 2035)

Focus Area	Key Activities/Actions	Milestones	KPI	Lead Agency	Collaborating Agencies
High Potential Sectors & Branding	Expand “Brand Bhutan” globally through trade shows & digital campaigns	Bhutan featured in global niche markets	Participate in at least 2 international trade events per year; Increase export value of certified niche products by 30% by Q4 2029	DoT	DOI, MoFAET, Private Sector
	Institutionalize product certification ecosystem	Certification centers expanded and established	Establish certification centers in Phuntsholing and Samdrupjongkhar by 2029; Reduce certification processing time by 50% by 2030	BSB/BFDA	DoI
Tourism & Light Industry Integration	Expand “Made in Bhutan” experience centers to Bumthang & Samdrupjongkhar	4 experience centers operational	Launch new centers in Bumthang and Samdrupjongkhar by Q2 2029	DOI/DoTr/ DOMCIP	LGs, Private Sector
Support to CSMTs	Implement targeted incentives for firms in lagging Dzongkhags	New CSMTs benefit from location-based incentives	Roll out incentives in 5 least developed Dzongkhags by Q2 2029; Attract 25 new CSMTs in these Dzongkhags by Q4 2030	MoF	MoICE, Private Sector
Industry-Academia Linkages	Launch R&D commercialization labs for niche products	2 labs operational (e.g. herbal wellness, green packaging)	Establish 2 labs by Q4 2029; Develop at least 4 commercial products in the labs by 2031	RUB	MoICE, MoESD
Import Substitution & Domestic Value Addition	Import substitution in key product categories	Import bill for targeted items reduced significantly	Reduce import value of 3 identified products by 50% by 2032 (baseline 2027); Increase domestic production share of these products to 50%	MoICE	MoAL, DoFPS, MoF

## D. Industrial Infrastructure, Energy, and Logistics

Objective: Provide affordable, reliable, and climate-resilient infrastructure and energy access to power a competitive industrial base.

### Key Interventions:

#### a. Develop Industrial Infrastructure, Logistics & Trade Corridors:

To boost industrial competitiveness and regional integration, Bhutan must invest in modern, efficient, and digitally enabled industrial and trade infrastructure.

The following actions are recommended:

- Establish integrated industrial parks in strategic locations with ready-to-use plots, common facilities (utilities, waste management), and support services to attract anchor industries and cluster-based development.
- Upgrade internal transport networks, including key road corridors, domestic airports, and initiate strategic rail connectivity, to reduce logistics costs, transit time, and goods handling losses.
- Develop dry ports and multimodal logistics hubs near key industrial and trade gateways to enable efficient cargo consolidation, storage, and last-mile distribution.
- Digitize trade facilitation processes (National Single Window), including customs, clearances, and payments, to reduce administrative delays, increase transparency, and improve cross-border trade efficiency.

#### b. Expand Energy Generation & Grid Reliability:

Reliable and sustainable energy supply is vital to support continuous industrial operations and attract investment.

The following actions are recommended:

- Increase renewable energy capacity, especially hydropower and emerging sources like solar and wind, to meet growing industrial demand, with a focus on ensuring supply during lean periods.
- Strengthen grid infrastructure and management to minimize outages and fluctuations, ensuring stable, 24/7 power availability for industries.

- Promote energy efficiency and smart grid technologies to optimize consumption and support green industrial growth.

### c. Develop Green Industrial Standards:

To support Bhutan's carbon-neutral vision and Gross National Happiness (GNH) principles, establishing robust green industrial standards is essential.

The following actions are recommended:

- Develop and implement green standards covering energy efficiency, clean production processes, waste reduction and circularity, carbon emission limits, and sustainable resource use.
- Mandate water recycling, regular energy audits, and comprehensive waste management as part of industrial compliance requirements.
- Incentivize compliance through tax benefits, green certification, and branding opportunities to encourage adoption among industries.

## Implementation Plan - Short Term (2026 - 2028)

Focus Area	Key Activities/Action	Development Milestones	KPI	Lead Agency	Collaborating Agencies
Industrial Infrastructure	Launch development of priority integrated industrial parks	Site selection and feasibility studies completed; Phase 1 Detailed Project Report (DPR) completed; Phase I infrastructure development initiated.	Complete feasibility studies for 3 strategic zones by Q1 2026; Complete DPR for Phase 1 by Q2 2027; Initiate Phase 1 infrastructure development by Q3 2027	DOI	MoIT, NLCS, DoECC, DoE, BPC
Logistics & Trade Connectivity	Upgrade critical road and air transport systems	Priority road segments under construction; introduce Air cargo services with logistics tie-ins	Upgrade 200 Km of priority roads by Q4 2028; Launch air cargo service by Q4 2026	MoIT	MoICE, MoF, MoFAET
Trade Facilitation	Digitize cross-border trade processes	National Single Window/Trade facilitation portal launched; All customs and inspection services integrated	Launch National Single Window by Q4 2026; Integrate 100% of customs, BFDA and BSB processes by Q4 2027	DoT/DO I/DRC	BFDA, BSB, RMA

Energy Security	Initiate projects to expand renewable energy generation	Feasibility studies for solar, wind, and micro-hydro completed; New projects approved and initiated	Complete 3 additional feasibility studies by Q4 2026; Approve and start at least 2 renewable projects by Q1 2028	MoENR	DGPC, DHI, Private Sector
Sustainable Industry	Draft Bhutan Green Industrial Standards (BGIS) framework	BGIS draft standards formulated; Consultations with industry and regulatory agencies completed	Draft BGIS by Q4 2026; Conduct Stakeholder consultations and submit final version for adoption by Q2 2027	DoECC	MoICE, MoF, Private Sector
Transport & Trade Corridors	Develop dry ports and integrated logistics hubs	Dry port facilities operational in key locations; Inter-modal linkages established	Operationalize 2 dry ports by Q2 2026; Establish 2 inter-modal linkages with industrial parks by Q2 2027	DoT, MoICE	MoIT, MoF

## Implementation Plan - Medium Term (2029 - 2031)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Industrial Infrastructure	Launch development of priority integrated industrial parks	Site selection and feasibility studies completed; Phase 1 Detailed Project Report (DPR) completed; Phase I infrastructure development initiated.	Complete feasibility studies for 3 strategic zones by Q1 2026; Complete DPR for Phase 1 by Q2 2027; Initiate Phase 1 infrastructure development by Q3 2027	DOI	MoIT, NLCS, DoECC, DoE, BPC
Logistics & Trade Connectivity	Upgrade critical road and air transport systems	Priority road segments under construction; introduce Air cargo services with logistics tie-ins	Upgrade 200 Km of priority roads by Q4 2028; Launch air cargo service by Q4 2026	MoIT	MoICE, MoF, MoFAET
Trade Facilitation	Digitize cross-border trade processes	National Single Window/Trade facilitation portal launched; All customs and inspection services integrated	Launch National Single Window by Q4 2026; Integrate 100% of customs, BFDA and BSB processes by Q4 2027	DoT/DOI/DRC	BFDA, BSB, RMA
Energy Security	Initiate projects to expand renewable energy generation	Feasibility studies for solar, wind, and micro-hydro completed; New projects approved and initiated	Complete 3 additional feasibility studies by Q4 2026; Approve and start at least 2 renewable projects by Q1 2028	MoENR	DGPC, DHI, Private Sector



Sustainable Industry	Draft Bhutan Green Industrial Standards (BGIS) framework	BGIS draft standards formulated; Consultations with industry and regulatory agencies completed	Draft BGIS by Q4 2026; Conduct Stakeholder consultations and submit final version for adoption by Q2 2027	DoECC	MoICE, MoF, Private Sector
Transport & Trade Corridors	Develop dry ports and integrated logistics hubs	Dry port facilities operational in key locations; Inter-modal linkages established	Operationalize 2 dry ports by Q2 2026; Establish 2 inter-modal linkages with industrial parks by Q2 2027	DoT, MoICE	MoIT, MoF

## Implementation Plan - Long Term (2032 -2035)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Seamless Trade Integration	Operationalize rail connectivity with India	Bhutan-India rail corridor construction completed; Cross-border freight movement begins	Complete corridor construction by Q2 2032; Enable cross-border freight movement by Q4 2032	MoIT	MoFAET, MoF, MoICE, GOI
Energy Resilience	Achieve year-round clean energy reliability	All-season renewable energy mixes operational; Grid redundancy reaches 100% industrial coverage	Achieve 100% industrial area coverage with diversified renewable energy grid by Q2 2034; Reduce power outages by 90% compared to 2025 baseline	BPC	MoENR, MoICE

## E. Technology Adoption

Objective: To accelerate technology adoption and digital transformation across Bhutanese industries, with a focus on green, appropriate, and productivity-enhancing technologies, particularly for CSMLs and emerging industrial clusters.

### Key Interventions:

#### a. Industrial Technology Upgrade and Innovation Support Program:

To enhance productivity, competitiveness, and environmental sustainability, Bhutan must modernize industrial technologies and promote innovation in key sectors.

The following actions are recommended:

- Conduct baseline technology audits in priority sectors like agro-processing, forest-based and mineral-based industries.
- Promote clean tech, digital tools, quality certification and packaging knowledge/expertise.
- Promote import and localization of appropriate clean and efficient technologies.

#### **b. Digital Transformation and Industry 4.0 Enablement**

To future-proof Bhutan's industries, accelerate competitiveness, and support CSIMs, a national push toward digital adoption and Industry 4.0 readiness is essential.

The following actions are recommended:

- Launch a national awareness campaign on Industry 4.0 tools and benefits for industries.
- Provide access to digital tools (ERP, inventory, digital design, social media, e-commerce) for CSIs.
- Integrate digital skills training into revised TVET curriculum and On the Job Training (OJT) programs.
- Facilitate partnerships with global technology firms and FDI in clean/digital manufacturing.

### **Implementation Plan - Short Term (2026-2028)**

<b>Focus Area</b>	<b>Key Activities/Action</b>	<b>Milestones</b>	<b>KPI</b>	<b>Lead Agency</b>	<b>Collaborating Agencies</b>
Tech Readiness & Audits	Conduct technology audits in agro-processing, forest and mineral based industries	3 Sectoral audits completed	Audits cover 100 industries by Q2 2027	DOI	MoICE, MoAL, MoENR
Clean Technology Adoption	Conduct national clean tech awareness and training program	Five regional clean tech workshop conducted	At least 150 industry personnel trained in clean tech by end of Q4 2028	DECC	DOI, Private sector
Awareness and Capability	Launch national Industry 4.0 awareness and readiness campaign	Campaign reaches 150 industries	80% awareness among CSIs in key Dzongkhags by 2028	DOI	MoICE, GovTech, Private Sector,

Digital Tools for CSIs	Pilot digital tools support (inventory, ERP, design, e-commerce)	100 CSIs supported	100 CSIs adopt at least 1 digital tool by 2028	DOI, GovTech	Private Sector
TVET Integration	Integrate digital and tech training into TVET curriculum	Revised curriculum rolled out	200 trainees trained in digital tools by 2028	MoESD	MoICE, GovTech

## Implementation Plan - Medium - Long Term (2029 - 2035)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Clean Tech Transfer	Promote local use of clean machinery	Demonstrations completed in 5 Dzongkhags	Import substitution in 3 clean tech areas	MoICE	MoENR, MOAL
FDI & Partnerships	Facilitate FDI and technology partnerships	5 tech-based FDI projects secured	Nu. 50 million in green/tech FDI mobilized by Q4 2030	DOI	Relevant Government Agencies, Private Sector

## F. Human Capital and Skills for Industry

Objective: Match industrial workforce demand with a responsive and inclusive skills supply system.

### Key Interventions:

#### a. Launch a National Industry-Skills Alignment Program:

Bridging the skills gap is critical to ensuring that Bhutan's workforce is equipped to meet current and emerging industrial demands.

The following actions are recommended:

- Conduct a national skills mapping exercise to identify current and future skill needs by sector and Dzongkhag, focusing on priority areas such as agro-processing, construction, green industries, digital services, and manufacturing.
- Revise and align TVET curricula and training programs in partnership with industry stakeholders to ensure relevance, practical exposure, and alignment with technological and market changes.

- Establish a formal feedback mechanism between industries and training institutions to regularly update programs based on evolving workforce needs.

**b. Expand Youth Industrial Apprenticeship Scheme:**

To equip youth with practical skills and ease school-to-work transitions, Bhutan should scale up structured, industry-based apprenticeship programs.

The following actions are recommended:

- Partner with Druk Holding and Investments (DHI), SOEs, and private industries to place youth in structured OJT programs aligned with priority industrial sectors.
- Provide targeted incentives including monthly stipends, social protection, and workplace mentorship to ensure program attractiveness and retention.
- Establish a post-training placement and tracking mechanism to support youth transition into full-time employment and measure program impact.

**c. Promote diaspora engagement and return migration programs to leverage the skills of Bhutanese abroad:**

Bhutan can tap into the global expertise of its diaspora by creating structured pathways for their engagement in national development and industrial transformation.

The following actions are recommended:

- Develop a national diaspora talent registry to identify skilled Bhutanese abroad and connect them with relevant job, mentorship, and investment opportunities in priority sectors.
- Prioritize qualified diaspora candidates in recruitment for specialized roles across the public sector, SOEs, and strategic industries where local talent gaps exist.
- Facilitate short-term return programs that engage experienced diaspora professionals as trainers, advisors, or consultants in priority areas.

## Implementation Plan - Short Term (2026 - 2028)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Skills Alignment with Industry Demand	Establish National Industry-Skills Alignment Program	Skills mapping completed for priority sectors and all Dzongkhags; Revised TVET curriculum	Complete skills mapping for 10 priority sectors and in all 20 Dzongkhags by Q2 2026; Revise and roll out updated TVET curricula by Q4 2027	MoESD	MoICE RUB, Private Sector
Youth Industrial Engagement	Launch Youth Industrial Apprenticeship Scheme	MoU signed with DHI and industries; Youth enrolled in OJT with stipend; post-training job placement support institutionalized	Sign MoUs with at least 10 industries by Q2 2026; Enroll 100 youth in OJT programs by Q2 2027; place at least 70% of TVET graduates in jobs with 6 months after graduation	MoESD	DHI, DOI, MoF, Private Sector
Diaspora Skills and Knowledge Engagement	Develop Diaspora Skills Registry and Pilot Engagement Programs	Diaspora skills registry developed and operational; Diaspora professionals engaged in training/consultancy; Policy to prioritize diaspora in recruitment endorsed and implemented	Launch registry by Q2 2026; Engage at least 20 diaspora professionals in training/consultancy by Q4 2027; Diaspora-friendly recruitment policy adopted by RCSC by Q1 2028	MoFAET	DoEE, RCSC, Private Sector

## Implementation Plan - Medium - Long Term (2029 -2035)

Focus Area	Key Activities/Action	Milestones	KPI	Lead Agency	Collaborating Agencies
Skills Alignment with Industry Demand	Expand and Institutionalize Industry-Skills Alignment	Curriculum review framework formalized; Full alignment of TVET for all key sectors	Approve curriculum review framework by Q1 2029; align 100% of TVET programs with industry needs of the key sectors by 2032	MoESD	MoICE, RUB, Private Sector

Youth Industrial Engagement	Scale Up Apprenticeship Scheme with Employer Incentives	Apprenticeship program expanded to youth; Tax/subsidy incentives rolled out for participating industries	Scale program to 300 youths annually by 2030; implement tax/subsidy support for at least 20 participating industries by 2031; achieve at least 80% job placement rate post-apprenticeship	MoESD	DHI, DOI, MoF, Private Sector
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# CHAPTER 3

## IDENTIFICATION OF PRIORITY SECTORS

A systematic prioritization matrix was used to assess and rank sectors based on a combination of economic, social, environmental, and strategic factors. This included both the secondary and tertiary sectors. Each sector was evaluated across multiple parameters, such as contribution to GDP, employment generation, value addition, use of local resources, comparative advantage and export potential, investment attractiveness, and alignment with sustainability and Gross National Happiness (GNH) principles. Sectors were also assessed for their potential to substitute imports, integrate into global markets, promote innovation, and respond to internal and external shocks.

The IDR has listed 33 sectors identified as priority in the Economic Development Policy 2016 and the 21st Century Economic Roadmap 2025. These sectors were filtered based on a matrix that included the following parameters and criteria.

### Evaluation Framework for Priority Sector Identification

Parameter	Rationale	Checklist
1. Contribution to GDP	Assesses the sector's direct and indirect contribution to Bhutan's GDP and its potential to drive economic expansion.	Current GDP Contribution Projected Contribution (2029 & 2034) Growth Potential (5–10 years) Role in Economic Diversification
2. Value Addition, Diversification, and Use of Local Resources	Evaluates how much the sector enhances raw materials, encourages diversification, and uses local resources to boost income and exports.	Extent of Value Addition Use of Domestic Raw Materials Potential for Linkages (Upstream/Downstream) Scope for Technology-Driven Production
3. Comparative Advantage and Export Potential	Measures Bhutan's natural strengths and global market competitiveness to enhance exports and trade relationships.	Bhutan's Natural Advantage Global Competitiveness Access to market Infrastructure & Skilled Labor Global Market Integration Global Market Demand Resource Endowments
4. Potential for Import Substitution	Determines whether local production can replace imports to boost self-reliance and reduce trade deficits.	Reduction in Import Dependency Feasibility of Domestic Alternatives Demand for Local Products Data from Import Substitution Reports
5. Employment Generation (Locals)	Assesses job creation potential with emphasis on local workforce inclusion, skilling, and sustainable livelihood.	Number of Jobs Created Local Workforce Inclusion Skilling and Capacity Building Employability in High-Value Jobs Transfer of Knowledge & Innovation

6. Sustainability (Social, Environmental, Economic)	Ensures alignment with Bhutan's GNH principles, minimizing environmental damage while ensuring long-term viability.	Social & Environmental Impact Use of Green Technologies Alignment with GNH Principles Market-Based Sustainability Resource Availability & Renewability
7. External and Internal Demand	Evaluates commercial viability based on domestic and international demand, ensuring long-term scalability.	Domestic Demand Regional & Global Demand Trends Scalability Potential
8. Investment Attractiveness (FDI Potential)	Assesses the sector's potential to attract local and foreign investment for industrial development.	Ease of Doing Business Investment Incentives & Policies Infrastructure & Ecosystem Readiness FDI Attractiveness
9. Resilience and Adaptability	Measures the sector's ability to withstand crises and align with evolving global conditions.	Shock Adaptability (External/Internal) Alignment with Global Trends
10. Quality and Certifications	Ensures that sectors meet quality standards required for export and global competitiveness.	Compliance with Standards (ISO, HACCP, etc.) Third-Party Verification Capacity

Using the above matrix, the following ten sectors were identified as priority sectors for the Industrial Development Roadmap:

1. Agro Industries
2. Creative Industries
3. Data Center Industries
4. Education Industries
5. Forestry-based Industries
6. ICT Industries
7. MedTech Wellness Industries
8. Mineral- Based Industries
9. Renewable Energy
10. Tourism

The detailed matrix used for the assessment and ranking of the 33 sectors has been attached as ***Annexure 1.***



## CHAPTER 4

# PRIORITY SECTORS AND STRATEGIC INTERVENTIONS

## 1. Agro Industries



Image Source: UNDP

### 1.1. Background

Bhutan's agro-based industry faces significant challenges but also holds immense potential for growth and diversification. In 2023, the agricultural sector contributed Nu. 31 billion to the national economy, representing 14.96% of the GDP and employing 43.5% of the total workforce (13th FYP). Within this, the crop sub-sector alone accounted for approximately 6.57% of GDP, while the livestock sector contributed 5.91% (National Statistics Bureau, 2024). However, despite this contribution, the sector's productivity remains constrained by structural inefficiencies.

One of the primary issues is fragmented production, with smallholder farms, limiting economies of scale. This is compounded by post-harvest losses due to inadequate storage and transportation infrastructure (Ministry of Agriculture and Livestock (MoAL), n.d). Additionally, labor shortages caused by rural-urban migration and an aging farming population further constrain productivity. The absence of adequate agro-processing facilities results in minimal value addition for agricultural produce, while insufficient cold storage infrastructure exacerbates

spoilage. Mechanization remains low in the agricultural sector, with farming still reliant on manual and traditional practices. Limited access to modern technologies, along with inadequate irrigation infrastructure, hinders efficiency and obstructs progress toward food self-sufficiency.

On the policy front, complex regulations and overlapping mandates across land use, food safety, and foreign investment create additional bottlenecks. Bhutan’s heavy dependence on a limited number of export markets exposes its agro-sector to external market volatility. While the country has strong potential to achieve 100% organic farming, the lack of a unified "Bhutan Organic" brand undermines its ability to command premium prices in global markets. Financial barriers, including high energy and transport costs and limited credit access for agri-SMEs, further stifle sectoral growth.

However, Bhutan’s agro-sector presents compelling opportunities. The global organic food market offers a niche for Geographical Indication (GI)-tagged products such as red rice and cordyceps, particularly in high-value markets like the EU, Japan, and Singapore. Enhancing value addition through products like ginger powder, fruit jams, and herbal teas could significantly boost exports. Additionally, byproducts such as citrus peels can be repurposed into high-demand items like essential oils, further diversifying revenue streams. Technological innovations like solar-powered cold storage and e-commerce platforms could address existing infrastructure gaps. Initiatives like the Gelephu Mindfulness City and the revival of cooperatives may attract FDI and improve market linkages.

Government priorities under the 13th Five Year Plan (FYP) aim to reduce vegetable imports and increase agri-commodity exports to Nu. 6 billion by 2029, with a focus on high-value agricultural products such as mushrooms, quinoa, asparagus, cardamom, blossom honey, and rainbow trout (MoAL, n.d.). To unlock this potential, Bhutan must invest in cluster farming, develop agro-parks, and enhance youth skills development, while leveraging its carbon-neutral status for sustainable branding. By addressing systemic challenges and aligning with global demand, Bhutan can transform its agro-sector into a pillar of economic resilience and inclusive growth.

## 1. 2. Situational Analysis (SWOT)

Strengths	Weaknesses
<b>High Agricultural Engagement:</b> Over 50% of the population relies on agriculture, providing a strong labor base and cultural foundation.	<b>High Production Costs &amp; Low Productivity:</b> Due to difficult terrain, small fragmented landholdings, limited mechanization, and outdated practices.
<b>Unique Agro-Ecology and Biodiversity:</b> Wide elevation range (150–4,000 masl) supports diverse, endemic, and organic-friendly crops.	<b>Infrastructure and Supply Chain Gaps:</b> Poor farm-to-market connectivity, cold storage, and post-harvest facilities.

<p><b>Strong National Branding:</b> “Brand Bhutan” and carbon-negative status appeal to premium and eco-conscious markets.</p> <p><b>Favorable Policy Environment:</b> Agriculture prioritized in national development plans; growing focus on food security and self-reliance.</p> <p><b>Traditional Knowledge and Organic Potential:</b> Rich indigenous farming practices aligned with sustainable, organic production.</p> <p><b>Emerging Market Demand:</b> Growing interest in Bhutanese agro-products both domestically and abroad.</p>	<p><b>Limited Land Access for Commercial Farming:</b> Small landholding size, land ceiling (25 acres), and slow lease processes deter investment.</p> <p><b>Weak Institutional Support:</b> Poor coordination among agencies, limited extension services, and weak farmer–market linkages.</p> <p><b>Technical and Human Resource Constraints:</b> Shortage of skilled workforce, low R&amp;D, limited access to quality inputs and finance.</p> <p><b>Regulatory Complexity:</b> Lengthy and fragmented approval processes hinder agribusiness development.</p>
Opportunities	Threats
<p><b>Growing Domestic Demand and Urban Expansion:</b> Large potential markets from Gelephu Mindfulness City, institutional buyers, and border towns.</p> <p><b>Export Potential and Trade Agreements:</b> Opportunities under FTAs (India, Thailand, etc.) and niche exports (organic, herbal, GI products).</p> <p><b>Agri-Tech and Climate-Smart Farming:</b> Scope to modernize with sustainable practices, protected cultivation, and smart irrigation.</p> <p><b>Branding and Product Diversification:</b> Value addition, GI certification, and eco-branding can unlock higher margins.</p> <p><b>Agro-Tourism and Youth Engagement:</b> Farm stays, experiential tourism, and agri-preneurship can revitalize rural areas and retain youth. Carbon Credits and Green Financing: Potential to attract climate finance and monetize sustainable practices.</p>	<p><b>Import Competition and Market Dependence:</b> Cheap imports and reliance on foreign inputs undermine local competitiveness.</p> <p><b>Labor Shortage and Rural–Urban Migration:</b> Youth disengagement from farming leads to workforce constraints.</p> <p><b>Climate Risks and Wildlife Conflict:</b> Increasing weather variability and crop losses threaten viability.</p> <p><b>Policy and Market Uncertainty:</b> Regulatory bottlenecks, fiscal policy changes (e.g., GST), and external shocks disrupt growth.</p> <p><b>Environmental Degradation:</b> Unsustainable harvesting and land use practices risk long-term productivity.</p>

## 1. 3. Vision and Expected Results

### Vision:

To catalyze sustainable and inclusive growth of Bhutan’s agricultural sector by maximizing productivity, enhancing value addition, and expanding market access, thereby transforming

farming into a vibrant, climate-resilient, and economically rewarding pillar of national development.

#### **Expected Results by 2035:**

- **Economic Growth:** Agriculture’s contribution to GDP is expected to reach Nu. 70 billion or more by 2035, with agri-exports projected to reach Nu. 6 billion annually by 2029 and exceed Nu. 10 billion annually by 2035.
- **Productivity & Food Security:** Crop yields increased by 50%; post-harvest losses reduced to <10%; and 70% reduction in vegetable imports through domestic self-sufficiency.
- **Value Addition & Jobs:** 20+ agro-processing units established; 30% of agri-exports as value-added products; and 5,000+ new jobs created in agro-industries.
- **Market Diversification:** Exports diversified to 5+ new premium markets (EU/Singapore/Japan).

## **1. 4. Strategic Interventions and Action Plan**

### **A. Policy and Regulatory Support**

Despite agriculture being a cornerstone of Bhutan’s economy, the agro-sector remains underdeveloped, constrained by fragmented policies, weak enforcement mechanisms, and limited market orientation. To address these challenges and support the government’s export-driven growth vision outlined in the 13th Five-Year Plan and the Gelephu Mindfulness City initiative, a comprehensive policy and regulatory overhaul is essential.

This includes:

- a. Reviewing existing legal frameworks governing agriculture, food production, food safety, trade, and environmental sustainability to identify gaps, overlaps, and inefficiencies that hinder sectoral growth.
- b. Developing and facilitating agro-processing standards that meet both domestic and international food safety requirements and market access.
- c. Reviewing and streamlining Foreign Direct Investment (FDI) regulations to attract responsible investors who can bring in capital, technology, and global market linkages—critical elements for industrial transformation in Bhutan’s agro-based economy.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Policy and Regulatory Support</b>	Conduct a comprehensive review of existing legal frameworks governing agriculture, food production, food safety, trade, and environmental sustainability to identify gaps, overlaps, and inefficiencies.	Legal framework review report completed and endorsed by 2027. At least 5 key policy recommendations developed.	MoAL	DoI, DoT, DoECC
	Consolidate fragmented laws, strengthen the regulatory framework, and implement necessary interventions to create a robust policy environment that supports the sustainable growth of the agro-based industry.		MoAL	DoI, DoT, DoECC
	Initiate development of market-relevant and product-specific standards. Identify products and develop standards.	Minimum 5 product-specific standards developed and published by BSB.	MoAL	DoI, BSB
	Enhance the existing single window clearance system for licensing of agro-based industries.	Single-window platform enhanced and rolled out by 2027.	DoI	Private Sectors
<b>Foreign Direct Investment (FDI) Regulation</b>	Review and expedite implementation of FDI Regulation to attract foreign investments.	Revised FDI regulation for agro-sector approved and implemented by 2027. Minimum of 2 FDI proposals received by 2028.	DoI	Private Sector, Relevant stakeholders
<b>Agro-primary Sector Development</b>	Promote FDI in the agro-primary sector for commercial farming with obligations for value addition.	At least 3 commercial farming FDI project operationalized. Value addition criteria integrated into all new FDI proposals.	DoI	Private Sectors

### B. Promotion of Commercial Farming

Promote and actively support the development of large-scale commercial farms led by private investors, farmer cooperatives, and state-owned enterprises (SOEs). Focus on priority crops and livestock with high market potential and import-substitution value. This intervention will increase agricultural productivity, improve rural incomes, ensure food security, and reduce dependence on food imports. Strategic support include land access facilitation, input subsidies, access to finance, extension services, and market linkages to make commercial farming viable and attractive.



## Implementation Plan - Short Term - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Identify and zone potential areas suitable for large-scale farming based on agroecological suitability and market demand.</b>	Identify and zone potential areas suitable for large-scale farming.	At least 5,000 acres zoned for large-scale farming by 2031.	DoA	NLC, LGs
<b>Facilitate access to land for commercial agriculture.</b>	Facilitate access to secured land leases for commercial farming.	At least 50 land lease agreements facilitated by 2031.	DoA	NLC
<b>Provide technical support to large-scale commercial farms.</b>	Provide extension services on scale technologies, pest control, and climate-smart practices.	100% of large-scale farms receive at least one technical support intervention annually	DoA	BFDA, DAMC
<b>Promote production of high-impact crops and livestock.</b>	Prioritize high-impact crops and livestock (e.g., maize, vegetables, dairy, poultry, piggery).	Increase in production volume/yield of targeted crops/livestock; Number of farmers adopting practices	DoA DoL	DAMC, BLDCL
<b>Build capacity of farmer cooperatives for commercial farm management.</b>	Support formation and capacity building of farmer cooperatives.	At least 30 new cooperatives formed and trained by 2030	DAMC	Private Sector
<b>Promote inclusive commercial farming through contract models.</b>	Promote contract farming and out-grower schemes.	At least 25 contract farming agreements signed by 2030	DoA	DoI ,FCBL
<b>Strengthen market linkages with domestic and institutional buyers.</b>	Establish market linkages with FMCG, retailers, processors, school programs, Gyalsung institutions, etc.	At least 10 formal market linkage agreements established by 2031	DAMC, DoA,DoI	MoESD, Gyalsung, Private Sector

### C. Promoting Cooperative/Group Farming on Government Forest Land

To enhance agricultural production and promote rural entrepreneurship, especially among youth and farmers, cooperative or group farming should be actively promoted using identified government forest lands. This approach not only ensures efficient land use but also contributes to national food self-sufficiency by engaging organized groups in productive agriculture. To support this initiative, a comprehensive and coordinated approach is required as outlined below.

- a. **Institutional Land Use Framework:** Government forest land in potential areas may be allocated to farmer groups or youth cooperatives through the issuance of Land User Certificates by the National Land Commission (NLC). These certificates must be issued to legally recognized institutions or cooperatives, not individuals, to ensure sustainability and continuity in case members leave the group. Alternatively, land use rights may be retained with the Ministry of Agriculture and Livestock (MoAL), allowing dynamic allocation to active members while withdrawing land from those who are inactive. This ensures continuous productive use of the land.
- b. **Production Focus:** Promote cultivation of mostly imported vegetables such as onion, chili, and tomato, especially during the lean seasons to substitute imports, linking production to the School Feeding Program and the Gyalsung Feeding Program for sustained demand.
- c. **Potential Areas:** Utilize government forest lands in eight identified dzongkhags with high potential for commercial farming: Chukha, Dagana, Pemagatshel, Samdrup Jongkhar, Samtse, Tsirang, Wangduephodrang, and Zhemgang.
- d. **Institutional Coordination and Infrastructure Development:** Seek necessary approvals from the Department of Forest and Park Services (DoFPS) and the National Land Commission (NLC) to enable agricultural use of these lands. Invest in road connectivity and infrastructure development to ensure accessibility and reduce production and transportation costs. Establish cold storage facilities near cooperative clusters to preserve produce and extend shelf life.
- e. **Institutional Support:** Capacity Building: Train cooperatives on commercial farming, organic practices, and market linkages to strengthen their capacity for sustained agricultural entrepreneurship.
- f. **Market Assurance:** Foster strategic partnership with FMCG companies, schools, and Gyalsung for fixed-price procurement, ensuring income stability and motivation for farming groups.

## Implementation Plan - Short Term - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Land Identification</b>	Identify suitable government forest land for commercial agriculture in 8 dzongkhags: Chukha, Dagana, Pemagatshel, Samdrup Jongkhar, Samtse, Tsirang, Wangdue, Zhemgang	Suitable land identified and approved in at least 6 out of the 8 targeted dzongkhags by 2028.	DoA	NLC, DoFPS
<b>Land allocation to cooperatives</b>	Allocate identified land to legally registered cooperatives through Land User Certificates	At least 60% of identified land allocated to cooperatives by the end of 2029.	NLC	DoA, DoFPS, MoAL
<b>Land reallocation for optimal use</b>	Reallocate land and Land User Certificates from inactive to active members	100% of inactive land use certificates reviewed and reallocated annually starting 2027	MoAL	NLC, DoAL
<b>Cooperative Formation</b>	Encourage formation of cooperatives by farmers, youth, and Desuups	50 new cooperatives formed and registered by end of 2030	MoAL	LGs, DoAL
<b>Capacity Building</b>	Provide training on modern farming, sustainable agriculture, and market linkage strategies	500 cooperative members trained on advanced farming and market linkage by 2030	DoA	DAMC, private sectors
<b>Crop Promotion</b>	Promote onions, chilies, tomatoes, quinoa, ginger, turmeric, and other regionally viable crops like maize, millet	At least 20% increase in acreage under targeted crops in project areas by 2030	DoA	LGs, R&D Centers
<b>Market Assurance and Procurement</b>	Establish procurement partnerships with FMCGs, schools, and Gyalsung programs	At least 10 institutional procurement MOUs signed and operational by 2029.	DAMC	DoA, MoESD, Gyalsung Secretariat, Private sector
<b>Infrastructure Development</b>	Develop farm roads, irrigation systems, and storage facilities	80% of identified infrastructure projects completed in target dzongkhags by 2031.	MoAL	MoIT, LGs
<b>Post-Harvest Management</b>	Establish cold chain systems near cooperative clusters	Cold chain infrastructure established in at least 5 major production zones by end of 2030.	DoA	DAMC, Private Sector, MoIT

### D. Promotion of Vertical Farming

- a. Promote and expand environmentally controlled vertical farming systems. These innovative farms will utilize cutting-edge technologies—including automated climate control, precision agriculture tools, and renewable energy integration—to maximize efficiency, optimize resource use, and minimize environmental impact. By scaling up



production of diverse crops and livestock in controlled environments, this initiative will help overcome critical challenges such as arable land shortages, water scarcity, and climate instability, while fostering agricultural innovation to meet the demands of a growing population and industrial inputs.

- b. Introduce and scale up controlled-environment agriculture, such as hydroponics and aeroponics, to maximize efficiency and optimize resource use. Address challenges like arable land shortages, water scarcity, and climate instability while ensuring a year-round supply of high-value crops.

## Implementation Plan - Short Term - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Promotion of Vertical Farming</b>	<p>Scale up the adoption of modern farming technologies such as hydroponics and aeroponics across all forms of commercial farming—whether operated by individual farmers, cooperatives, or private sector entities.</p> <p>Promote the integration of automated climate control systems, precision agriculture tools, and renewable energy solutions to enhance productivity and sustainability.</p> <p>Implement these innovations to address challenges related to climate variability, limited arable land, and water scarcity, ensuring consistent, year-round supply of high-value crops.</p>	At least 20 vertical farming units established and operational in 10 dzongkhags by 2030.	DoA	DAMC, Cooperatives, Private sector

## E. Facilitating Land Leasing for Agriculture

Facilitate large-scale agricultural development by allowing private sector players and state-owned enterprises (SOEs) to access land including state land, fallow private land, and Dratshang-owned land for the cultivation of key crops and livestock. Collaborate with the National Land Commission (NLC) and relevant stakeholders to revise and simplify current land leasing procedures, making them more efficient and accessible for agricultural purposes.

## Implementation Plan - Short Term - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Land Leasing for Agriculture</b>	Identify potential state-owned, private fallow, and Dratshang lands suitable for commercial farming. Facilitate the leasing of these lands to private entities and state-owned enterprises (SOEs) for agricultural use. Review and streamline land lease protocols to ensure greater efficiency, transparency, and ease of access.	At least 5,000 acres of land leased for commercial agriculture across 12 dzongkhags by 2030.	MoAL, NLC	Dratshang, Cooperatives, SOEs, Private sector

### F. Addressing Agricultural Labor Shortages

The agriculture sector is experiencing significant labor shortages due to rural-to-urban migration, youth migration abroad, and an aging farming population. These challenges are constraining productivity, slowing down commercialization, and impeding the development of agro-based industries. To address this issue, it is essential to introduce regulated foreign labor programs specifically designed for commercial farming, in close collaboration with relevant government agencies. At the same time, a thorough review of current labor policies should be undertaken to enable smooth integration of foreign labor while ensuring that local employment remains a priority.

## Implementation Plan - Short Term - Medium Term (2026 - 2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Addressing Agricultural Labor Shortages</b>	Review existing regulations and explore the feasibility of importing foreign labour on a seasonal and regulated basis for the agriculture sector. Develop structured foreign labour programs to address labour shortages in commercial farming. Introduce licensed labour agents to facilitate the recruitment and management of foreign workers in compliance with established regulations.	Structured seasonal foreign labour program implemented by 2027.	MoAL	Dept. of Immigration/ MoHA, DoI, DoL

### G. Industry Diversification and Global Integration

#### a. Position Bhutan as a leading exporter of high-value organic agro-products.

Bhutan has a strong reputation for organic farming and pristine natural resources, making its agro-products attractive in niche international markets. Exporting high-value organic products

can increase foreign exchange earnings, support rural economies, and enhance food security. Differentiating Bhutan's products through premium quality and organic certification can give a competitive edge in global markets. Shift from exporting raw materials to processed organic goods (e.g., herbal teas, organic fruit preserves, medicinal plants).

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Action	KPI	Lead Agency	Collaborating Agencies
<b>Certification &amp; Quality Standards</b>	Strengthen Bhutan's organic certification system to align with international standards (e.g., EU Organic, USDA Organic)	National organic certification system aligned with at least two major international standards by 2030	BFDA, DoI	MoAL, BSB, DoECC
<b>Export Market Research &amp; Trade Agreements</b>	Conduct market studies to identify countries with high demand for organic Himalayan products	Number of target export markets identified and profiled through completed market studies	DoI, MoAL	DAMC, MoFAET, DoTr, Private Sector
	Forge trade agreements and MoUs with target countries (e.g., Singapore, Korea, Australia, Europe) to facilitate export access.	At least 3 new trade agreements or MoUs signed with identified countries by 2032	DoT,	DoI, DAMC, MoFAET
<b>Value Addition &amp; Agro-Processing</b>	Promote processing of raw organic produce into value-added products like teas, preserves, medicinal plants, spices	Number of new value-added product lines developed and commercialized	DAMC, DoI	MoAL, MoF, , Private Sector, private sectors
	Support establishment of organic agro-processing units through incentives, technical support, and seed funding	Number of organic agro-processing units supported or established through government schemes by 2035	DoI	DAMC, MoF, Private Sector

### b. Develop global branding strategies for Bhutanese organic and processed food products.

Bhutan's unique selling points (USP) include pristine environment, chemical-free agriculture, and high-altitude crops with rich nutrients. Brand recognition is crucial for gaining international trust and premium pricing. Countries with strong branding (e.g., Swiss chocolate, New Zealand dairy) dominate niche global markets.

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Action	KPI	Lead Agency	Collaborating Agencies
<b>Bhutan Organic Brand Label</b>	Design and register a distinct national certification and brand label (e.g., “Bhutan Organic”) for premium positioning	Bhutan Organic label registered and officially launched by 2028	DoMCIIP, DoI, DoT, BSB	BFDA, DoA, DoECC
	Ensure compliance with branding and labeling requirements for international markets	% of certified organic exporters complying with international labeling requirements	BFDA, DoA	BSB, DoI
<b>Marketing &amp; Digital Presence</b>	Launch a global digital marketing campaign targeting niche organic buyers through social media, influencers, and trade expos	Global digital campaign launched in at least 5 major markets by 2029	DoA, DoT, DoI	MoICE, DoTr, Private Sector
	Develop a national e-commerce and marketing platform to promote and sell Bhutanese organic products	National e-commerce platform operational and featuring at least 100 certified organic products by 2030	DoI, GovTech	Private Sector, MoICE, DoTr, MoF
<b>Strategic Partnerships</b>	Partner with international organic food brands and influencers to position Bhutanese products in high-end global markets	Number of international brand partnerships or influencer collaborations established (target: minimum 5 by 2031)	DoT, DoI, DoA	MoFAET, MoICE, Private Sector,
<b>Tourism &amp; Agro-Exports Linkage</b>	Promote Bhutanese organic products through tourism outlets, in-flight sales, and hotels to expand global visibility	Number of tourism-linked retail points (e.g., airports, hotels) promoting Bhutanese organic products	DoTr, DoA, DoI	DoT, Drukair, Hotel & Restaurant Association of Bhutan
<b>Leverage on Missions and Embassies</b>	Empower Bhutanese diplomatic missions to act as trade facilitators and promoters of Bhutanese organic goods	Number of Bhutanese embassies actively promoting organic products through trade events or buyer linkages (target: 10)	MoFAET	DoT, DoI, DoA, MoICE

## H. Infrastructure and Logistic Enhancement

One of Bhutan’s main challenges is poor market access due to difficult terrain and lack of infrastructure. Cold storage, better rural roads, and agro-processing zones will directly reduce post-harvest losses, a key barrier for farmers. With Bhutan’s comparative advantage in organic produce, focusing on high-value, low-volume exports to niche markets like Singapore and Europe aligns with the country's landlocked constraints and limited production scale.

To this end, the following targeted interventions are required:

- a. Cold Storage and Warehousing: Establish cold storage and warehousing to support perishable goods. Consider managing all such facilities through cost-sharing or PPP models.
- b. Agro-logistics and Rural Connectivity: Improve/establish/facilitate agro logistics rural connectivity to facilitate market access and efficient distribution of agricultural products.
- c. Climate-Resilient Irrigation Systems: Invest in expanding climate-resilient irrigation systems to enhance water efficiency and maximize agricultural productivity. In water-scarce areas, explore alternative solutions such as water harvesting and innovative extraction technologies to improve access to irrigation water.

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Cold Storage and Warehousing</b>	Conduct needs assessment and feasibility studies. Develop cost-sharing or PPP management models. Standardize facility designs and operational guidelines. Construct and operationalize cold storage and warehousing facilities. Expand storage networks to remote areas. Upgrade existing facilities for efficiency and integration with renewable energy.	By 2035, at least 25 cold storage and warehousing facilities are established or upgraded across 10 priority dzongkhags, with 5 operating under PPP models.	DAMC	MoIT, MoF, DoA, Private Sector
<b>Agro-Logistics &amp; Rural Connectivity</b>	Map logistics gaps and bottlenecks. Upgrade and expand rural access and feeder roads linked to high-value production zones. Introduce mobile collection centers for perishable goods. Implement digital logistics platforms for aggregation and transport coordination. Strengthen inter-dzongkhag agro-logistics infrastructure. Maintain and upgrade infrastructure to support long-term market integration.	By 2035, establish 6 mobile collection centers, upgrade 300 km of rural/agro roads, and operationalize a digital logistics platform linking 80% of production zones.	DAMC, MoIT	MoAL, DoA, LGs
<b>Climate-Resilient Irrigation</b>	Identify priority areas through hydro-geographical assessments. Pilot and scale up drip, sprinkler, and solar-powered irrigation systems. Promote community-managed irrigation schemes.	By 2035, implement climate-resilient irrigation systems in at least 1,500 acres across 12 dzongkhags, with	DoA	MoAL, NCHM, DoECC, CNR, LGs, Private Sector

Support construction of rainwater harvesting systems and irrigation tanks. Introduce smart water-saving technologies. Institutionalize innovation in irrigation system design and governance.	60% managed through community or cooperative models.
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## I. Market linkages and Market Support

Given Bhutan's small domestic market, digital marketing and e-commerce platforms are essential to expand reach. Strategic partnerships with international buyers, influencers, and organic retailers will open new markets and stabilize agro-product prices. To realize this potential and ensure sustainable growth of the agriculture sector, the following targeted interventions are required:

- Strengthen the connection between farmers, cooperatives, processors, and markets to ensure stable demand and supply.
- Enhance export market linkages through trade agreements and MoUs.
- Enhance use of modern marketing tools (e-commerce).
- Explore export markets beyond India and Bangladesh, targeting countries such as Singapore, Thailand, Australia, Europe, and the Middle East. Focus on high-value, low-volume products including, but not limited to, broccoli, ginger, turmeric powder, fresh fruits, asparagus, and rainbow trout.

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Farmer–Market Connectivity</b>	Promote contract farming and out-grower models. Strengthen cooperatives and farmer groups for aggregation and negotiation. Establish forward linkages with processors, retailers, and wholesalers. Facilitate access to real-time market price and demand data.	Establish at least 30 formal contract/out-grower arrangements and link 50 farmer groups to market price/demand data by 2028; reach 100 linkages by 2035.	DAMC	DoA, Private Sector, FMCL
<b>Domestic Market Linkages</b>	Develop procurement linkages with FMCG companies for local raw material sourcing.	Facilitate 20 institutional procurement agreements using local produce by 2028 and	DAMC	DoI, DoA, MoF, Gyalsung, MoH, Private Sectors

	<p>Establish supply agreements with schools, hospitals, and public institutions.</p> <p>Create structured procurement systems for Gyalsung Institutions using local produce.</p> <p>Develop institutional buying guidelines promoting local sourcing.</p>	expand to 30+ agreements with national buying guidelines in place by 2035.		
<b>Export Market Linkages</b>	<p>Sign bilateral trade agreements and MoUs to secure stable export demand. Participate in international trade expos and buyer-seller meets.</p> <p>Develop export guidelines and product-specific compliance support. Collaborate with foreign retailers and importers of organic, high-value produce.</p>	Sign at least 3 bilateral trade agreements and partner with 5 foreign retailers/importers by 2028; expand to 5 agreements and 10 partners by 2035.	MoICE	DoA, DAMC, Private Sector, MoFAET
<b>E-Commerce and Digital Marketing</b>	<p>Launch a national agro e-commerce platform to connect farmers with buyers.</p> <p>Partner with private digital platforms and logistics providers.</p> <p>Train farmers, cooperatives, and youth in digital marketing, branding, and packaging.</p> <p>Introduce traceability and QR-code based product histories.</p>	Launch national agro e-commerce platform by 2027 with 1,000 registered farmers/cooperatives and 50 traceable products; expand to 2,000 users and 100 QR-based products by 2032.	Dol	DAMC, DoA, GovTech, Private Sector,
<b>Export Market Diversification</b>	<p>Identify niche markets beyond India and Bangladesh (e.g., Singapore, Europe, Australia).</p> <p>Conduct product-market fit studies for key export items: turmeric, ginger, rainbow trout, asparagus, etc.</p> <p>Create Bhutanese agro-brand identity focused on organic, clean, and high-altitude origins.</p> <p>Engage embassies and trade offices for branding and promotion.</p>	Penetrate at least 3 new niche export markets and promote 5 high-value products by 2028; expand to 5+ markets and 10 products under national branding by 2035.	DAMC	DoA, Dol, MoFAET, DoT, Private Sector

## J. Capacity Building

Limited technical expertise is a bottleneck for Bhutanese agro-industrial growth. Training programs on modern processing, certifications, and marketing are essential to professionalize the sector, especially for youth and farmers. This builds resilience and supports self-employment in rural Bhutan.

- a. Training, skilling, reskilling, and upskilling of local workforce, farmers, entrepreneurs in modern processing techniques and value addition.
- b. Enhance capacity building on tools/machinery handling.
- c. Extend exposure and skills on product diversification.

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Training and skilling of local workforce</b>	Conduct targeted training programs for farmers, youth, and entrepreneurs on modern agro-processing, organic certification, packaging, labeling, and marketing techniques to boost productivity and competitiveness.	Train at least 3,000 individuals in agro-processing and market-readiness skills by 2030 through certified programs and field-based trainings.	MoAL	DoA, DoEE, MoESD, Private Sector
<b>Reskilling and upskilling in value addition</b>	Introduce modular and continuous learning programs in agro-processing, value chain management, and food safety standards through technical training institutes and collaborations with international institutions.	Implement continuous value chain learning modules in at least 5 TTIs and train 1,000 participants by 2031.	MoAL	MoESD, DoI, Private Sector
<b>Capacity building on machinery handling</b>	Offer hands-on training in the operation, maintenance, and safety of modern agro-processing equipment and machinery through vocational and technical institutes.	Establish machinery training in all 10 agro-zones and certify 500 operators by 2028.	MoAL, MoESD	DoI, Private Sector
<b>Product diversification training</b>	Provide exposure visits, workshops, and pilot programs on product innovation, diversification (e.g., herbal teas, ready-to-eat foods, fruit leather, dehydrated products), and niche-market adaptation.	Conduct 50 product diversification workshops and pilot at least 20 new product lines by 2030.	MoAL	DoA, R&D Institutions, DoI, Private Sectors
<b>Youth entrepreneurship promotion</b>	Design youth-focused programs and competitions to encourage agro-based entrepreneurship with mentoring, incubation, and seed funding opportunities.	Support the creation of 200 youth-led agro-enterprises through structured programs by 2030.	DoEE	Private Sectors, DoI, Youth Development Fund (YDF), MoAL
<b>Certification &amp; quality assurance training</b>	Train stakeholders on national/international standards and certifications like organic, HACCP, and ISO to ensure market-ready products.	Train at least 500 individuals and certify 150 agro-enterprises in HACCP, ISO, or organic standards by 2030.	DFDA, BSB	DAMC, DoA, DoI, Private Sectors



## K. Technology Adoption

Given Bhutan's susceptibility to climate change, mechanized and climate-resilient farming techniques will improve productivity and minimize environmental impacts. Establishing an Agro-Processing R&D Center ensures innovation in value-added products, making Bhutan competitive in global markets.

- a. Adoption of technology transfer partnership for efficient agro-processing.
- b. Develop a research and development center for agro-processing.

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Adoption of technology transfer partnership for efficient agro-processing</b>	Facilitate partnerships with international agricultural R&D institutions, private sector technology providers, and regional centers of excellence for transfer of climate-smart agro-processing technologies and practices.	By 2030, establish 10 international/regional technology partnerships, pilot at least 5 climate-smart agro-processing technologies, and	MoAL	MoICE, CNR, Private Sector, MoFAET, International R&D Institutions
	Identify and pilot proven agro-processing technologies suitable for Bhutan's terrain and scale (e.g., solar dryers, mini rice mills, oil expellers, packaging equipment).	launch a national online technology registry for dissemination.	MoAL	DoA, MoESD, DoI, CNR
	Establish a national technology registry and platform to disseminate available agro-processing technologies and their service providers.		MoAL	GovTech, DoI, , Private Sector
<b>Strengthen a research and development center for agro-processing</b>	Strengthen Agro-Processing Research and Development (R&D) Center to drive innovation in food safety, packaging, shelf-life enhancement, organic product development, and climate-resilient processing techniques.	By 2027, establish at least 5 formal research partnerships; by 2028, implement incubation and testing services supporting 30+	MoAL	CNR, DoI, DFDA
	Partner with institutions like CNR, TTIs, and private innovators to conduct joint research on indigenous and underutilized crops for value addition and commercialization.	entrepreneurs annually; and by 2030, complete 15 innovation projects and successfully commercialize 10 new value-added agro-products focusing	MoAL	DoI, BFDA, R&D Centre, Private Sector

	Provide incubation and testing services for entrepreneurs to develop and refine new agro-products before commercialization.	on food safety, packaging, shelf-life, organic development, and climate-resilient agro-processing technologies.	MoAL	DoI, Private Sector, Startup Centre
<b>Technological Adoption</b>	Promote digital tools for farm-to-factory integration, including apps for harvest planning, logistics, market access, and traceability.	Deploy at least 3 digital tools/platforms for agro-logistics and traceability by 2028 and	MoAL, GovTecn	DoI, DAMC, Private Sector
	Build capacity of extension workers and farmers in using and maintaining modern agro-processing technologies through hands-on training and demonstrations.	train 500 extension workers/farmers in digital tools and modern equipment usage by 2030.	MoAL, MoESD	DoA, CNR, Private Sector, DoI

## L. Geographical Indication and Branding

Bhutan's unique products—such as red rice, cordyceps, and organic honey—have untapped potential for GI and IP protection. Developing a "Bhutan Organic" brand will capitalize on the country's pristine image and meet the rising demand for clean, green, and ethical products globally.

- Develop strategic branding interventions.
- Enhance awareness on GI and the importance of branding.
- Identify GI and other potential IP assets and register them. This initiative aims to protect the authenticity of Bhutanese agrifood products, open up premium market opportunities, and support sustainable agriculture, while preserving Bhutan's agricultural heritage.

## Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Actions	KPI	Lead Agency	Collaborating Agencies
<b>Develop strategic branding interventions</b>	Develop and launch a national agro-brand such as "Bhutan Organic" or "Bhutan Natural" to promote high-value agri-products with a focus on quality, sustainability, and origin.	By 2027, launch a national agro-brand and establish branding/packaging guidelines; by 2030, promote Bhutan-branded	DoMCIIP, DoT, DoI, MoAL	BFDA, DoTr, Private Sector, LGs

	Establish clear branding and packaging guidelines for GI and premium Bhutanese products to maintain consistency and market appeal.	products in at least 5 international markets through expos and digital campaigns.	BSB, DoMCIIP, BFDA, MoAL, DoI	DoTr, Private Sector, LGs
	Promote Bhutan-branded products through international expos, fairs, and targeted digital marketing campaigns in niche markets (e.g., organic outlets in Europe, Japan, Singapore).		DoT	DoMCIIP, DoTr, Private Sector, DoI, MoAFET
<b>Enhance awareness on GI and importance of branding</b>	Conduct nationwide awareness programs for farmers, producers, cooperatives, and SMEs on the value of GI and branding in improving incomes and protecting local identity.	By 2028, conduct awareness programs in all Dzongkhags and integrate GI and branding into all relevant agriculture and entrepreneurship training curricula.	DoMCIIP, DoI	MoAL, DoTr, Private Sector
	Integrate GI and branding modules into agriculture training and entrepreneurship development programs.		MoAL, DoMCIIP	DoI, DoTr, BSB
<b>Identify GI and other potential IP assets and register them</b>	Identify and document potential GI products (e.g., red rice, cordyceps, yak cheese, local spices, buckwheat noodles, wild honey, etc.) and prioritize them for national and international GI registration.	By 2030, identify and register at least 10 potential GI/IP products nationally and internationally;	DoMCIIP	MoAL, DoI, Private Sector
	Facilitate legal registration of GI and trademarks for selected products at national and international levels (WIPO, EU, India, etc.) to ensure protection of Bhutanese product identity.	and by 2035, establish a functional institutional framework for managing GI value chains, including certification and dispute resolution.	DoMCIIP, DoI	MoAL, DoT, MoAFET
	Build institutional capacity for managing GI value chains, including compliance, inspection, certification, and dispute resolution mechanisms.		DoMCIIP	DoI, MoAL, Private Sector

## M. Establishing Agro-Based Hubs for Value Addition

- a. Develop regional agro-processing hubs where small farmers can access shared facilities for drying, packaging, and processing.
- b. Develop Special Agro-Industrial Zones to attract investment in agro-processing. The Ministry of Agriculture and Livestock (MoAL) plans to establish Agrifood Eco-Hubs at four strategic locations—covering eastern, central, southern, and western Bhutan. These hubs will serve as aggregation, storage, and basic processing centers at strategically located village or sub-gewog cluster levels. Integrate the Special Agro-Industrial Zones within these Agrifood Eco-Hubs to promote large-scale agro-processing and value addition.

## Implementation Plan - Medium Term - Long Term (2029-2035)

Focus Area	Action	KPI	Lead Agency	Collaborating Agencies
<b>Development of Agri-Food Eco-Hubs</b>	Identify strategic locations and allocate land for Agri-Food Eco-Hubs. Develop masterplans and initiate infrastructure planning. Lay the foundation for integrating agro-industrial development.	By 2027, identify and allocate land in at least 4 strategic locations, develop masterplans, and complete infrastructure planning for Agri-Food Eco-Hubs, setting the foundation for integrated agro-industrial development.	MoAL (DoA, DAMC, DoL)	MoIT, BFDA, DoI, Private Sector, PPP partners, LGs
<b>Agro-Based Hubs for Value Addition</b>	Establish Special Agro-Industrial Zones (SAIZs) leveraging Agri-Food Eco-Hub infrastructure.  Integrate Agri-Food Eco-Hubs and SAIZs into unified agro-industrial hubs focused on value addition, market access, and export readiness.  Provide incentives for agro-processing firms.  Operationalize aggregation and basic processing centers.  Support value addition across key agricultural value chains.  Support scale-up for export-oriented and organic agro-industries.	A minimum of 3 fully integrated agro-industrial hubs operational by 2030, equipped with aggregation and processing centers, with incentives extended to at least 20 agro-processing firms and export or organic certification support provided to 10 key enterprises.	MoAL (DoA, DAMC), DoI	MoIT, BFDA, Private Sector, PPP partners, LGs

## N. Promotion and Development of Agro-Based Value Addition Industries

Priority vegetables, cash crops, grains, fruits, and livestock products for commercial farming and agro-industrial development have been identified through stakeholder consultations and are listed in **Annexure 2**. These commodities were prioritized based on their agro-ecological suitability, market demand (both domestic and international), potential for value addition, scalability, and alignment with Bhutan's organic and sustainable agricultural goals.

Building on these priorities, **Annexure 2** also outlines several agro-based value addition industries that demonstrate strong commercial potential. These industries have been further analyzed and supported with strategic interventions to promote import substitution, job creation, industry and export diversification, among other goals.



## 2. Creative Industries

### 2.1. Background

This roadmap prioritizes the five key segments of Bhutan's creative industry: **Film, Music, Animation, Digital Content Creation** and **Over-the-Top (OTT) platforms**, considering their high potential for economic, social and cultural impact.

The creative industry is increasingly recognized as a critical driver of economic diversification, job creation and cultural preservation. Defined broadly to include fields such as film, music, digital content, visual and performing arts, graphic design, photography, software, media, publishing, architecture, crafts and gaming, the creative industry not only stimulates innovation and entrepreneurship but also serves as a vehicle for global visibility, national identity, storytelling and soft power.

For Bhutan, the creative industry offers a unique opportunity to bridge cultural authenticity with modern economic aspirations. With its rich cultural heritage, deeply rooted spiritual values and distinctive artistic traditions, Bhutan possesses a strong foundation for building a creative economy that is both globally competitive and locally grounded. Bhutanese films, music, arts, crafts, folklore and design are powerful mediums of expression that can distinguish the country in a global marketplace increasingly seeking meaningful, mindful and culturally rooted content.

The sector's importance is amplified by its potential to address key national priorities, such as youth employment, private sector development and the promotion of Gross National Happiness (GNH). As highlighted by the 2022 Jobseeker Survey, creative industries were among the top

career interests of Bhutanese jobseekers, indicating both passion and potential in this sector. Furthermore, the creative economy is inherently inclusive, providing broader opportunities for individuals with diverse talents and backgrounds, including women, youth, persons with disabilities and different segments of society to harness their talents, generate income and express cultural identity.

Digital transformation adds another layer of opportunity. With increasing internet penetration, smartphone usage and engagement on social media platforms, Bhutanese creators are now better positioned to produce, distribute and monetize content at a scale never before possible. Platforms like OTT, YouTube, TikTok, Facebook, Instagram and Spotify are unlocking new revenue streams—from influencer marketing, live-streaming and monetization through music and film content distribution.

Yet, to unlock this full potential, deliberate interventions are needed to address current gaps through a comprehensive national creative strategy/roadmap with requirements of substantial investments in creative infrastructure and skills development, expansion of domestic and international market access, integration of digital platforms and e-commerce tools and establishment of robust systems for intellectual property protection, creative content promotion, financing mechanisms and export facilitation can transform Bhutan’s creative sector into a vibrant pillar of economic growth and globally competitive creative economy.

## 2.2. Situational Analysis (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Rich cultural heritage and unique identity</li> <li>• Cultural storytelling potential</li> <li>• Potential for high IP creation</li> <li>• Growing preference of jobseekers especially youths</li> <li>• Increasing digital access and social media use</li> <li>• Policy support including tax holidays and waivers</li> <li>• Strong government recognition</li> <li>• Emerging diaspora markets</li> <li>• Demographic dividend and strong local talents</li> <li>• Supports preservation and promotion of culture and traditions</li> <li>• Rise of social media influencers</li> <li>• Demand for live streaming services</li> </ul>	<ul style="list-style-type: none"> <li>• Limited information/statistics</li> <li>• Lack of formalized creative community</li> <li>• Limited formal training institutions and professional talent pool</li> <li>• Minimal export penetration and small domestic market</li> <li>• Limited creative infrastructure (studios, theaters, hubs)</li> <li>• Poor Intellectual Property (IP) enforcement</li> <li>• Lack of regional and international networking and collaboration</li> <li>• Poor access to finance</li> <li>• Creative sector underrepresented in FDI policy</li> <li>• Limited High-speed Internet Connectivity</li> <li>• High internet usage costs</li> </ul>



Opportunities	Threats
<ul style="list-style-type: none"> <li>• Growing global demand for cultural and meaningful content</li> <li>• Integration with tourism, Brand Bhutan and GNH</li> <li>• Potential for high job creation</li> <li>• Opportunity to promote FDI in film, OTT, fashion, and infrastructure</li> <li>• Monetization of creative contents via social media platforms like OTT, Facebook, TikTok, Youtube, etc</li> <li>• Opportunity for global creative economy integration</li> <li>• Access to international creative platforms through networking and collaborations</li> <li>• Access to easy and affordable digital tools for content creation</li> </ul>	<ul style="list-style-type: none"> <li>• High rate of IP violations on digital platforms</li> <li>• Increase in cyberbullying</li> <li>• Cultural restrictions limiting artistic freedom and innovation</li> <li>• Growing dominance of regional and global content</li> <li>• AI generated content disrupting creative content production</li> <li>• Growing preference for STEM over arts education</li> <li>• Lack of technology and e-payment infrastructure</li> </ul>

## 2.3. Vision and Expected Results

### Vision:

To transform Bhutan's creative industry into a dynamic engine of economic growth, job creation, and innovation through strategic investment, cultural branding, and global integration.

### Expected results:

- At least 15,000 jobs created in the creative sector by 2035.
- Contribute a minimum of 5-6 % to national GDP by 2035.
- At least 1 Creative Hub established and fully functional by 2035.
- One CMO (Collective Management Organization) established and functional by 2035.

## 2.4. Strategic Interventions and Action Plan

### A. Policy and Regulatory Support

- Start first, license/regulate later system:** Establish industry-friendly licensing and regulations by adopting a "start first, regulate later" approach to encourage innovation



and entrepreneurship in the creative sector.

- b. Strengthen Intellectual Property (IP) Rights Laws:** Proper enforcement of IP laws will protect creators from content theft and ensure fair compensation for their work. This involves reviewing and updating existing IP laws particularly Copyright Act, 2001 to align with international standards, improving enforcement mechanisms and conducting awareness campaigns.
- c. Establish Collective Management Organizations (CMOs):** CMOs ensure creators are fairly compensated for the use of their work across platforms. They streamline licensing, enforce copyright regulations, and distribute royalties efficiently. Additionally, they advocate for creators' rights, educate artists on legal protections, and leverage technology to improve royalty tracking. By fostering transparency and innovation, CMOs strengthen the creative industries and safeguard intellectual property.
- d. Review National Filming Rules & Regulations:** Review national filming rules and regulations to reduce administration burden and provide creators with more creative freedom and space for creative expression with an objective to reach global audiences. This includes addressing the need to obtain additional clearances and film permits from local authorities even with certification from BICMA.
- e. Promote FDI opportunities:** Amongst others, Bhutan has potential for Foreign Direct Investment (FDI) in the creative sector viz. film, music, animation production, digital content creation and OTT platforms. Strategic opportunities include production, co-production and post-production ventures, establishment of production and post-production studios, music publishing companies, sound engineering and recording facilities, animation and VFX services, as well as talent management and distribution companies. Investors can also explore opportunities in building creative infrastructure such as film schools and training centers.
- f. Develop Film Tourism Strategy/Plan:** Developing a Film Tourism Plan/Strategy that mandates the use of local talent can stimulate employment and skills development within Bhutan's creative sector. By streamlining the current process for foreign productions—such as simplifying permits, reducing bureaucratic hurdles, and creating a registry of certified local talent—Bhutan can become a more attractive filming destination. This approach not only enhances local participation and economic gain but also promotes Bhutan's unique landscapes and culture globally through international

film exposure thereby promoting tourism.

- g. Build institutional linkages to boost creative monetization:** Build institutional linkages or partnerships with global platforms such as the META Content Creator Fund, TikTok Creator Fund and YouTube Partner Program to enable Bhutanese film, music, animation, digital content creators and OTT producers to monetize their work on international platforms.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Action	KPI	Lead Agency	Collaborating Agency
<b>Policy and Regulatory Support</b>	Start first, license/regulate later system	The system operates under provisional sandbox permit for one year. Regulations formulated based on the data gathered during the sandbox phase.	DoI, MoICE	BICMA, DoMCIIP
	Strengthen Intellectual Property (IP) Rights Laws	Copyright Act 2001 reviewed and submitted to Cabinet	DoMCII P	Creative Sector
	Establish Collective Management Organizations (CMOs)	CMO established for Music Sector	DoMCII P	Creative Sector
	Promote FDI Opportunities	Two FDI projects approved	DoI	DoMCIIP, Creative Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Action	KPI	Lead Agency	Collaborating Agency
<b>Policy and Regulatory Framework</b>	Review National Filming Rules & Regulations	National Filming Rules and Regulations reviewed and draft submitted to the Ministry for approval. Revised Rules and Regulations implemented.	BICMA	FAB, DoMCIIP, DoCDD
	Develop Film Tourism Strategy/Plan	Film Tourism Strategy developed and adopted	BICMA	DoTr, DoMCIIP, FAB, DoCDD

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Policy and Regulatory Framework</b>	Build institutional linkages to boost creative monetization	Institutional linkages built with TikTok and Youtube	FAB, DoMCIIP, BICMA	Creative Sector

### B. Investment, taxes, and fiscal incentives

- a. **Review Fiscal Incentives:** Reassess the creative industries' provision of Rules on the Fiscal Incentives Act of Bhutan 2021 on requirement of employing a minimum of 15 employees by 12 month period to qualify for tax exemptions, to 5 employees, taking into account the seasonal and project-based nature of creative industries such as film.
- b. **Propose Tax reforms:** Remove the mandatory salary threshold of small businesses and allow salary expenses to be deducted from taxable income, similar to registered companies.
- c. **Targeted tax Incentives to catalyze growth in the Creative Industry:** Offering targeted tax exemptions will encourage investment in creative industries and help them scale their operations. This includes time-bound tax exemptions for co-productions with foreign production houses, import of creative equipment, post-production technologies and digital infrastructure critical for high-quality content creation. Further, tax exemption for investment in training and innovation would promote skill development and technological advancements.
- d. **Provide low-interest loans for creative industries:** Offer financial support through low-interest loans to help creative entrepreneurs and startups, access capital for business growth, equipment purchase and project development. These loans will encourage innovation, sustain creative ventures and enhance the competitiveness of Bhutan's creative sector. Promote creative equity funding mechanism than mortgage based. Promote creative equity funding mechanisms over traditional mortgage-based financing will ensure greater accessibility and support for artistic and cultural enterprises.
- e. **Establish a Creative Industry (CI) Development Fund:** Create a dedicated fund to support innovative and high-growth projects in the film, music, animation, digital

content creation and OTT. This fund will prioritize projects with strong potential for creativity, innovation, employment generation and international market expansion.

- f. **Acknowledge creativity through annual national awards:** Introduce/continue annual national awards to formally recognize outstanding creators to celebrate their achievements and recognition. These awards should be supported by government funding to ensure credibility, sustainability and wide participation. The initiative will celebrate excellence, inspire emerging talent and reinforce the value of the creative industry.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Investment, Taxes and Fiscal Incentives</b>	Provide low-interest loans for creative businesses	Proposal for low interest loans drafted Proposal discussed with relevant stakeholders for approval	DoMCIIP	RMA, Financial Institutions
	Review Fiscal Incentives & Propose Tax reforms	Proposal for fiscal incentives review and tax reforms drafted Proposal discussed with relevant stakeholders for approval	MoF	DoI, BICMA, DoMCIIP, DRC, Creative Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Investment, Taxes, and Fiscal Incentives</b>	Offer targeted tax exemptions	Proposal for targeted tax exemptions drafted Proposal discussed with relevant stakeholders for approval	DoMCIIP	MoF, RMA, Financial Institutions
	Establish a Creative Industry (CI) Development Fund	Proposal for CI Development Fund drafted Proposal discussed and submitted to MoF for approval	DoMCIIP, BICMA	MoF
	Acknowledge creativity through annual national awards	Budget for organizing national awards proposed on an annual basis	DoMCIIP, BICMA	MoF, Creative Sector

## C. Infrastructure and logistics enhancement

- a. Develop Creative Hubs:** Establish dedicated Creative Hubs in key urban centers, including Thimph, Phuentsholing and other feasible locations. These hubs should be equipped with infrastructure such as recording studios, sound stages, editing suites, post-production labs, mini film city and state-of-the-art theaters for screenings and performances. They must also serve as incubation centers offering boot camps, mentorships, business development support, and access to legal and IP advisory services. The hubs should facilitate collaboration across creative sectors by hosting networking events, joint showcases, exhibitions, and maker spaces for experimentation. These hubs will reduce entry barriers for emerging creators, nurture talents, support both emerging and established creators and foster a collaborative ecosystem that nurtures innovation, improves employment prospects and builds a stronger value chain for Bhutan's creative economy. .
- b. Establish specialized creative schools/institutions:** Develop schools/institutions focused on film, music and animation to nurture talent and improve industry standards. Create or expand educational institutions, develop relevant curricula, recruit qualified instructors, equip schools with necessary resources, and foster partnerships with industry.
- c. Strengthen Creative Industry Associations:** Given the fragmented nature of Bhutan's creative industries, there is a critical need to foster greater coordination and collaboration amongst the sectors. Supporting the formation and growth of associations in creative fields like film, music, digital content creators, animation, OTT and others can promote coordination, provide a collective voice, offer training, and improve access to markets and funding. Encouraging creators to join or form such groups will help professionalize the sector and foster shared growth.
- d. Resolve e-payment gateway issues for monetization:** To enable Bhutanese artists to monetize their work through OTT, e-commerce and other digital platforms, it is essential to resolve existing e-payment gateway challenges. This involves coordinated efforts among the relevant government agencies, RMA and financial institutions to integrate Bhutan's payment systems with international gateways to facilitate seamless cross border transactions. Further, investment in ICT infrastructure is required to ensure secure, accessible and stable digital payment services.

- e. **Develop a creative industry database and improve data collection on the sector:**  
Develop a centralized creative industry database for better policy-making and investment. Integrate standardized classifications and definitions in line with international standards. Track industry trends and economic contributions to measure sectoral impact and effectiveness. Begin the process to collect and aggregate data on the creative industries sector and develop an annual statistical report.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Infrastructure and Logistics Enhancement	Strengthen Creative Industry Associations	Two new Creative Industry Associations established	Creative Sector	CSO, DoMCIIP, BICMA
	Resolve payment gateway issues	Payment gateway issued resolved	RMA	GovTech, DoMCIIP, BICMA, Financial Institutions
	Develop creative industry database and improve data collection on the sector	Creative Industry database developed and implemented Creative Industry data captured in annual statistical report	DoMCIIP	NSB, DoCDD

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Infrastructure and Logistics Enhancement	Develop Creative Hubs	One creative hub developed	DoMCIIP, BICMA	MoF, MoIT, LGs, Creative Sector
	Establish specialized creative schools/institutions	One new specialized Creative school/institution established	DoMCIIP	MoESD, DoEE, Creative Sector

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Infrastructure and Logistic Enhancement	Develop Creative Hubs	Proposal for establishment of one more creative hub submitted	DoMCIIP , BICMA	MoF, MoIT, LGs, Creative Sector

## D. Capacity Building

- a. **Sensitization Programs promoting creative industries:** Organize sensitization seminars for policymakers and public agencies to highlight the economic value and development potential of the creative industries. This will help ensure their inclusion in national strategic development plans. Simultaneously, raise public awareness—particularly among youth—about viable career opportunities in the creative sectors. This can be done through targeted campaigns, educational programs, and school-based initiatives such as career counseling and entrepreneurship workshops. Forums and exhibitions featuring successful artists and creative entrepreneurs should also be organized to inspire students and showcase the sector's diverse possibilities.
- b. **Implement structured entrepreneurship training programs:** Equip creative professionals with essential business skills to manage and scale their ventures. Offer short-term entrepreneurship courses covering business management, financial planning, pitching ideas, international trade and e-commerce/digital marketing.
- c. **Conduct skilling and upskilling programs:** Providing specialized training to enhance technical skills and competitiveness. Identify skills gaps, partner with experts, offer various training formats, provide financial assistance, and promote lifelong learning. Enhance training and skill development programs by conducting specialized workshops both within and outside Bhutan.
- d. **Strengthening the Technical and Vocational Education and Training (TVET) system:** Broadening the sector requires a strengthened TVET system. Enhancing training opportunities and opening new professional training with certification in relevant creative fields is proposed. Making short-term courses available in existing TVET institutions can provide focused training in specific skills viz. TVET programme for filmmakers and actors; TVET programme for modern music; Updating graphic design training and other creative industry related programs.
- e. **Developing partnerships with foreign TVET institutions:** Collaborating with international TVET institutions will allow for student exchange and knowledge transfer, aligning Bhutanese training with global standards. Inviting international experts can align training with best practices.
- f. **Increase undergraduate scholarships in the creative industry:** To nurture a pipeline of skilled professionals in Bhutan's growing creative sector, it is essential to increase

undergraduate scholarships in creative disciplines. These scholarships can target students with talent and passion but limited financial means, ensuring equitable access to quality education in creative fields. By supporting formal education pathways, the government can strengthen the human capital base for the creative economy, promote innovation and encourage youth employment in non-traditional sectors.

- g. Develop structured mentorship programs:** Experienced artists and industry professionals will provide guidance to emerging talent, fostering knowledge transfer and skill enhancement. This involves establishing a mentor database, developing guidelines, matching talent with mentors, providing training and support, and monitoring program effectiveness. Develop mentorship and apprenticeship programs with industry experts.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Capacity Building</b>	Sensitization Programs promoting creative industries	Two sensitization programs conducted	DoMCIIP	Creative Sector, BICMA, DoEE
	Implement structured entrepreneurship training programs	Two structured entrepreneurship programs conducted	DoEE	DoMCIIP, BICMA

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Capacity Building</b>	Implement structured entrepreneurship training programs	Two structured entrepreneurship programs conducted	DoEE	DoMCIIP, BICMA
	Conduct skilling and upskilling programs	Two specialized technical skills trainings provided	DoMCIIP, BICMA	DoEE
	Strengthening the Technical and Vocational Education and Training (TVET) system	Proposal to include creative industry curriculum developed. Proposal submitted to MoESD for approval	DWPSD, MoESD	DoMCIIP, BICMA, FAB, Creative Sector
	Increase undergraduate scholarships in the creative industry	Scholarship on creative industry opened	RCSC	DoMCIIP, BICMA, Creative Sector



## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Capacity Building	Developing partnerships with foreign TVET institutions	Partnership with one foreign TVET institution established.	DWPSD, MoESD	DoMCIIP, BICMA, Creative Sector
	Develop structured mentorship programs	Proposal for structured mentorship programs developed and adopted.	DoMCII P	Creative Sector, DoEE, BICMA

## E. Technology Adoption

- a. **Enhance digital infrastructure to support online markets and streaming services:** Ensure high speed, reliable and affordable internet access to support content creators to distribute and share their works globally. Promote e-commerce platforms that allow Bhutanese creators to market and sell their work internationally. Strengthen cyber-security measures to protect digital content and transactions.
- b. **AI Tools for Content Creation and Curation:** Equip creators with AI-based tools for video editing, music composition, scriptwriting, and content creation. This will enhance production efficiency, lower costs, and help small creators compete with larger studios, accelerating innovation and content quality & diversity.
- c. **Leverage Social and Digital Media for Global Reach:** Promote Bhutanese creative content through platforms like YouTube, TikTok, Instagram, Facebook and OTT. Provide training in digital marketing, content optimization, and online community building to help creators expand their reach, grow fan bases, and monetize through ads, brand deals, and sponsorships.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Technological adoption	Enhance digital infrastructure to support online markets and streaming services	Reduce the internet charges by 50% Additional mobile towers installed	BICMA	DoMCIIP, GovTech, Creative Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Capacity Building	AI Tools for Content Creation and Curation	Subsidies provided for AI tools subscription	DoMCIIP	BICMA, GovTech, Creative Sector
	Leverage Social and Digital Media for Global Reach	Trainings provided on leveraging social media marketing, content optimization and online community building	DoMCIIP	BICMA, GovTech, Creative Sector

## F. Branding

- a. **National Branding Strategy for Bhutanese Creative Products:** Establish Bhutan as a distinctive hub for creative and cultural industries by formulating and implementing a comprehensive national branding strategy. This includes emphasizing quality standards, cultural authenticity, and Bhutan's unique values such as Gross National Happiness to build a strong and recognizable brand image. A targeted creative industry (CI) brand and marketing strategy for regional and international markets will enhance the visibility and competitiveness of Bhutanese creative products, attract global stakeholders, and open new avenues for exports and collaborations.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
Branding	Develop a national branding strategy for Bhutanese creative products	Proposal for building national CI branding strategy developed and approved. National CI branding strategy developed.	DoMCIIP	BSB, BICMA, DoT, Creative Sector

## G. Market Linkages and Support

- a. **Hand-holding approach for export-ready Creative Industries:** One of the targeted approach to build export capacity of creative industries could be to select and provide intensive support to a few high export potential creative industries to help them secure

their first international contracts, followed by training them to mentor other exporting creative industries.

- b. Promote regular national events and festivals for Creative Industries:** Supporting and organizing exhibitions such as music festivals, film festivals, and other events (Digital Content Creators conclave, art festival, arts and crafts fair, fashion show, animation film festival) will foster interaction, increase visibility, and stimulate both domestic and international interest. These platforms can serve as launchpads for emerging talent, facilitate and stimulate market demand for Bhutanese creative content. Administrative and funding support from the Government is essential to ensure the organization and sustainability of such events. Such initiatives, besides networking and collaboration of creators will also boost tourism.
- c. Promote creative industry participation in international festivals, conferences and roadshows:** Facilitate and support the participation of Bhutanese creators in international festivals, conferences and roadshows to enhance global visibility and market access. This includes providing financial support through government funding or public-private partnership (PPP) models and assisting with logistical and diplomatic facilitation through overseas Bhutanese embassies/missions. Participation in such platforms enables creators to showcase their talents, forge strategic partnerships, gain exposure to global trends and engage in valuable knowledge exchange.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Market linkages and support</b>	Promote regular national events and festivals for Creative Industries	Budget for national CI events/festivals proposed on an annual basis	DoMCIIP	MoF, BICMA, Creative Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Market linkages and support</b>	Hand-holding approach for export-ready creative industries	Proposal for hand holding approach developed and approved. Hand holding approach implemented.	DoMCIIP	DoI, MoF, BICMA

Promote regular national events and festivals for Creative Industries	Budget for national CI events/festivals proposed on an annual basis	DoMCIIP	MoF, BICMA, Creative Sector
Promote creative industry participation in international festivals and roadshows	Budget for CI participation in international events/festivals proposed on an annual basis	DoMCIIP, BICMA	MoF, MoFAET, BICMA, Creative Sector

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Market linkages and support</b>	Promote creative industry participation in international festivals and conferences	Budget for CI participation in international events/festivals proposed on an annual basis	DoMCIIP , BICMA	MoF, MoFAET, BICMA, Creative Sector



## 3. Data Center Industries

### 3.1. Background

The ICT sector has recorded a contribution share of 3.03 and 2.93 percent towards GDP in Bhutan in 2022 and 2023 (National Accounts Statistics, 2024). As per the 13th Five year Plan and Bhutan's Digital Strategy 2024, the digital economy is projected to add USD 300 million and USD 600 million to the GDP representing about 5% and 6% to the GDP contribution by 2029 and 2034. While the specific statistics on data center industries contribution in Bhutan is not available, Bhutan's data center industries present a significant opportunity for Bhutan to enable ICT to enhance its contribution to the GDP through targeted approach, especially through attracting hyperscale data centers to establish in Bhutan.

Globally, the data center industry has become a major contributor to GDP in many countries. For instance, in the United States, data centers added \$2.1 trillion to the GDP between 2017 and 2021, supporting over 4.2 million jobs directly and indirectly (Buckley, 2023). In Ireland, Equinix's data center operations alone contributed an annual contribution of €15.8 billion to the economy in 2022, representing approximately 3% of Ireland's total GDP (Joon, 2024). In 2023, Singapore's data center market was valued at USD 3.39 billion. Similarly, Bhutan can emulate such success, albeit on a smaller scale, by leveraging its green energy profile and reputation as a carbon-negative nation, and stable infrastructure to attract global demand for sustainable and green data center services.

Apart from GDP contribution, the growth of the data center industries in Bhutan has the potential to realize economic diversification, generate employment, and provide a platform for enabling a new source of foreign exchange. The Economic Development Policy 2016 and the

21st Century Bhutan Economic Roadmap also identifies green data centers industries as a priority sector for Bhutan's economic growth. Besides, the growth of data center industries is essential to lay the foundation and accelerate tech-ecosystems such as fintech, AI, IoT, blockchains, digital businesses, e-commerce, entrepreneurship, emerging technologies and digital transformation initiatives, and has the potential to position itself as a digital hub in South Asia. In addition, the Gelephu Mindfulness City and its anticipated high-end enterprises are also expected to drive demand and create opportunities for the data centers industries.

This industry sector has been therefore prioritized for its alignment with Bhutan's comparative advantages and needs through clean energy, sustainability development, resilience and adaptability, foreign investment attractiveness, political stability, potential to contribute to GDP, economic diversification, and the direct and indirect employment generation.

However, Bhutan's data center sector also presents some of the key issues which include the limited high-speed internet connectivity and absence of redundancy in internet connectivity where Bhutan does not have a direct access to the submarine cable connectivity nor has reliable redundant internet gateway links. Additionally, lack of a dedicated policy framework or strategy document on data centers also creates a bottleneck. This is compounded by high energy demands for data centers that may strain Bhutan's hydropower resources, particularly as domestic consumption rises where electricity consumption surged by 61.76% in 2023 (*Power Data Book, 2023*), and projections indicate that by 2026, local demand may surpass production by 232% (Druk Green Power Corporation Limited, 2023). Other challenges include skilled technical workforce shortages, bureaucratic licensing processes and clearance requirements that hinder investment. Furthermore, the stiff competition from the already established data center industries in Singapore, China and India may pose a threat to Bhutan becoming a data center hub in the region.

Nevertheless, to capitalize on these opportunities, Bhutan must address policy and regulatory gaps, enhance internet infrastructure, introduce investment incentives such as tax waivers on data center equipment, and explore alternative energy to supplement existing power supply. Strengthening local IT workforce development and securing alternative internet connectivity routes via Bangladesh, India, Myanmar, or exploring satellite-based solutions and direct connectivity to submarine cable will be crucial in positioning Bhutan as a competitive destination for hyperscale data center investments.



## 3.2. Situational Analysis (SWOT)

Strengths	Weaknesses
<p><b>Abundant Potential for Green Energy:</b> Bhutan has access to low-cost, renewable hydropower with 2,334.1 MW installed, potential capacity of 4,672.1 MW (<i>Power Data Book, 2023</i>) after ongoing projects are completed. Bhutan also has an estimated hydropower potential of 36,900MW (Bhutan Sustainable Hydropower Development Policy, 2021) which the data centers can leverage on.</p> <p><b>Green Branding Potential:</b> Carbon-neutral power enables Bhutan to offer sustainable data center solutions attractive to global tech giants.</p> <p><b>Favorable Climate:</b> Favorable climate with natural cooling reduces cooling costs and energy consumption for data centers.</p> <p><b>Government Support:</b> There is strong government support for ICT development in Bhutan. Policies like Digital Strategy 2024 and ICM Act 2018 support sector growth.</p> <p><b>Stability:</b> Ranked as the most peaceful country in South Asia; low corruption (18th globally in 2024).</p> <p><b>STEM Education and R&amp;D Focus:</b> Foundation for long-term capacity development in digital and ICT sectors are encouraged through STEM programs and R&amp;D activities.</p> <p><b>Strategic Location for South Asia</b> - Strategic location in South Asia including proximity to India and Bangladesh and South East Asia provides market access and potential positioning as a regional hub and thus providing additional competitive market advantages.</p>	<p><b>Limited High-speed Internet Connectivity:</b> Bhutan does not have a direct access to submarine cable; limited existing total internet gateway bandwidth where Bhutan currently has only 84 Gbps of International Private Leased Circuit (IPLC) bandwidth (40 Gbps for BTL and 40 Gbps for TIPL, and 4Gbps for NANO) which is significantly lower than the 100 Gbps to 1 Tbps required for a hyperscale data center.</p> <p><b>Lack of Internet Redundancy:</b> The internet gateways in Bhutan rely on India's infrastructure and converge in Siliguri, creating a single point of failure (<i>Kingdom of Bhutan Digital Economy Development and Transformation Strategy, 2023</i>), which makes the country less attractive for global cloud service providers such as Amazon Web Service (AWS), Google, Microsoft, Meta etc which require more than 100 Gbps internet connectivity and secure redundancy (Birch, 2021). Besides, there is also a limited alternate route redundancy for local OPGW fiber and limited power connectivity which is high risk for hyperscale data centers.</p> <p><b>High Internet Costs:</b> BTN 550 per Mbps/month, significantly higher than regional and international peers.</p> <p><b>High Capital Expenditure and Logistical Challenges:</b> Mountainous terrain, no port access, and there are transportation and logistics issues for heavy infrastructures, limited air connectivity and transport.</p> <p><b>Limited Skilled Workforce:</b> Shortage of skilled data center professionals and moreover the issue of brain drain to other countries.</p> <p><b>Regulatory Gaps:</b> Lack of dedicated data center policy framework or strategies which may create uncertainty for investors.</p> <p><b>Power Reliability Risks:</b> Current insufficiency of power, seasonal hydropower generation variability leading to potential shortages during lean periods, limited power substations infrastructures.</p> <p><b>Limited Domestic Market:</b> Less demand from the domestic market for data centers.</p>

Opportunities	Threats
<p><b>Green Data Center Niche:</b> Bhutan can brand itself as a destination for climate-friendly and carbon-neutral data hosting.</p> <p><b>Foreign Direct Investment Potential:</b> FDI-friendly policies and tax incentives can attract global hyperscale data centers.</p> <p><b>Policy Incentives:</b> Opportunity to develop targeted incentives (tax waivers, subsidized land and energy).</p> <p><b>Digital Transformation Initiatives:</b> Domestic demand rising from e-commerce, digital finance, innovation, enterprises need, rising digital ecosystem and economy has the potential to increase demand for data centers.</p> <p><b>Gelephu Mindfulness City:</b> High-tech enterprises in GMC are expected to create demand for secure and sustainable data center infrastructure and services.</p> <p><b>Alternative Connectivity Options:</b> Possibility to explore submarine cable links via Bangladesh/India/Myanmar and also explore satellite gateways, third International Gateway</p> <p><b>Support in STEM:</b> Strong support for STEM education - capacity development in the near future.</p>	<p><b>Strong Regional Competition:</b> Presence of matured data center industry and markets in India, Singapore, and China overshadow Bhutan's early-stage offering.</p> <p><b>Climate Change Impacts:</b> Monsoon irregularities, glacial lake outburst floods could affect hydropower reliability.</p> <p><b>Cybersecurity Gaps:</b> Lack of strong cybersecurity frameworks and readiness may deter clients needing high security standards.</p> <p><b>Infrastructure Bottlenecks:</b> , limited cargo connectivity and flight connectivity.</p> <p><b>Energy Security for Hyperscale DCs:</b> Growing domestic power demand and other power intensive industries may limit ability to supply required power to hyperscale data centers.</p>

### 3.3. Vision and Expected Results

#### Vision:

To position Bhutan as a green and eco-friendly destination for technology investments, and establish world-class data center infrastructure that drives inclusive economic growth, fosters digital innovation, and supports a technology-driven knowledge society, aligning with GNH and global sustainability trends.

#### Expected Results

- It is expected that the data center industries alone will:
- Contribute a minimum of 2% - 4% to national DGP by 2035.



- Generate over at least 2500 employment during initial establishment and over 1000 high-paying and skilled jobs for the operation after the establishment.
- At least build a 50-100MW hyperscale data center worth USD 450 million through FDI within 2035.

### **3.4. Strategic Interventions and Action Plan**

To attract foreign investments in data centers in Bhutan and enable the growth of data centers, various strategic interventions and action plans are critical to be adopted or implemented including the appropriate policy and regulatory support, appropriate infrastructure and logistics support, skills and capacity enhancement, financial and tax incentives.

#### **A. Policy and Regulatory Support**

The proper policy and regulatory instruments are critical for instilling confidence in the investors and laying a strong foundation for the growth of the data center sectors in Bhutan. A comprehensive policy or strategy is necessary to create an ecosystem that supports investment, innovation, long-term sustainability along with outlining proper establishment and operationalisation of data centers in Bhutan. The following policy and regulatory support interventions are therefore recommended to encourage data centers investment in Bhutan:

##### **a. National Data Center Strategy**

A dedicated National Data Center Strategy is essential to ensure investment appeal, efficiency, security, and sustainability while guiding the subsequent development of related guidelines and frameworks. This strategy may include, but is not limited to, the following:

- Rationale behind prioritisation of the data center sector.
- Highlights on the category of FDI data centers that Bhutan intends to establish.
- Expectations from data center sectors towards economic growth.
- Framework guidance for various structural and regulatory interventions as well as requirements regarding approvals for operationalisation of data centers.
- Guidance on the long term development of hyperscale and other data centers.
- An access to critical infrastructure and resources like energy, high-speed connectivity and land.
- Clarity and requirements in establishment of FDI, joint ventures and partnerships in setting up data centers.

- Emphasise on investment promotion and incentivisation mechanisms in the sector.
- Quality and operational standards.
- data sovereignty requirements and regulations.
- Capacity building needs and priorities.

#### **b. Data Protection Laws**

It is also important to come up with the Data Protection Laws which can attract FDI in data centers by creating a stable, trustworthy, and predictable data protection regulatory environment. Clear data protection laws can signal that a country takes privacy and cybersecurity seriously and can reduce legal and reputational risks for foreign investors handling sensitive customer or enterprise data. Sectors like cloud computing, fintech, AI rely on data trust and when laws are in place to protect that data, international tech firms are more willing to invest, knowing users and clients feel safe using their platforms.

#### **c. Review the regulatory processes and licensing of domestic and FDI data centers in Bhutan.**

Currently the licensing of data centers are categorised under the ICT Facility and Service License issued by the Bhutan InfoComm and Media Authority (BICMA) and does not have a specific licensing regime rather is categorised under ICT Service and Facility license. Whereas, the licensing of FDI data centers are issued with FDI registration by the Department of Industry with the clearance approval from the Govtech Agency and later also licensed by the BICMA under the ICT Facility and Service license. There is a need to develop a clear licensing process, systems and structure for data centers along with other regulatory requirements.

#### **d. Sandbox based regulations**

The hyperscale FDI data center licensing in Bhutan by virtue of being a new venture, Bhutan can also offer a Sandbox based regulation with a structured yet flexible approach. Sandbox based regulation especially in terms of technical regulation can help Bhutan learn about hyperscale infrastructures and adapt regulations as needed, while companies can fine-tune operations based on local conditions. A sandbox can give foreign investors confidence that Bhutan is open to innovation and will not impose rigid or unpredictable rules from the start. It can also help regulators to customize regulations that suit the country without undermining the security and local issues. By implementing forward-looking regulatory tools like sandboxes, Bhutan can position itself as a progressive, innovation-friendly destination for data infrastructure.

**e. Review existing FDI Regulation of Bhutan 2019.**

Currently there is no mention of dedicated FDI category for data centers since the data centers are not clearly defined under the existing FDI priority sectors although it is clubbed under IT/ITES services which lacks a clear definition. It is either important to provide a clear definition of IT/ITES services or recognise data centers as a priority sector specifically in the FDI policy. Moreover, a clear mention of allowing a maximum of 100% FDI in data centers under strict regulatory oversight is also required for encouraging the hyperscale FDI in data centers.

**f. Review land lease period**

Review the maximum land lease period allowed in Bhutan to enable long-term land lease options for hyperscale data center projects to provide confidence in the FDI investors. According to the Rules and Regulations for Lease of Government Reserved Forest land and Government Land (*Land Lease Rules and Regulations of Bhutan, 2009*), the maximum land lease allowed is 30 years and extendable. However, the period of 60–99 years is preferred in many markets, especially in tech hubs or strategic locations, as it provides long-term stability and justifies the capital expenditure. For instance, land in Singapore is often leased for 99 years and such a long term lease model supports significant infrastructure investments, including data centers. In Australian Capital Territory (ACT), all land is held under 99 year leases, providing long-term security for substantial developments like data centers (*99 Year lease, Wikipedia*). Therefore, there is a need to review the maximum land lease period in order to attract the hyperscale FDI data centers in Bhutan.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>National Data Center Strategy</b>	Develop a comprehensive National Data Center Strategy which will provide guidance for data center sector growth and create a conducive ecosystem for data center establishment including the attraction of foreign data centers in Bhutan.	Draft completed and endorsed by Cabinet; National Data Center Strategy launched.	GovTech	DoI, BICMA, MoF, NLC, DGPC, BPC, DoE, DHI, ,
<b>Data Protection Laws</b>	Develop a comprehensive Data Protection Laws	Draft completed and endorsed by Cabinet; Data Protection Laws launched.	GovTech	OAG, BICMA

<b>Pitch Document to attract FDI data centers in Bhutan</b>	Develop a detailed pitch document to attract the hyperscale FDI data centers in Bhutan.	Pitch Document to attract FDI Data centers developed and published.	GovTech	DHI, BICMA, BPC, DGPC, DoE, MoF, NLC, DoI
<b>Licensing Processes and systems</b>	Develop a comprehensive licensing processes and methodologies for domestic and FDI data centers including the licensing details, categorisation of data center Tiers, technical standards etc to provide a clear regulatory licensing framework for data center sector.	Inclusive Licensing framework for Data Center developed.	BICMA	GovTech, DoI
<b>Sandbox Regulation</b>	Allow sandbox regulation with a structured yet flexible approach on data centers. A sandbox regulation can give foreign investors confidence that Bhutan is open to innovation and will not impose rigid or unpredictable rules from the start.		BICMA	GovTech, DoI
<b>FDI Regulations of Bhutan</b>	Review existing Foreign Direct Investment Regulation of Bhutan 2019 and clearly spell out the data centers under the priority sector and provide a clear definition and category of IT/ITES services including the allowing of 100% FDI in data centers.	Foreign Direct Investment Regulation of Bhutan revised and developed with clear inclusion of Data Centers as a priority sector and a detailed definition inclusion.	DoI	DRC, GovTech, BICMA
<b>Land Lease period regulations</b>	Review the maximum land lease period allowed in Bhutan from 30 years where there is a need to introduce long-term land lease options for hyperscale data center projects to enable confidence in the FDI data center investors.		NLC	DoI, GovTech, BICMA
<b>Single window clearance and licensing</b>	Enhance single-window clearance for data center licensing	Single window clearance and licensing developed and implemented.	DoI, BICMA	GovTech

## B. Infrastructure and Logistics Development/ Enhancement

Infrastructure readiness such as high-speed internet connectivity, energy and availability of advanced logistic infrastructures are some of the most important factors which will attract both domestic and FDI data centers in the country.

The following infrastructure and logistics enhancement interventions are therefore recommended:

**a. Access to Submarine Cable**

One of the key factors for the attraction of hyperscale data centers is the availability of high-speed internet connectivity where it requires a minimum connectivity bandwidth of 100Gbps (*Comparing the cloud computing giants, 2025*) as mentioned in the table below.

Type of Data Center	Minimum Bandwidth Requirement
Small Data Center (Local IT services, small businesses)	1 Gbps – 10 Gbps
Medium Data Center (Cloud services, enterprise workloads)	10 Gbps – 40 Gbps
Enterprise Data Centers (corporate infrastructure)	40 Gbps – 400 Gbps
Large Data Center (Hyperscale, global cloud providers such as Google, AWS, Microsoft Azure)	100 Gbps – 1 Tbps or more

It is learned that the success behind the hyperscale data centers establishment in Ireland is the availability of a broad array of transatlantic connectivity. Connectivity from Ireland to the UK and Europe is currently supported by 14 undersea fibre cables (*A Study of the Economic Benefits of Data Centre Investment in Ireland, 2018*). Two further fibre cables have also been announced, the Arctic Fibre and IFSC projects (*Ireland France Subsea Cable*). Similarly Singapore is also successful in being a data center hub as it serves as a major hub for submarine cables, with 26 cables landing across three sites and plans are also underway to double the existing capacity (*EDB Singapore, 2023*). Switzerland, although a landlocked country, is also a successful data center hub which has attracted hyperscale data centers such as Google, AWS and Equinix. It is because Switzerland is connected to global internet infrastructure through submarine cable landings in France, Italy, Germany, and the Netherlands. These cables come ashore in coastal cities and then continue inland via high-capacity fiber-optic backbone networks to major Swiss cities such as Zurich, Geneva, Basel and Bern. Switzerland has a dense fiber-optic network that connects data centers to key business and finance hubs across Europe.

Such high speed internet connectivity and gateway can be achieved by establishing direct peering with submarine cable systems and securing partnerships with Tier 1 Internet Service Providers and global carriers. For instance, nearest submarine cable landing stations that Bhutan can seek access to are;

- Kolkata, India for Bay of Bengal Gateway (BBG) and the South East Asia–Middle East–Western Europe 4 (SEA-ME-WE 4) systems,

- Chennai, India for India–Middle East–Western Europe (IMEWE) and SEA-ME-WE 4 systems,
- Cox’s Bazar, Bangladesh for SEA-ME-WE 4 and SEA-ME-WE 5 submarine cable systems (*Aquacomms Submarine cable map, 2025*).

However, currently Bhutan does not have such high speed submarine cable connectivity access rather than internet gateway connectivity with only 84Gbps bandwidth which may not be fulfilling the demand of hyperscale data centers. It is critical that Bhutan explore and establish an access to undersea submarine fiber-optic cables through India or Bangladesh to attract hyperscale FDI data centers. To access these submarine cables, Bhutan would need to establish cross-border terrestrial fiber-optic links to these landing stations and developing such infrastructure requires bilateral acceptance and agreements, investment in fiber-optic networks, and coordination with regional telecommunications providers.

**b. Leasing of IPLC of minimum 100Gbps bandwidth and Scalability of infrastructure and bandwidth**

It is also important to increase the leasing of existing IPLC bandwidth capacity beyond 100Gbps to cater the demand of hyperscale data centers. The existing IPLC internet bandwidths are leased from Bharti Airtel and Tata Communications, India. The Bhutanese operators will also need to install the infrastructures such as fiber transceiver module called SFP (Small Form-factor Pluggable) used to connect a network device (like switch, router, or media converter) at the point-of-presence (PoP) with the capacity of more than 100Gs and multiple 100Gs capacity. The equipment installed shall be scalable to help enable preparedness towards scaling up the bandwidth requirements whenever required. If such scalable infrastructures are installed at the point of presence, the IPLC bandwidth can be scaled up whenever required based on the demand from the data centers and users through bilateral and commercial discussions with international IPLC providers.

**c. Redundancy in international internet gateway**

The redundancy in the international internet gateway is also one of the most important factors to attract the hyperscale FDI data centers. According to the draft Assessment of International Bandwidth and Last-Mile Connectivity Requirements to Support Digital Trade in Bhutan, the separation of two international internet gateway paths has to be minimum 100km apart, to ensure redundancy. However, Bhutan currently has two international internet gateways, both of which are routed through India but without the required 100km separation, thus posing redundancy doubt. The main entry points for these connections are; Phuentsholing Gateway –

this connects Bhutan to the internet through India's West Bengal region, mainly via connections from Siliguri. And Gelephu Gateway – this provides an alternative route, linking Bhutan to Indian networks through Assam. However, Bhutan's both internet gateways from Phuntsholing and Gelephu converge in Siliguri, India, where fiber-optic cables from Bhutan's two gateways connect to Indian telecom networks in Siliguri hub before reaching global undersea cables which creates a single point of failure and limits true redundancy. True redundancy would in fact require a separate route via a different country (e.g., Bangladesh and Myanmar etc) or undersea cable access. Therefore, a third international gateway for redundancy is critical to be established.

**d. Energy, stable grid and availability of high load substations.**

Data centers require the availability of robust, reliable and stable grid systems and energy for their operations. However, there are challenges in meeting the power energy demand where during the lean seasons, Bhutan usually imports electricity from India. This is compounded by high energy demands for data centers that may strain Bhutan's hydropower resources, particularly as domestic consumption rises where electricity consumption surged by 61.36% in 2023, and projections indicate that by 2026, local demand may surpass production by 232%. While Bhutan has an estimated hydropower potential of 36,900 MW, only 2,334.1 MW is currently installed, with plans to expand to 4,672.1 MW after ongoing projects are completed. Thus, there is still a need to expand the power production capacity to accommodate the demand of data centers energy requirement.

It is also learned that the existing power substations are not capable of handling the load of hyperscale data centres beyond 100MW. As per the Power Data Book of Bhutan Power Corporation limited (*Power Data Book 2023*), there are only a few substations which have the maximum load capacity more than 100MW. For instance, the substations like Simtokha, Dochula, Gedu, Malbase, Jamje, Shigigaon, Damdung and Jigmeling have more than 100MW substations and rest of the substations in the country have less than 100MW capacity. Besides, there are only two substations having 500MW or more than 500MW which are only Jigmeling and Malbase.

It is therefore critical that such power stations with the load beyond 100MW and 500MW have to be allowed to be built by data center companies to support and attract the high load capacity hyperscale data centers.

**e. Redundancy in Power supply**

As per the standards of the data center based on the tiers category, the hyperscale data centers which usually fall in the tier-IV category require a minimum of two simultaneously active power

supply distribution paths for redundancy. The standard for Uptime and EPI, USA (Data Centre Facility Design Standard & Guideline, PPT by SANOG) are as shown in the table below;

*Table: Topology Standard UpTime and EPI*

	Tier I	Tier II	Tier III	Tier IV
Active Capacity Components to Support the IT Load	N	N+1	N+1	N After any failure
Distribution Paths	1	1	1 Active and 1 Alternate	2 Simultaneously active
Concurrently Maintainable	No	No	Yes	Yes
Fault Tolerance	No	No	No	Yes
Compartmentalisation	No	No	No	Yes
Continuous Cooling	No	No	No	Yes
	Rated I	Rated 2	Rated 3	Rated IV
Active Capacity Components to Support the IT Load	N	N+1	N+1	N+N
Distribution Paths	1	1	1 Active and 1 Alternate	2 Simultaneously active
Concurrently Maintainable	No	No	Yes	Yes
Fault Tolerance	No	No	No	Yes
Compartmentalisation	No	No	Yes	Yes
Continuous Cooling	No	No	No	No

*Table: Standards and Certification*

Standard Guideline	UpTime [USA]	EPI based on TIA-942 [USA]	BICSI based on TIA-942 [USA]	SS-507 [Singapore]	EN-50600 [Europe]
Conformity	Tier: I-IV	Rated: 1 - 4	Class: 0 - 4	Pass / Fail	Class: 1 -4
Availability of Standard	Yes	Yes (paid)	Yes	Yes	Yes



Certification	Available	Available	Yes	Yes	Yes
Scope of Topology	<u>Tier Standard</u> Mechanical Distribution <u>OS Standard</u> Other Element	Electrical Mechanical Distribution Architectural Telecom Site Location Safety-Security Efficiency	Electrical Mechanical Distribution Architectural Telecom Site Location Safety-Security	Electrical Mechanical Distribution Architectural Telecom Site Location Safety-Security	Electrical Mechanical Distribution Architectural Telecom Site Location Safety-Security Efficiency
Incorporation	Commercial	Non-Profit	Non-Profit	Non-Profit	Non-Profit
Accreditation	Commercial	Non-Profit	Non-Profit	Non-Profit	Non-Profit
Training Event	Yes	Yes	Yes	No	No
Auditor	UpTime only	Multiple ORG	N/A	Multiple ORG	N/A

In order to attract hyperscale data centers in Bhutan, it is important to ensure that the data centers have two different sources of power to achieve redundancy. For instance, for a data center of hyperscale size, if one of the power supplies is from Chukha power plant, then the other should be from Punatshangchu power plant or any other plant.

**f. Develop Special Data Center Zones to attract investment in hyperscale data centers.**

Data center specialised zones need to be identified considering the factors such as vicinity to the power supply, road infrastructures, robust domestic fiber connectivity such as OPGW fiber presence, redundancy in OPGW fiber in the form of RING network, cool and favorable weather and climate, land topography, non-seismic zones etc. While the specific zone selections narrowed down to a particular area require a detailed coordination and collaboration with the respective sector agencies such as Govtech Agency and National Land Commission, the feasibility of special data center zones at the Dzongkhag level are carried out. The following Dzongkhags were found to be most feasible and appropriate to identify as the data center zones due to the following reasons:

- Trashiyangtse Dzongkhag due to upcoming Kholongchu Hydroelectric Plant and the availability of power transmission lines as well as the OPGW fiber network (BPCL's OPGW connectivity). And also the Dzongkhag is favorably cooler than other central and southern Dzongkhags.

- Bumthang Dzongkhag due to availability of nearby Mangdechhu Hydroelectric Plant and presence of OPGW fiber connectivity. Bumthang Dzongkhag is located in a cold and favorable climate for data centers. Moreover, according to the seismic hazard map of Bhutan done by Indian Institute of Technology, Bumthang Dzongkhag falls in the low seismic zone of Bhutan and less susceptible to the seismic activities.
- Trongsa Dzongkhag due to the presence of Mangdechhu Hydroelectric Plant and the presence of OPGW fiber network. And also the Dzongkhag is favorably cooler than other central and southern Dzongkhags. Trongsa Dzongkhag also falls under the less seismic zone according to the seismic hazard map developed by the Indian Institute of Technology.
- Lhuntse Dzongkhag due to the presence of Kurichhu Hydroelectric Plant and upcoming power plants such as Yungichhu Hydropower Plant and Dorjilung Hydropower Plant. There is also the OPGW connectivity reached to Lhuntse Dzongkhag and the Dzongkhag is favorably cold. Lhuntse Dzongkhag also falls under the less seismic zone.
- Mongar Dzongkhag due to the presence of Kurichhu Hydroelectric Plant and upcoming power plants such as Kuri Gongri Hydroelectric Plant and Dorjilung Hydropower Plant. There is also the OPGW connectivity reached to Mongar Dzongkhag and the Dzongkhag is favorably colder as compared to the southern and central Bhutan. Mongar Dzongkhag also falls under the less seismic zone.
- Haa Dzongkhag due to favorably cold climate and availability of redundancy in ring OPGW fiber network from Thimphu and Samtse and the availability of power transmission line. However, Haa falls under the high seismic zone.
- Zhemgang Dzongkhag due to the presence of the upcoming Chamkharchhu Hydropower Plant and Burgangchhu Hydropower Plant. There is also the OPGW connectivity reached to Zhemgang Dzongkhag and the Dzongkhag is favorably colder as compared to the southern and central Bhutan. Zhemgang Dzongkhag also falls under the less seismic zone.

The figure below shows the OPGW fiber network of Bhutan.

## update date: 09.02.2024



Meanwhile, since the National Land Commission is developing the National Land Zoning of Bhutan which will facilitate the identification of state lands available for strategic purposes like industry development in Bhutan. It is therefore recommended that relevant agencies like Govtech Agency and Department of Industry initiate the identification of data center parks and zones in Bhutan to attract the hyperscale FDI data centers in Bhutan.

The domestic fiber-optic connectivity and redundancy within Bhutan will have to be strengthened as well, with robust last mile connectivity and redundancy. The OPGW network has reached all Dzongkhags except Gasa and Trashiyangtse. However, the OPGW segments of the network have partial ring-architecture providing partial domestic redundancy and it is yet to establish a complete RING network connectivity for reliable domestic redundancy. For instance, Haa, Paro, Samtse, Bumthang, Trongsa and Dagana Dzongkhags still do not have OPGW network redundancy at this time. And it is therefore important that the redundancy OPGW network in all Dzongkhags have to be established to develop a robust redundant domestic network which will also help in attracting the FDIs in the data centers.

The affordability of bandwidth costs is also one of the factors determining the attractiveness to data center establishment. Data centers are attracted to the countries offering the cheaper and

affordable internet bandwidth costs. Bhutan will need to explore reducing internet bandwidth costs to attract the hyperscale data centers as its international internet gateway costs are comparably higher than most of the countries. For instance:

- Switzerland: Users pay around USD 2.07 per Mbps, which is double the cost in Kenya and Morocco, where prices are USD 1.54 and USD 1.16 per Mbps, respectively (Kranjec, 2025).
- Germany: The average cost is about USD 1.04 per Mbps, which is 50% more than in Pakistan (USD 0.53) and 80% more than in Egypt (USD 0.17).
- United States and India: Both countries have relatively low internet costs, averaging USD 0.08 per Mbps.
- China and South Korea offer even cheaper rates at USD 0.05 per Mbps.
- Caribbean Region: In 2023, Martinique recorded the lowest average cost in the Caribbean at USD 0.04 per Mbps, while Cuba had the highest at USD 11.78 per Mbps.
- Eastern Europe: Countries like Ukraine and Romania offer some of the most affordable rates globally, with costs as low as USD 0.04 and USD 0.02 per Mbps, respectively.
- Bhutan currently pays USD 7.00 per Mbps per month for the internet gateway through Siliguri corridor (*Business Bhutan, May 17, 2023*). In 2023, Bhutan negotiated a third international internet gateway through India and Bangladesh at a subsidized rate of USD 4.5 per Mbps per month. This rate includes USD 3.85 per Mbps to be paid to Bangladesh and a reduced charge of USD 0.65 per Mbps for the Indian segment, with a subsidy from the Government of India. However, the third international gateway is yet to be materialised.

Therefore, it is important that the reduction in internet bandwidth costs are explored and implemented in order to attract FDIs in data centers.

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Study on establishing an access to internet subsea cables Service Providers</b>	Formation of steering or task group and initiate the feasibility study to access the nearest subsea internet gateway connectivity and installation of dark fiber connectivity to the nearest subsea cable.	Feasibility study to access the nearest subsea cable conducted by the task force group.	GovTech	BICMA, Telecom operators, Private Internet Service

				Providers, MoFAET
<b>Third Internet gateway</b>	Establish a third international internet gateway (via Bangladesh) for internet gateway redundancy.	Third international gateway established.	GovTech	Telecom operators, BICMA
<b>International bandwidth Aggregation and Leasing of more than 100Gbps</b>	Initiate and lease a minimum of 100Gbps connectivity through aggregation of bandwidth in IPLC to attract FDI in data centers.	Leasing of more than 100Gbps achieved	GovTech	Telecom operators, BICMA
<b>Installation of scalable fiber SFP module devices</b>	The domestic internet gateway operators such as BTL, TIPL and NANO and the OPGW service providers install scalable and high capacity SFP module devices at the PoP.		Telecom operators and Internet Service Providers	GovTech, BICMA
<b>Domestic OPGW Redundancy</b>	Initiate and install OPGW redundancy connection to Dzongkhags which does not have the OPGW redundancy and strengthen the redundancy in fiber network among Dzongkhags.		GovTech, BPC	MoF, Telecom operators, Internet Service Providers
<b>Study Demand and Supply of Power</b>	Carry out the detailed study on the demand and supply forecast of energy to support the domestic and FDI data center establishment (in the identified Dzongkhags) considering the long-term period investment and innovations in data centers in Bhutan.	Study report on demand and supply forecast of energy to support domestic and FDI data center establishment (in the identified Dzongkhags) considering the long-term period investment and innovations in data centers in Bhutan published.	DoE - MoENR, GovTech	BICMA, DoI, Data center industries, DGPC, BPC

<b>Data Center Special Zones/Perks</b>	Identification of special data center zones or parks for data center establishment with necessary infrastructure like road connectivity, availability of water, availability of power, availability of high capacity network. The steering/task group spearheaded by Govtech agency in collaboration with representatives from National Land Commission of Bhutan, Department of Industry, BICMA and private sector etc to explore and identify the suitable area and locations coordinates narrowed down from the recommended Dzongkhags to attract establishing the hyperscale data centres.	At least two data center special zones identified.	Dol and GovTech	BICMA, NLCs, Data Center Industries, DHI, Environment Commission of Bhutan,
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## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Access to subsea internet gateway cables</b>	Complete and realise the direct access connectivity o to submarine cables.		GovTech	BICMA, DHI, Telecom operators, Private Internet Service Providers
<b>Scale up Hydropower and renewal energy productions capacity</b>	Expand the production of hydropower and renewal energy for data centers, building sustainable energy infrastructures.		DGPC, DOE MoENR	BPC, MoF
<b>Secure partnerships with global hyperscale data centers</b>	Develop Tier-3 and Tier-4 data centers with international standards and secure the hyperscale FDI data center establishment in Bhutan	At least a hyperscale data center approved or established in Bhutan	Dol	GovTech, DHI, BICMA, Private Sectors

## C. Investment, Incentives, and Taxes

The data center establishment requires high capital investments as it needs installation of intensive hardwares, network equipment, power equipment, cooling equipment, softwares and other resources such as land, constructions and utilities. Due to these high production costs, the data center sector in Bhutan requires targeted tax incentives and subsidized financing to attract high scale data center investments.

While the overall incentives are mentioned in the separate Chapter: Incentives for Industrial Development, some of the specific incentives required for data center industries are;

- a. Provide import duty exemptions for essential data center equipment including network equipment, power equipment, cooling equipment and data center software.
- b. Offer performance based tax incentives.
- c. Provide incentives for companies using renewal energy, green cooling technologies like liquid cooling and AI-driven efficiency.

## D. Capacity Building

Enhancing the data center sector also requires interventions in capacity and skills development to ensure efficiency, growth and scalability. There is a need for a skilled workforce with strong technology skills including data center operations, management and maintenance. The interventions for enhancing domestic capabilities in enhancing data center sector are;

## Implementation Plan- Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	Lead Agency	Collaborating Agencies
<b>Inclusions of modules in Education Curriculum and vocational training programs</b>	<p>Introduce data center modules/chapters in IT and engineering, and vocational, and STEM curricula. The modules can contain areas related to data center networks, data processing, data center management and operations, trouble shooting and maintenance.</p> <p>Offer certifications aligned with global standards (e.g., Uptime Institute, CompTIA).</p>	MoESD, RUB	GovTech, DHI, Data Center Industries

<b>Skill-Based Training &amp; Upskilling</b>	Launch and implement hands-on and workforce training programs, certifications and upskilling in areas like digital and cloud technologies, data center management, networking skills; Cisco CCNA, CCNP, SDN training, cooling, cabling, data center security, and DC operations.	GovTech	DHI, BICMA, DoI, MoESD
<b>Skills and Knowledge Transfer</b>	Initiate partnerships with international companies and global tech firms for technology transfer and knowledge sharing.	Private sector	GovTech, DHI, BICMA, DoI, MoESD
<b>Internships</b>	Facilitate internship programmes in data center operations, management and troubleshooting.	Domestic Data Center Industries	GovTech, DHI, BICMA, DoI
<b>Participation in International Expos as well as initiatives to host expert-led local workshops</b>	Support and initiate participation of industries, officials and youths in international seminars and conferences on data centers. Also partner with global data center firms and initiate local seminars and workshops led by global experts .	GovTech	RUB, DoI, Telecom operators, Internet Service Providers, DHI, Industries,
<b>Continuous capacity building programs for government officials and industry personnel</b>	Design programs for continuous capacity building amongst government officials and industry personnel on Data Centre and cloud technologies, data classification, storage policies, data security, data center standards, its operations.	GovTech	Industries, Government offices, BICMA, DHI
<b>Research and Innovation Labs</b>	Establish Research & Innovation Labs for Data Centers and develop AI, cloud computing and blockchain labs. And partner with international research institutions for collaborative projects.	GovTech	Private sectors
<b>Industry Academia Linkage</b>	Strengthen Industry Academia linkage related to data centers and ICT technologies.	GovTech	Private sector, RUB, DHI,





## 4. Education Industries

### 4. 1. Background

The education industry is a vital sector that plays a fundamental role in shaping the socio-economic trajectory of a country. Driven primarily by public investments, evolving workforce needs and technological advancement, the sector is not merely a service sector, but a key strategic industry valued globally at US\$ 7.6 trillion (HolonIQ, 2025). The sector in Bhutan is equally important as the country aspires to become a knowledge-based society and a developed nation by 2034.

Bhutan's education system, rooted in the principles of Gross National Happiness, has seen steady progress in expanding access and improving quality across all levels. As the country seeks to diversify its economy and build a knowledge-driven society, the education sector has become a strategic focus in Bhutan's Industrial Development Roadmap.

Despite the potential to emerge as a global education hub rooted in the principles of values and sustainability that the world is increasingly seeking, the country currently faces significant capacity challenges, particularly within the tertiary education sector. According to the Annual

Education Statistics 2024 (Ministry of Education and Skills Development, 2024), less than 50% of high school graduates are admitted into domestic colleges and universities, with a substantial number of students seeking higher education opportunities abroad.

The National Education Policy 2025 encourages 40% of students passing grade XII towards higher education, which implies that the remaining 60% of students will have diverse pathways to choose, including technical and vocational education. Additionally, the increasing number of students seeking higher education abroad suggests not only a gap in the availability of quality technical education institutions within the country, but also a mismatch between the aspirations of the students and the intent of the Education Policy. Therefore, the education sector, particularly in the tertiary and technical sector, provides a massive reservoir of untapped opportunity for private sector participation.

This is further intensified by the projections of the National Statistics Bureau's Population Projections of Bhutan (2017–2047), which shows that more than 45,000 Bhutanese are expected to fall within the 19–22 age group, most of whom are likely to pursue tertiary education. Additionally, around 23,000 individuals will be in the 17–18 age group, typically aligned with higher secondary education, while approximately 96,764 will be in the 6–16 age bracket, corresponding to primary and middle secondary education. The Bhutan Living Standard Survey 2022 (National Statistics Bureau, 2022) further highlights that the proportion of students studying abroad increases with the level of education. While nearly all students at the primary and secondary levels study within Bhutan, about 4% of those pursuing certificate or diploma programs and 18% of those at the bachelor's degree level or higher seek education abroad. Overall, 94% of students attend public institutions, while only 6% are enrolled in private schools or institutes, with private sector participation increasing at higher levels of education.

These trends point to a growing demand for domestic tertiary education in diverse fields, underscoring the need to expand and strengthen Bhutan's educational infrastructure. Doing so would not only accommodate increasing domestic demand but also help curb the outflow of young talent. In this context, the role of the private sector becomes crucial. The Bhutan Education Blueprint 2014–2024 (Ministry of Education and Skills Development, 2024) explicitly recommends promoting private sector participation, particularly in diversifying and enhancing tertiary education offerings.

Additionally, Bhutan's holistic vision for education aims to cultivate knowledgeable, skilled, creative, and capable citizens (Ministry of Education, 2014). To fulfill this vision, the education system must balance academic instruction with robust co-curricular and extracurricular programming. The Bhutan Education Blueprint 2014 identifies nine key student attributes, including physical well-being, spirituality, and character development, which are areas shaped

through formal and informal curricula, including sports, the arts, and co-curricular activities (Ministry of Education, 2014). Increasing interest in co-curricular and extracurricular disciplines such as performing arts, sports, and creative education has led to rising expectations for specialized institutions. These extracurricular programs not only nurture individual talents but also contribute to holistic development and employment opportunities in emerging cultural and creative industries. In parallel, the national emphasis on STEM (science, technology, engineering, and mathematics) education reflects the country's ambition to drive innovation, foster entrepreneurship, and support industrial diversification.

Despite the presence of policy frameworks aimed at liberalizing the education sector, Bhutan is yet to attract significant foreign direct investment in the sector, primarily due to the lack of a dedicated sectoral policy for FDI in school and tertiary education. This has constrained the development of globally competitive institutions that could better align with the country's evolving labor market needs and potentially position education as a contributor to national exports.

While the sector's direct contribution to GDP remains modest, its broader economic and social importance is profound. Investment in education enhances workforce productivity, supports the competitiveness of other sectors, and builds the foundation for long-term national resilience. The potential for greater private sector involvement offers a promising path to expand access, improve quality, and establish globally competitive, sector-specific training institutions that serve both domestic and international markets.

## 4. 2.Situational Analysis (SWOT)

Strengths	Weaknesses
<p><b>Holistic Education Philosophy:</b> Guided by Gross National Happiness (GNH) values, ensuring holistic and value-based education.</p> <p><b>Political Support:</b> Strong political commitment and sustained public investment in education.</p> <p><b>Improved access and literacy rates:</b> Significant progress in access and quality over the past decades.</p> <p><b>Growing demand for specialized institutions:</b> Increasing interest in vocational, creative, and STEM-based education provides room for private players to establish niche institutions (e.g., music schools, dance academies, coding bootcamps, and sports schools.)</p>	<p><b>Limited domestic intake capacity:</b> Limited intake capacity in tertiary education (less than 50% of high school graduates absorbed).</p> <p><b>Underdeveloped private sector ecosystem:</b> Private education remains concentrated in early childhood and basic education; there are very few private colleges, vocational institutes, or international schools.</p> <p><b>Low FDI Investment:</b> Despite being an FDI-priority sector, investor interest has been low due to the absence of a policy for FDI in school and tertiary education.</p> <p><b>Skills mismatch with labour market:</b> Skills mismatch between graduates and labor market needs. There is also inadequate focus on entrepreneurship and innovation in curricula.</p>

<p><b>Peaceful and Safe Learning Environment</b></p> <p><b>English medium instruction</b></p>	<p><b>Lack of rules and regulations/guidelines/SOPs to attract foreign investments.</b></p> <p><b>Bureaucratic delays:</b> Delayed education reforms, complex FDI processes, and unclear accreditation pathways deter private and foreign investments.</p>
Opportunities	Threats
<p><b>Potential Education Hub for the region:</b> Bhutan's political stability, English-medium instruction, safe environment, and clean reputation position it to emerge as a global education hub.</p> <p><b>Rising domestic demand:</b> The growing youth population coupled with limited capacity within the domestic public education system creates demand for private colleges and international-standard institutions.</p> <p><b>International collaboration &amp; FDI:</b> There is scope for collaboration with foreign universities and direct investments to establish presence in the country.</p> <p><b>Scope for niche and specialized institutions:</b> Emerging interests in co-curricular and extracurricular domains such as swimming academies, archery, film and acting schools, music conservatories open new markets for the private sector.</p> <p><b>Scope for PPP potential:</b> Scope for private sector engagement through Public-Private Partnerships (PPP) and potential to establish sector-specialized institutions (health, ICT, tourism, etc.).</p> <p><b>Online learning:</b> Use of digital and blended learning to expand reach and improve delivery. There is an untapped market for blended learning platforms, coding schools, and online certification programs using digital tools.</p> <p><b>Improve course diversity, choices and facilities</b></p> <p><b>Rising demand for value-based and sustainable education</b></p>	<p><b>Youth outmigration:</b> A large number of Bhutanese students leave to study abroad, and many do not return, resulting in both human capital loss and leakage of educational expenditure.</p> <p><b>Competition from regional markets:</b> Competition from regional education hubs (e.g., India, Nepal, Bangladesh).</p> <p><b>Quality and Relevance Risks:</b> Without strong regulatory enforcement and curriculum updates, private institutions may fail to meet industry standards or produce employable graduates, leading to loss of credibility.</p> <p><b>Policy and Regulatory Uncertainty/Inconsistent government policies:</b> Frequent changes in education policies, guidelines, and regulations can deter private investors. Absence of policy/guidelines for private and foreign investments in education sector.</p> <p><b>Accreditation challenges:</b> Unclear accreditation processes reduce investor confidence in the long-term viability of private institutions.</p>

## 4. 3. Vision and Expected Results

### Vision:

To transform Bhutan into a globally recognized hub for inclusive, holistic, and value-based education that fosters innovation, creativity, and future-ready skills; fully meeting domestic demand and attracting international students through excellence in niche disciplines, while contributing meaningfully to economic diversification and growth.

### Expected Results:

- **Enhanced Domestic Tertiary Capacity:** At least 90% of high school graduates are absorbed into domestic higher education institutions, reducing reliance on overseas education.
- **Increased Private Sector Participation:** Private and international institutions account for at least 20% of tertiary and technical education enrolments, supported by strong quality assurance systems.
- **GDP Contribution Growth:** Overall contribution to GDP increases to 8% by 2035, driven by private sector participation, FDI, and the growth of education tourism.

## 4. 4. Strategic Interventions and Action Plan

Bhutan's education system has made notable progress in expanding access and improving quality over the past decades. However, as the nation undergoes digital transformation, economic diversification, and demographic shifts, there is a need to review existing education policies to meet contemporary challenges and opportunities, particularly in the context of private sector engagement and Foreign Direct Investment (FDI) in the education sector. Therefore, the interventions are recommended.

### A. Policy and Regulatory Support

- a. Establish a Single Window Clearance Platform to create a streamlined channel for educational institutions to get faster registration, land lease, and license clearances.
- b. Establish a dedicated regulatory framework, guidelines, and standards for private and foreign educational institutions, including transparent accreditation guidelines and

performance metrics.

- c. Develop a National Education Conservation Policy to protect core national values, cultural identity, and national language (Dzongkha) for Bhutanese.
- d. Draft and adopt National HRD Masterplan/framework to align its education and workforce systems with national priorities which will enable it to identify and address current and future skill needs, ensuring a competent, future-ready workforce.

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Establish a Single Window Clearance Platform to create a streamlined “green channel.”</b>	Review existing approval processes for private/foreign participation in the education sector.	Reduce average approval time for private/foreign education sector participation by 25% by Q4 2028.	MoESD	MoHA, MoICE, NLCS
	Draft and pilot simplified approval guidelines (licensing, land, visa, work permits)	100% of new applications processed using simplified guidelines by Q4 2028.	MoICE	MoHA, MoESD
	Adopt a time-bound regulatory flexibility to encourage private sector participation in the education sector: sand box.	Establish at least 2 sandbox initiatives for private education sector participation by Q4 2028.	MoICE	MoESD, RUB
	Integrate and operationalize the issuance of sector clearance from MoESD, including land acquisition for education services within the Single Window Clearance platform (IBLS).	100% of MoESD sector clearances integrated into IBLS BY Q4 2028.	MoICE	MoESD
<b>Establish a dedicated regulatory framework for private sector participation</b>	Conduct gap analysis of current education regulations	Complete gap analysis and present findings by Q4 2026.	MoESD	MoICE, RUB
	Draft new guidelines on the regulations/requirements/standards and procedures for private & foreign participation in the education sector	Draft guidelines submitted for approval by Q2 2027.	BQPCA	MoESD, MoICE
	Encourage and implement diverse sector-specific accreditation models (eg. Music school, ICT, sports, performing arts, etc) for private sector setup.	Develop and implement at least 3 new sector-specific accreditation models by Q4 2028	BQPCA	MoICE, MoESD

	Strengthen the legislative and regulatory framework to ensure Policy consistency and sectoral stability.	Policy consistency index score improved by 15% BY Q4 2031	BQPCA	MoICE, MoESD
<b>Develop a National Education Conservation Policy</b>	Draft and implement National Education Conservation Policy Framework	Policy framework drafted and approved by Q4 2027.	MoESD	DDC, MoHA
	Develop and issue guidelines for public, private, and international schools on minimum cultural standards	Guidelines issued and disseminated to all schools by Q2 2028.	MoESD	MoHA
<b>National HRD Plan</b>	Develop the National HRD Masterplan to guide curriculum design to cater to current and future market demands.	National HRD Masterplan approved and implemented by Q4 2031	OCASC	MoESD, MoICE

## B. Promotion of industries/value addition

- Encourage sector-specific institutions (e.g., ICT, film, media, sports, etc) through Public Private Partnership (PPP) - by allowing new institutions to operate temporarily from public campuses or unused facilities, partnering with government agencies to design courses aligned with sectoral workforce needs, offering shared access to public research labs, sports complexes, or creative studios.
- Introduce national rankings/award programs for private educational institutions in niche sectors to build prestige.
- Support MOUs between Bhutanese and foreign institutions for co-branded programs.
- Initiate global partnerships to facilitate alliances with international educational institutions, EdTech firms, and industry leaders for investments in the education sector.



## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Encourage PPP model in education sector</b>	Adopt a shared services and partnership model to support infrastructure standards and encourage shared practices instead of mandating each institution to have its own facilities and burdening individual private education providers.	At least 2 shared service/partnership models adopted by Q4 2028.	MoESD	MoICE
	Develop and implement PPP models for private institutions to use public infrastructure	At least 3 PPP models for infrastructure use implemented by Q4 2031	MoESD	MoF, MoICE
	Pilot co-designed courses in public and private institutions.	5 co-designed courses piloted with positive feedback by Q4 2028.	MoESD	RUB, BQPCA
<b>Recognition and Prestige</b>	Design framework for national ranking/award program for niche institutions	Framework designed and approved by Q4 2027.	BQPCA	RUB, MoESD
	Launch annual national rankings and sectoral awards for excellence in private and public education/training institutes	First annual ranking and awards launched by Q2 2029.	BQPCA	RUB, MoESD
<b>International Collaboration</b>	Develop standardized MOU templates for international education partnerships	Standardized MOU templates approved by Q2 2027.	MoESD	RUB, MoICE, MoFAET
	Establish co-branded programs with regional and international universities.	At least 2 co-branded programs established by Q4 2031.	MoESD	RUB, MoICE
<b>Global Partnerships</b>	Identify and engage potential global partners, including top-ranking educational institutions, leading EdTech firms, and industry leaders	Database of 20+ potential global partners established by Q4 2028.	MoESD	MoICE
	Facilitate global partnerships with educational institutions, EdTech firms, and industry leaders for investments in the education sector	Secure investments/partnerships from at least 3 global entities by Q4 2031.	MoESD	MoICE



## C. Infrastructure and Logistics Development

- a. Develop shared facilities such as libraries, research and development labs, performance halls, and sports complexes that multiple institutions can access to reduce capital burden.
- b. Develop quality digital technologies to support e-learning platforms, virtual classrooms to attract private investments.

### Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/Action	KPI	Lead Agency	Collaborating Agency
<b>Develop shared facilities such as libraries, research labs, performance halls, and sports complexes</b>	Identify and assess existing public and private facilities that could be shared among institutions	Complete assessment of 50 existing facilities by Q4 2026.	MoESD	RUB, MoICE, Private Sectors, LGs
	Draft and adopt a policy/guideline for shared facility access and cost-sharing mechanisms	Policy/guideline adopted by Q2 2027.	MoESD	RUB, MoICE, Private Sectors, LGs
	Launch pilot programs allowing shared access to selected libraries, sports complexes, and labs	Launch 3 pilot programs by Q4 2027.	BQPCA	MoESD, RUB
	Develop and roll out digital booking and management systems for shared facility scheduling	Roll out system in pilot facilities by Q2 2028.	GovTech	MoESD, RUB, MoICE
	Create pooled funding mechanisms (public-private-investor) to build and maintain shared facilities	Establish 1 pooled funding mechanism by Q4 2028.	MoF	MoESD, RUB, MoICE
<b>Enhancing quality and smart technology</b>	Develop a robust digital infrastructure (e.g. internet speed, national digital e-learning platform, equal rural accessibility) to support e-learning platforms, virtual classrooms, to attract private investments.	Develop digital infrastructure roadmap by Q2 2027.	GovTech	MoESD, MoICE

## D. Market Linkages and Support

- a. Host annual education fairs within and outside the country by the private institutions in Bhutan to attract domestic, regional and international students.
- b. Develop an Education Export Strategy targeting students from India, Nepal, Bangladesh, and South-East Asia, leveraging Bhutan's unique brand as a GNH country.

## Implementation Plan- Medium - Long Term (2029-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Education Export Strategy</b>	Develop Bhutan's Education Export Strategy aligned with the GNH brand and regional market opportunities	Strategy developed and approved by Q4 2029.	DoT	MoICE, MoESD, RUB, MoFAET
	Launch regional marketing campaigns, offer regional scholarships, and establish recruitment offices abroad	Launch 3 regional marketing campaigns by Q2 2030	MoESD	RUB, Private Sectors
<b>Promotion &amp; Marketing</b>	Organize Education & Scholarship Expo with regional outreach (India, Nepal, Bangladesh)	Organize 1 expo annually starting Q3 2029.	MoICE	MoESD, RUB, Private Sectors
	Host annual South Asia Education & Skills Expo in Bhutan to showcase national capacity and attract students	Host 1 expo annually starting Q3 2030.	MoICE	MoESD, RUB, Private Sectors
	Develop Bhutan's national education portal listing all accredited institutions with virtual tours and programs	Portal launched with 100% accredited institutions listed by Q4 2030.	GovTech	MoESD, RUB, MoICE, Private Sector
	Design education tourism packages combining short courses with cultural immersion	Design 3 education tourism packages by Q2 2031.	MoICE	MoESD, RUB, Private Sectors

## E. Branding

- a. Create a national education brand focusing on GNH values. Leverage Bhutan's soft power and global identity (carbon-negative, peaceful, culturally rich) to position it as a premium but values-aligned education destination.
- b. Market Bhutan as a niche destination for holistic, wellness-centered, and creative education (e.g., mindfulness schools, arts, and Himalayan studies).

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>National Education Branding</b>	Develop a national education brand that emphasizes GNH values, holistic learning, and Bhutanese identity	National education brand framework developed and approved by Q4 2026.	MoESD	RUB, MoFAET, MoICE
	Create multimedia storytelling content (videos, testimonials, blogs) showcasing Bhutan's unique education ethos	Launch 3 multimedia campaigns by Q2 2027.	MoESD	MoICE, GovTech, RUB
<b>Regional Education Hub Positioning</b>	Position Bhutan as a premium destination for a holistic education brand.	Develop a marketing strategy for premium positioning by Q4 2027.	MoESD	MoICE, GovTech, RUB



## 5. Forestry-Based Industries

### 5. 1. Background

Bhutan boasts abundant forest resources, with a total forest cover of 2.68 million hectares, representing 69.71% of its total land area (Annual Forestry Statistics, 2023). Approximately 27% of these forests fall within protected areas, which include five national parks, four wildlife sanctuaries, and one strict nature reserve. The vast resource is composed predominantly of broadleaved forests which constitute 67.99% of the total forest area, while coniferous forest make up 32.01%. This rich natural heritage is integral to Bhutan's commitment to sustainability and provides a robust foundation for value-added industries.

The forestry sector plays a pivotal role in Bhutan's economy, contributing 2.48% to the GDP in 2023 and demonstrating a consistent growth rate, increasing from 4.07% in 2022 to 5.42% in 2023 (National Accounts Statistics, 2024). According to the Industry Census Report 2024, there are 624 forest-based industries in the country, which constitute 46.9% of the country's Production and Manufacturing sector. These industries include both wood-based (e.g., furniture and timber products) and non-wood-based activities (e.g., essential oils and medicinal plants), showcasing the sector's diversity and dominance within the manufacturing landscape.



Forests also provide substantial social and cultural benefits. They are deeply intertwined with Bhutanese traditions, offering materials for religious artifacts, traditional crafts, and herbal medicines. Moreover, with a global shift toward eco-friendly and sustainably sourced products, Bhutan is well-positioned to capitalize on niche international markets as a premium supplier of high-quality forestry goods.

The development of the forestry sector aligns with Bhutan’s national priorities, including sustainable industrial growth, economic diversification, and maintaining its carbon-negative status. By balancing economic progress with environmental stewardship, Bhutan’s forestry sector has the potential to lead in global markets while reinforcing the country’s cultural heritage and commitment to sustainability.

## 5. 2. Situational Analysis (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Rich and diverse forest resource base (69.71% forest cover)</li> <li>• Established base of 624 forest-based industries; Renewable raw materials with sustainability branding potential</li> <li>• Strong constitutional and policy commitment to environmental conservation</li> <li>• Existing 3-phase electricity sufficient for many wood-based industries</li> </ul>	<ul style="list-style-type: none"> <li>• Conservation policies restrict commercial harvesting (2% harvest ceiling)</li> <li>• Lack of modern harvesting and processing technologies</li> <li>• High production costs due to low economies of scale</li> <li>• Weak institutional capacity to support exports, especially after historical bans</li> <li>• Large waste generation with poor by-product utilization</li> <li>• Limited domestic market demand and purchasing power</li> <li>• Traditional methods dominate leading to low productivity</li> <li>• High transport/logistics costs and inadequate infrastructure in rural/remote areas</li> <li>• No standardization (e.g., windows/doors), limits scaling and product quality</li> <li>• Chemical import restrictions (e.g., methyl bromide ban) impact treatment of wood for export</li> <li>• High capital cost of harvesting equipment (e.g., cable cranes, loaders) discourages private investment</li> <li>• Lack of harmonized classification of raw vs. finished products</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Designation of industry hubs for shared infrastructure, resource access, and waste use</li> <li>• Promotion of value-added products (e.g., CLT, GLT, engineered wood)</li> </ul>	<ul style="list-style-type: none"> <li>• Competition from regional low-cost producers (e.g., India, China, Southeast Asia)</li> <li>• Risk of mislabeling/misuse of import/export policies by the private sector</li> </ul>

<ul style="list-style-type: none"> <li>• Development of wood-based waste industries and charcoal from biomass</li> <li>• Export to niche and emerging markets (e.g., Africa, low-income countries)</li> <li>• Bioprospecting of non-wood forest products (e.g., essential oils, resins)</li> <li>• Carbon trading opportunities (reforestation of barren lands/fire-affected areas)</li> <li>• Local procurement and government standardization policies (building materials, furniture)</li> <li>• Integration with Gelephu Mindfulness City (GMC) and high-value domestic/international markets</li> <li>• FDI attraction for advanced processing and machinery (including in value-added timber products)</li> <li>• Potential for rural employment generation and economic inclusion</li> </ul>	<ul style="list-style-type: none"> <li>• Illegal or grey market imports of wood/furniture affecting the local market</li> <li>• Rising costs and difficulties in acquiring modern harvesting and processing technology</li> <li>• Climate-related threats such as forest fires impacting biomass availability</li> <li>• Weak global positioning and recognition of Bhutanese forest products.</li> <li>• Potential over-extraction if policy reforms outpace monitoring/enforcement capacity.</li> <li>• Export of finished goods constrained by high cost and limited access to economies of scale.</li> <li>• Limited R&amp;D capabilities and innovation ecosystem.</li> </ul>
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## 5. 3. Vision and Expected Results

### Vision:

To develop a competitive, innovative, and sustainable forestry-based products industry that adds high economic value, promotes green jobs, and contributes to Bhutan’s climate goals while ensuring the sustainable use of forest resources.

### Expected results:

- Contribute at least 3% to GDP by 2035 through value added forestry-based products and industries.
- Achieve forestry-based product exports worth at least Nu. 3 billion.
- Create at least 5000 new jobs.

## 5. 4. Strategic Interventions and Action Plan

### A. Policy and Regulatory Support

The Policy and Regulatory framework for forestry-based products in Bhutan is primarily outlined in the National Forest Policy 2011, Forest and Nature Conservation Act (Amendment) 2023 and the Forest and Nature Conservation (Amendment) Rules and Regulation 2023. These

frameworks aim to promote sustainable utilization, value addition, and the overall development of the forestry sector. The Economic Development Policy 2016 also identifies forestry based products under the agriculture sector as one of the priority sectors.

However, there are gaps in policy implementation and coordination among stakeholders, with overlapping mandates between forestry, industry, and environmental agencies creating regulatory bottlenecks.

- a. Review the existing policy and regulatory frameworks.
- b. Adopt different silvicultural management practices based on the type of forest.

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Review the existing policy and regulatory framework</b>	Review the National Forest Policy 2011 to balance conservation and sustainable utilization.	National Forest Policy reviewed and approved by 2027	DoFPS	Relevant stakeholders, Private sector
	Amend the Nature Conservation Rules and Regulation 2023 to: <ol style="list-style-type: none"> <li>Permit large-scale private and community plantations.</li> <li>Facilitate long-term land use rights for industrial forestry.</li> </ol>	Nature Conservation Rules and Regulation amended by 2027	DoFPS	NLCS, Private sector
	Preferential treatment for locally manufactured furniture in schools and institutions in the procurement rules which will promote furniture industries.		DPP	MoESD
<b>Adopt different silvicultural management practices based on the type of forest.</b>	Review or develop national silvicultural guidelines to reflect forest type-specific prescriptions (e.g., broadleaf, coniferous, subtropical, etc.)	National silvicultural guidelines developed by 2026	DoFPS	Research Institutes
	Pilot forest-type specific silvicultural models indifferent forest types		DoFPS	FMU, NRDCL

## B. Enhancing Productive Capacity of the Forestry Based Industry

The Natural Resources Development Corporation Limited (NRDCL) and Forest Management Units (FMUs) have not been able to harvest the timbers allotted by the Department of Forest and Park Services (DoFPS) for annual harvest due to limited technological advancement and

inaccessible harvest areas. In 2023, the FMUs on average achieved less than 50% of the standing volume against the planned standing volume of 173,873.68 m<sup>3</sup> (including both rural and commercial allocations). To address these challenges and enhance productive capacity, the following measures are recommended:

- a. Strengthen the harvesting capacity by deploying cable logging systems where there is no road access.
- b. Enhance the capacity of the processing infrastructure such as sawmills, furniture manufacturing units, Bamboo and cane processing centres and paper and pulp industries.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Strengthen the harvesting capacity</b>	Identify and map potential timber harvesting sites with poor or no road access.	Number of potential timber harvesting sites identified and mapped	DoFPS	NRDCL, Private sectors
	Conduct feasibility studies to determine where cable logging is most cost-effective and environmentally appropriate.	Feasibility study completed for cable logging by 2027	DoFPS	NRDCL, Private sectors
<b>Enhance the capacity of the processing infrastructure such as sawmills, furniture manufacturing units and paper and pulp industries.</b>	Encourage mobile sawmills in remote areas to process timber closer to harvest sites.	Number of mobile sawmills deployed in remote areas	DoFPS, NRDCL	NRDCL, Private sector
	Encourage investment in panel board factories using locally available sawdust, woodchips and residues	Number of new or upgraded wood processing units (sawmills, furniture units, paper/pulp or panel board factories)	DoFPS	Private sector, DoI

## C. Strengthening forestry-based product value chain

The forestry-based product value chain in Bhutan involves multiple stakeholders and processes, from raw material extraction to final product distribution. However, the sector is still at a nascent stage, with limited value addition and weak industrial linkages. To enhance the forestry-based product value chain in Bhutan, a holistic approach is needed, focusing



on sustainable resource management, improved processing technologies and efficient market linkages. The key focus areas include:

- a. Promote value-added industries like modern furniture making, herbal products, bamboo and cane products.
- b. Promote and encourage development of industrial forests for wood-based industries.
- c. Capitalize on waste and byproducts.
- d. Develop integrated forestry product cluster.
- e. Expand and optimize forest resource management.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Promote value-added industries like modern furniture making, herbal products, bamboo and cane products.</b>	Map and prioritize high potential key value chains in forestry-based industry	Number of prioritized forestry-based value chains developed and supported	DoFPS	NRDCL, Private sector
	Outsource smaller manufacturing tasks to private industries, strengthening backward and forward linkages for component production.	Number of industries engaged in component manufacturing	NRDCL, Private sector	Private sector
<b>Promote and encourage development of industrial forests for wood-based industries</b>	Conduct GIS-based mapping to identify degraded or underutilized forest areas suitable for industrial plantations.	Acres of degraded or underutilized forest land identified for industrial plantations.	NLCS, DoFPS	DoFPS
	Develop plantation guidelines and technical manuals for industrial forest management	Plantation guidelines and technical manuals for industrial forest management developed by 2026 and disseminated	DoFPS	NRDCL
	Promote public private partnership for developing industrial forest	Number of PPP projects initiated for industrial forestry development	DoFPS	DoI, Private Sector
<b>Capitalize on waste and byproducts</b>	Assess how the waste can be repurposed for various uses	Assessment conducted on repurposing forestry waste and byproducts by 2027	NRDCL, Private Sectors	DECC, Private Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Develop integrated forestry product cluster</b>	Establish forestry product processing zone/cluster with shared infrastructure (drying, storage, packaging, etc.)	Number of forestry product processing zones/clusters established	DoI	DoFPS, MoIT
<b>Expand and optimize forest resource management</b>	Increase the number of FMUs from the existing 17 FMUs to increase the maximum allowable cut as well as strengthening the capacity.	Number of new FMUs established	NRDCL	DoFPS

## D. Promotion and Development of Forestry-Based Value Addition Industries

The potential areas for value added industries and products is available in Annex 3.

## E. Infrastructure and logistics enhancement

The forestry-based product industry encounters several issues and challenges related to infrastructure and logistics across its supply chain, from timber extraction to processing and distribution. Enhancing infrastructure and logistics in Bhutan's forestry-based product industry is essential for improving efficiency, reducing costs and increasing value addition. The key focus area includes:

- Increase timber production and access.
- Enhancing Transport & Logistics Support to address issues like transportation costs from often remote harvesting areas to processing facilities and export points.
- Strengthening Industrial Infrastructure

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions		Lead Agency	Collaborating Agency
<b>Increase timber production and access</b>	Carry out scientific thinning operations in FMUs and Community Forests (CFs)	Standard thinning guidelines and protocols adopted and implemented across FMUs and CFs	DoFPS	NRDCL, Private Sector

	irrespective of forest types to increase the timber production			
	Allow private sectors to participate in harvesting timber as NRDCL is not able to harvest allocated annual allowable cut	Operational coordination mechanism established between DoFPS, NRDCL, and private operators	DoFPS	Private sector
<b>Enhancing Transport &amp; Logistics Support</b>	Improve transportation and connectivity to extract timber from forest.	Reduction in average transportation time	DoFPS, NRDCL	Private Sector
	Enhance effective utilization of timber, especially broadleaved timbers from the east and central regions.	Market assessment conducted and utilization strategy developed for broadleaved species.	DoFPS	Private sector
	Invest in building forest road networks based on the potential of timber extraction.	Kilometers of forest roads constructed/upgraded in timber-rich areas.	DoFPS, NRDCL	
<b>Strengthening Industrial Infrastructure</b>	Invest in processing units such as sawmills, seasoning kiln and furniture manufacturing industries	Number of Dzongkhags with functional, modern wood processing infrastructure	DoFPS	Private Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Strengthening Industrial Infrastructure</b>	Industrial zone to promote forestry-based industries	Areas in acres allocated for forestry-based industry clusters within industrial zones	DoI, DoFPS	NLCS
	Support establishment of a few large-scale timber/wood seasoning /treatment facilities in Dzongkhags with a larger number of sawmills.	Number of large-scale seasoning and treatment facilities established and operationalized	DoI	MoF, Private sector

## F. Capacity Building

Capacity building is essential to develop a skilled workforce, enhance institutional capabilities, and promote innovation within the forestry-based industry to enhance production capacity of the industry. There is a need to:

- Adopt holistic approach to capacity development of the forestry-based industry from timber harvesting, distribution to supply chain management.

- b. Training and skill development programs to train the local workforce in wood working, furniture making, paper production, etc.
- c. Review the foreign workers allowance to match the industry requirements.

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Adopt holistic approach to capacity development of the forestry-based industry from timber harvesting, distribution to supply chain management</b>	Carry out Skills Needs Assessment of the forestry-based industry (from timber harvesting to value addition industries)	Skills Needs Assessment report endorsed and used for planning capacity-building programs	MoESD	NRDCL, Private sectors
<b>Training and skill development programs to train the local workforce in wood working, furniture making, paper production, etc.</b>	Technical Training Institutes to offer training in enhanced technology and value addition industries.	Number of training programs conducted in key forestry-based skill areas  Training content aligned with current industry standards and market needs	MoESD	Private sector, MoICE
	Diversify short courses for timber harvesting, and wood-based industry	Number of short-term courses developed and offered by the TTIs	MoESD, TTIs	Private sector
<b>Review the foreign workers allowance to match the industry requirements.</b>	Conduct labour demand assessment for the wood-based industries	Critical skills shortage list identified for wood-based industries	DoL and DoEE	Private sectors
	Review the existing quota of two FWs per furniture units based on the the scale of the industry	FWs quota for the furniture units reviewed based on the critical shortage list	DoL	DoI and Private Sector

## G. Technological Adoption

Currently, Bhutan's forestry-based industry relies on traditional and manual processing methods, with limited use of modern machinery and equipment. To improve efficiency, reduce waste, and enhance product value, Bhutan must adopt advanced technology across the forestry value chain.

- a. Promote use of advanced Wood Processing Technologies (Modern Sawmilling & Wood Drying Technologies, Engineered Wood & Prefabricated Furniture Manufacturing, and

Sustainable Paper & Pulp Processing Technologies).

- b. Adopt CNC (Computer Numerical Control) Technology, engineered wood technologies, and automation in manufacturing processes.

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Promote use of advanced Wood Processing Technologies</b>	Subsidize procurement of technological advanced machineries and equipment for both extraction and value addition	Number of wood-based enterprises supported through machinery and equipment subsidies	DoI, MoF	DoFPS
	Support Wood Waste Utilization Technology	Guideline developed to promote and regulate wood waste utilization	DoI	Private sector
<b>Adopt CNC (Computer Numerical Control) Technology, engineered wood technologies, and automation in manufacturing processes</b>	Identify the latest technology and facilitate technology transfer.	Technology landscape mapping completed and disseminated for the wood industry	DoI	Private sector

## H. Market Linkages and Support

The forestry-based products industry especially the wood-based products industry faces intense competition from imported wood products. For exports, challenges include high domestic production costs, difficulties in meeting international standards and certification due to inadequate treatment facilities and limits on exportable species to key markets like India. Enhancing market linkage and market support in the forest-based products in Bhutan requires a multi-faceted approach that addresses supply-side capabilities, market access, and the overall business environment.

- a. Strengthening Market Information and Linkages.
- b. Create a local market for forest products such as incense.
- c. Strengthening Standards and Certification.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Strengthening Market Information and Linkages</b>	Establish a forestry-based products market information system	Number of forestry-based product categories included in the market information system	DoFPS, DoI	NRDCL, Private Sector
		Stakeholders (e.g., producers, traders, consumers) using the market information system		
	Conduct market assessment and value chain studies and identify gaps in supply, processing and distribution	Market assessment and value chain study completed by 2027	DoI	DoFPS
<b>Create a local market for forestry-based products such as furniture</b>	Leverage the public procurement system to restrict public furniture procurement to licensed domestic furniture manufacturers within the country	Public procurement rules revised to include preference or reservation for domestic wood industries	DPP, MoF	DoI, Private sector
		Percentage of government furniture procurement awarded to licensed domestic manufacturers		
	Implement aggressive promotions and advertisements by WBIs and NRDCL to enhance marketing of timber and finished wood products both domestically and internationally.	Increase in the annual domestic sales volume/value of locally manufactured products	WBIs and NRDCL	
<b>Strengthening Standards and Certification for assessing global markets</b>	Support manufacturers in meeting international standards (e.g., forestry certifications like FSC for sustainable timber, organic certifications for NWFPs)	Number of wood-based or NWFP enterprises certified under internationally recognized standards	DoFPS	BSB
	Facilitate fumigation requirements in order to make our products competitive in both the domestic and export market.		DoFPS	MoICE

## I. Branding and Global Marketing

Bhutan's rich natural resources and traditional craftsmanship offer strong potential for Geographical Indication (GI) registration and branding in the forestry-based product industry. GI certification can enhance the export potential of Bhutanese forestry-based products.

- a. Initiate GI application processes for the forestry-based products having potential for GI.
- b. Strengthen the "Grown in Bhutan" and "made in Bhutan" initiatives by aligning them with sustainable forestry certification.

### Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Initiate GI application processes for the forestry-based products having potential for GI</b>	Identify potential forestry-based products for GI certification (Example Desho paper, cordyceps, lemongrass oil, etc)	Number of forestry-based products identified with GI potential through expert consultations or studies	DoMCIIP	DoFPS, MoENR
<b>Strengthen the "Grown in Bhutan" and "made in Bhutan" initiatives by aligning them with sustainable forestry certification.</b>	Facilitate GIB and MIB for forestry-based products.	Documentation prepared in line with national and international GI registration requirements	DoT	DoFPS, MoENR



## 6. ICT Industries

### 6. 1. Background

Bhutan's Information and Communication Technology (ICT) sector currently contributes only 2.93% to the national GDP (National Accounts Statistics, 2024), yet it holds immense untapped potential to drive economic diversification, employment, and innovation. As global demand for digital services continues to rise rapidly, Bhutan stands at a strategic juncture to develop a competitive ICT industry, supported by the Royal Government's Digital Economy & Transformation Strategy (2024) and the FDI Policy (2019). Sub-sectors such as Business Process Outsourcing (BPO), Knowledge Processing Outsourcing (KPO), Software Development, and Decentralized Technologies (e.g., blockchain) offer significant opportunities for global integration. However, critical barriers remain, including insufficient digital infrastructure, high internet costs, limited connectivity in rural areas, and a shortage of specialized talent in emerging fields like AI, machine learning, and blockchain. Despite a growing digital ecosystem, only 1% of Bhutan's 370,479 employed persons are engaged in the ICT sector (Labour Force Survey, 2024), highlighting the urgent need for targeted skill development and improved educational pathways.

The ICT sector was chosen as a priority area due to its transformative potential to reshape Bhutan's economy by aligning with national priorities such as sustainability, youth employment, and innovation. Unlike traditional sectors, ICT offers a scalable, low-carbon pathway to development that fits well within Bhutan's Gross National Happiness (GNH) framework.



Strategic investment in this sector could position Bhutan as a niche destination for high-quality, ethical, and sustainable tech services, especially for global markets seeking socially responsible outsourcing solutions. Challenges such as gaps in data protection regulation, weak branding, limited R&D incentives, and absence of strategic international partnerships must be addressed through public-private partnerships, tech hubs, innovation centers, and collaboration with global tech firms. With clear policy direction under the 13th Five-Year Plan to enhance digital literacy and infrastructure, Bhutan can unlock long-term sector growth and establish ICT as a resilient pillar of the national economy, as well as a key enabler in the growing digital age.

## 6. 2.Situational Analysis (SWOT)

Strengths	Weaknesses
<p><b>Strong government support</b> through the Digital Economy &amp; Transformation Strategy (2024) and the FDI Policy (2019), providing a clear policy framework for ICT growth.</p> <p>Dedicated ICT college, Dessup Skilling Program on IT related</p> <p>Startup/Incubation Centre</p> <p><b>Alignment with Gross National Happiness (GNH)</b> principles, catering to the rising demand for ethical and responsible outsourcing.</p> <p><b>Green energy and carbon-neutral branding</b> enhance Bhutan's appeal as a hub for sustainable and ethical ICT services.</p> <p><b>Policy incentives</b> such as tax holidays,custom duty on importing ICT tools &amp; equipment to attract ICT firms and foreign investment.</p> <p><b>Ongoing investment in STEM education</b> under the 13th Five Year Plan ensures a future-ready workforce.</p> <p><b>English-speaking workforce with cultural and linguistic compatibility</b>, making Bhutan an ideal destination for BPO and other ICT-enabled services targeting international markets.</p> <p><b>Favorable time zone for international collaboration</b>, enabling real-time communication and efficient service delivery across global markets.</p> <p><b>Political stability and policy continuity</b>, offering a secure and predictable investment environment.</p> <p><b>Strategic location in South Asia</b>, with proximity to large markets like India and Bangladesh.</p>	<p><b>Limited ICT infrastructure</b>, particularly inadequate access to high-speed internet in both urban and rural areas.</p> <p><b>High internet costs and logistical challenges</b> stemming from Bhutan's landlocked and mountainous geography.</p> <p><b>Lack of specialized skills</b> in emerging technologies such as artificial intelligence (AI), blockchain, and machine learning (ML).</p> <p><b>Small ICT workforce</b>, comprising only around 1% of total national employment (~3,700 individuals).</p> <p><b>Absence of industry-specific training programs</b> and tailored educational pathways to meet ICT sector demands.</p> <p><b>Weak branding and low international visibility</b> of Bhutan's ICT sector, limiting its global competitiveness.</p> <p><b>Limited international partnerships</b>, resulting in restricted knowledge transfer and constrained market access.</p> <p><b>Regulatory gaps</b>, particularly in areas of data protection, privacy, and digital governance.</p> <p><b>Nascent stage of sector development</b>, with low R&amp;D investment, a small number of tech startups, and limited capacity for scaling innovations.</p>

Opportunities	Threats
<p><b>Rapid global growth in digital services</b>, including BPO, KPO, software development, and decentralized technologies, creating new market opportunities for Bhutan.</p> <p><b>Rising demand for ethical and sustainable tech solutions</b>, aligning well with Bhutan's national values and branding.</p> <p><b>Potential to position Bhutan as a green and ethical outsourcing destination</b>, appealing to niche global clients seeking responsible business practices.</p> <p><b>Scope for public-private partnerships (PPPs) and international collaborations</b>, to develop ICT infrastructure and build sectoral capacity.</p> <p><b>Development of tech parks, innovation hubs, and R&amp;D centers</b>, fostering a conducive environment for ICT growth and entrepreneurship.</p> <p><b>Opportunity to leverage Bhutan's carbon-negative status</b> as a unique selling point in global tech markets.(Merge)</p> <p><b>Enhancing export competitiveness</b> through targeted skill development, globally recognized certifications, and regulatory reforms to support ICT trade.</p>	<p><b>Strong competition from established global ICT hubs</b> such as India, the Philippines, and other mature markets.</p> <p><b>Advancements in AI and automation</b> reduce global demand for low-skilled BPO services.</p> <p><b>Potential policy uncertainty and bureaucratic delays</b>, which may hinder timely implementation of ICT initiatives.</p> <p><b>Risk of digital exclusion in rural areas</b> if infrastructure investments are not inclusive and adequately targeted.</p> <p><b>Challenging terrain and logistics</b>, leading to delays in the import of hardware and transportation of critical ICT equipment.</p> <p><b>Loss of investor confidence due to lack of compliance</b> with international data protection, privacy, and cybersecurity standards.</p> <p><b>Brain Drain of Skilled ICT Professionals</b> due to limited local opportunities and more attractive prospects abroad weakens the domestic talent pool and hampers sector growth.</p>

## 6. 3. Vision and Expected Results

### Vision:

To establish a vibrant, competitive, and digitally inclusive ICT sector that drives innovation, economic diversification, and youth employment, while positioning Bhutan as a regional hub for digital services by leveraging its skilled workforce, enabling policies, and trusted international brand.

### Expected Results:

- Economic Contribution: Achieve an annual GDP contribution of USD 300 million by 2035.
- Generate USD 50 million in annual ICT service exports, especially in areas like BPO, software development, digital content, and cybersecurity services.
- Establish Bhutan in at least 3 new international ICT markets.
- Create 5,000 new high-quality jobs in ICT-related fields, with a strong focus on youth and women.

- Train and certify 10,000 digital professionals in areas such as programming, AI, cloud services, and animation.
- Operationalize 2 ICT Tech Parks, including at least 1 in a secondary urban center to promote decentralization.
- Support the development of 100+ tech startups, incubated through public-private accelerators and innovation grants.
- Establish 5 regional digital hubs for skills development, e-governance, and community-based ICT services.
- Achieve nationwide internet penetration exceeding 95% and increase digital literacy among youth to at least 80% by 2035.
- Enact data protection, digital trade, and cybersecurity laws to build investor confidence and global competitiveness.

## 6. 4.Strategic Interventions and Action Plan

### A. Policy and Regulatory Support

#### a. Bridging Gaps in Data Protection and Privacy through a data governance framework

In order to create a conducive environment for operation and attracting foreign direct investment in the ICT sector, it is imperative for Bhutan to strengthen and refine its regulatory framework, particularly in the areas of data protection and privacy. A gap analysis conducted in 2023 by GovTech Agency, in collaboration with the World Bank, revealed that the existing 2018 ICM Act's regulatory provisions are fragmented and unclear. The analysis identified that the current framework is both insufficiently protective and overly restrictive. The provisions are fragmented and unclear, with privacy and data protection needing to be unified into a single regime (AIRA, 2024). To address these issues, a data governance framework needs to be developed to enhance and unify the regulatory landscape providing a more coherent and effective approach to both data protection and privacy. This will enhance confidence and facilitate the growth of the ICT sector.

#### b. Revising Qualification Criteria for International ICT Professionals

To strengthen Bhutan's position as an emerging ICT destination and attract skilled international talent, it is crucial to revise the qualification requirements for international ICT professionals. The current system primarily emphasizes formal academic degrees or diplomas for ICT professionals (Integrated Foreign Workers Recruitment and Management Guideline 2023), which may exclude highly skilled individuals who have acquired expertise through certifications,

professional experience, and non-traditional pathways. For example, many world-class software developers, cybersecurity experts, and cloud architects have built their expertise through global certifications (such as AWS Certified Solutions Architect, Cisco CCNA, Microsoft Certified Azure Administrator), coding bootcamps, freelance project portfolios, and years of hands-on industry experience without holding formal degrees. To create a more inclusive and competitive environment, Bhutan should introduce a dual qualification pathway that recognizes both traditional degrees and industry-recognized certifications or demonstrable technical competencies. This approach will align Bhutan’s ICT sector with global practices, enhance workforce diversity, and accelerate sectoral growth while maintaining quality standards. A clear and transparent qualification framework must be developed, communicated, and implemented to ensure effective adoption.

**c. Eliminating Double Taxation on Dividends to Foster Growth in Bhutan’s ICT Sector**

To promote the growth of Bhutan’s ICT sector and encourage investment, a strategic intervention should focus on eliminating the double taxation on dividends, which currently imposes a significant burden on both companies and shareholders. Under the Income Tax act of Kingdom of Bhuan, 2002, businesses in Bhutan face a 30% Business License Tax on net profits, 25% CIT for regular companies, and 30% CIT for State-Owned Enterprises (SOEs) and when they distribute dividends, a 10% dividend tax is applied. Shareholders, in turn, must pay personal income tax on the dividends they receive, resulting in a double taxation of the same income. This high tax burden discourages companies from distributing dividends and reduces the amount of capital available for reinvestment in innovation, infrastructure, and talent development.To address this, the government should eliminate the dividend tax surcharge by ensuring that dividends are taxed only at the shareholder level. This would provide a more tax-efficient environment, enabling businesses to retain more profits for reinvestment in growth and innovation. Moreover, it would increase shareholder returns, making investments in Bhutanese companies more attractive to both local and foreign investors. Simplifying this aspect of the tax system would create a more competitive and dynamic environment for the ICT sector, attracting both local entrepreneurs and foreign direct investment (FDI).

**Implementation Plan - Short Term (2026-2028)**

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Strengthening Data Governance</b>	Develop and implement a comprehensive Data Governance Framework that integrates robust data protection measures and privacy regulations to ensure	Data Governance Framework developed and implemented.	GovTech	NSB,BICMA

	secure, ethical, and compliant data management.			
<b>Recognition of Global ICT Certifications</b>	Recognition of globally accredited ICT certifications—such as those from AWS, Cisco, Microsoft, and others—as equivalent qualifications to support skills-based hiring and capacity development.	Number of globally recognized ICT certifications formally accepted as equivalent qualifications by national HR and education systems.	GovTech	MoICE
<b>Revising Foreign Worker Recruitment Guidelines</b>	Review and revise the Integrated Foreign Workers Recruitment and Management Guideline (2023) to enhance regulatory efficiency, streamline processes, and align with current labor market needs.	Revised Integrated Foreign Workers Recruitment and Management Guideline completed and officially approved to enhance regulatory efficiency and align with current labor market needs.	MoICE	Department of Immigration
<b>Eliminating Double Taxation on Dividends</b>	MoF to pursue Double taxation agreement with partner countries.	Number of Double Taxation Agreements (DTAs) initiated, negotiated, or signed by the Ministry of Finance with partner countries within the reporting period.	MoF	MoICE

## B. Promotion of ICT Sector

### a. Promote Bhutan as a ICT Investment Destination Rooted in GNH and Sustainability

Bhutan’s unique identity as a carbon-negative, culturally rich nation guided by the philosophy of Gross National Happiness (GNH) presents a strategic opportunity to attract purpose-driven Foreign Direct Investment (FDI) into the Information and Communication Technology (ICT) sector. To harness this potential, a dedicated Green ICT Investment Promotion Campaign should be launched, integrating Bhutan’s globally recognized brand with its aspirations for sustainable digital transformation. This campaign will position Bhutan as a premium destination for ethical outsourcing, sustainable software development, and decentralized technology solutions.

Rather than competing directly with established global ICT hubs on cost or scale—areas where Bhutan may face inherent limitations—this approach focuses on strategic differentiation. By targeting values-aligned investors who prioritize sustainability, social impact, and ethical innovation, Bhutan can effectively carve out a distinct and competitive niche in the global ICT landscape. In doing so, the country offers investors not only attractive financial returns but also

the opportunity to contribute to an environmentally responsible and happiness-oriented development model—fully aligned with Bhutan’s national vision and global sustainability goals.

**b. Fostering Strategic International Partnerships for Digital Sector Growth**

To accelerate Bhutan’s integration into the global digital economy, it is essential to foster international collaborations with leading global firms in Business Process Outsourcing (BPO), Knowledge Process Outsourcing (KPO), software development, and decentralized technologies. These strategic partnerships will not only bring in technical expertise, investment, and access to international markets but also strengthen the capabilities of Bhutanese firms, enabling them to scale and compete globally. Moreover, such collaborations will contribute significantly to building local capacity and creating high-value employment opportunities.

**c. Land for Digital Bhutan: Powering Innovation and Inclusion**

To accelerate the growth of Bhutan’s ICT sector, it is imperative for the government to identify and allocate serviced land in strategically selected locations for the development of dedicated ICT infrastructure—such as technology parks, digital villages, and innovation zones. These designated hubs can function as vibrant clusters for business process outsourcing (BPO) and knowledge process outsourcing (KPO) centers, software development firms, training institutions, and technology startups. Offering land through long-term leases, at subsidized rates, or via public-private partnership (PPP) models will incentivize both domestic and foreign investment in ICT and digital services. Moreover, such measures will lower entry barriers for startups and impact-sourcing providers, fostering inclusive growth and enhancing Bhutan’s position as a competitive destination for digital innovation and service delivery.

**Implementation Plan - Short Term (2026-2028)**

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Green Digital Investment Campaign</b>	Design and launch a unified Green Digital Investment Campaign that aligns ICT investment opportunities with Bhutan’s green economy principles and the Gross National Happiness (GNH) brand.	Green Digital Investment Campaign designed and officially launched, with key ICT investment opportunities aligned to green economy principles and the GNH brand.	Dol	GovTech, DHI, Private sector, BICMA

<b>Expanding ICT Partnerships through International Events</b>	Identify and actively participate in major international ICT expos and networking platforms; facilitate the representation and engagement of Bhutanese ICT stakeholders to enhance global visibility and partnerships.	Number of international ICT expos and networking events attended annually with active Bhutanese ICT stakeholder participation and representation.	GovTech	Dol, MoFAET, Private Sector
<b>Strategic Land Allocation for ICT Parks</b>	Strategically identify and allocate land for the development of ICT parks or innovation zones in key Dzongkhags to foster regional digital industry growth.	Number of ICT park or innovation zone sites strategically identified and land officially allocated in targeted Dzongkhags to support regional digital industry growth.	GovTech	NLCs, Dol, local governments, MoIT, Thromde, NLCs
<b>Incentives for ICT Startups and Impact Sourcing</b>	Introduce targeted incentives—such as subsidized land leases and reduced operational rates—for ICT startups and impact-sourcing enterprises to stimulate innovation and job creation.	Number of ICT startups and impact-sourcing enterprises benefiting from targeted incentives such as subsidized land leases and reduced operational rates.	MoF	MoICE

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Showcasing Bhutan as a Digital Innovation Hub"</b>	Host an annual flagship event or summit that convenes global ICT leaders, investors, and entrepreneurs to position Bhutan as a premier destination for sustainable digital innovation and investment.	Annual flagship ICT event successfully hosted with participation from global ICT leaders, investors, and entrepreneurs to promote Bhutan as a hub for sustainable digital innovation and investment.	GovTech	Dol, Private Sector, MoFAET, DoEE
<b>Strategic Partnerships for ICT Skill Development</b>	Establish and institutionalize strategic partnerships with leading global technology firms to facilitate the transfer of technical expertise, implement structured training programs, and enhance the skills of Bhutanese professionals in key ICT domains.	Number of strategic partnerships established with global technology firms that result in implemented training programs and measurable skills enhancement for Bhutanese ICT professionals.	GovTech	Dol, MoFAET, Industries, RUB, Private Sector, DSP

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Positioning Bhutan for Values-Driven ICT</b>	Position Bhutan as a preferred destination for businesses seeking to integrate ethical values, environmental sustainability, and innovation into their ICT outsourcing and development initiatives.	Increase in the number of ICT outsourcing and development businesses choosing Bhutan as their destination due to its ethical values, environmental sustainability, and innovation-focused environment.	GovTech	DHI, DoI, Private Sector
<b>Global Collaboration for Startup Growth</b>	Promote long-term, mutually beneficial partnerships in which global firms mentor and invest in Bhutanese startups, fostering sustained knowledge transfer, innovation, and capital inflow.	Number of long-term partnerships established between global firms and Bhutanese startups that result in measurable mentorship, investment, and sustained knowledge transfer.	DoEE	Private, GovTech, Private Sector
<b>Building International ICT Outsourcing Hubs</b>	Establish ICT hubs as internationally recognized centers for digital service delivery and outsourcing, attracting multinational corporations and empowering Bhutanese enterprises to access and compete in global markets.	Number of ICT hubs accredited as internationally recognized centers for digital service delivery and outsourcing, with documented participation of multinational corporations and Bhutanese enterprises in global markets.	GovTech	MoFAET, private Sector

## C. Infrastructure and Logistics Development/ Enhancement

### a. Strengthening Digital Infrastructure for ICT Services

To realize the vision of a "Digital Bhutan," it is crucial to establish a high-capacity, stable, and reliable digital infrastructure that supports the growing demands of the digital economy. Bhutan's current reliance on two fiber optic lines passing through India presents a risk of disruption due to their shared geographic route. In response, Bhutan is working with India and Bangladesh to establish a third international internet gateway( Digital Economy & Transformation Strategy,2024) . This will increase bandwidth, enhance stability, and provide a backup in case of disruptions, promoting cross-border digital trade, e-commerce, and remote services. Internally, Bhutan has made significant progress with a nationwide fiber optic network, but challenges remain with mobile connectivity, especially in rural areas, where regulatory and



commercial barriers hinder expansion. While internet access is relatively high, the cost remains a barrier to widespread digital adoption. To address this, the government should continue investing in infrastructure to reduce internet costs, making it more affordable for businesses. Strengthening digital infrastructure and improving mobile connectivity will enhance Bhutan's ICT sector, attract investment, and position the country as a competitive player in the global digital economy.

#### ***Comparative Prices of Mobile Broadband in Other Countries***

Country	Service Provider	Data Package	Cost in Local Currency	Cost / GB in Local Currency	Cost / GB in USD
Bhutan	Bhutan Telecom	8.46 GB	BTN 499	BTN 59	0.71
Sri Lanka	Dialog Axiata	15 GB	LKR 1,091	LKR 73	0.25
India	Reliance Jio	30 GB	INR 299	INR 10	0.12
Bangladesh	Robi Axiata	20 GB	BDT 449	BDT 22.5	0.21
Nepal	Ncell Axiata	20 GB	NPR 499	NPR 25	0.19
Vietnam	Viettel	90 GB	VND 150,000	VND 1,666.67	0.07
Myanmar	MPT	8.66 GB	MMK 18,000	MMK 2,078.50	0.99
Cambodia	Smart Axiata	15 GB	USD 1.50	USD 0.10	0.10

Source: Digital Economy Development & Transformation Strategy, 2024

#### **b. Enabling Cross-Border Digital Payments for ICT Sector Growth**

The Royal Monetary Authority (RMA) has made significant progress in strengthening Bhutan's domestic payment infrastructure through initiatives such as the launch of online and mobile banking services by financial institutions. However, cross-border payment solutions, particularly critical for the growth of the ICT sector, remain underdeveloped. Bhutan's small market size — with a population of approximately 780,000 — and relatively low international transaction volumes make it less attractive for major global payment platforms like PayPal, Stripe, or Revolut to prioritize integration. Additionally, strict foreign exchange regulations under the Foreign Exchange Rules and Regulations 2022, designed to safeguard Bhutan's monetary stability, create further barriers to seamless international payment flows. As a result, ICT firms face persistent challenges in receiving timely payments from overseas clients, which severely limits their capacity to scale exports of digital services and participate competitively in the global economy.

To overcome these barriers, it is imperative for Bhutan to strategically explore partnerships with established global and regional digital payment systems, such as PayPal, Stripe, India's Unified Payments Interface (UPI), or Singapore's PayNow. Such collaborations will be essential in bridging the cross-border financial gap, improving ease of doing business, attracting foreign investment, and positioning Bhutan as a credible and competitive destination for ICT and digital service exports.

## Implementation Plan - Short & Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Establishing a Third International Internet Gateway</b>	Establish a third international internet gateway via Bangladesh to enhance network redundancy, ensure service reliability, and strengthen Bhutan's digital infrastructure resilience.	Completion and operationalization of the third international internet gateway through Bangladesh to improve network redundancy and digital infrastructure resilience.	GovTech	BICMA, Telecom operators, MoF, MoFAET
<b>Integrating Global and Regional Digital Payment Platforms</b>	Engage with global payment platforms such as PayPal and Stripe, as well as regional solutions like UPI and PayNow, to explore integration opportunities that expand Bhutan's access to seamless digital financial services.	Number of formal engagements and partnership agreements established with global and regional payment platforms to facilitate integration and expand Bhutan's digital financial service access.	RMA	MoFAET, Financial Institutions

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Developing Regional ICT Infrastructure Hubs</b>	Develop regional hubs equipped with high-speed internet, state-of-the-art data centers, and reliable power infrastructure to support the efficient operation of ICT businesses.	Number of regional hubs developed with high-speed internet, advanced data centers, and reliable power infrastructure to support ICT business operations.	GovTech	Telecom Operators, ISP

## D. Technology Adoption

### a. Integration of AI and Emerging Technologies

Bhutan is gradually recognizing the transformative potential of emerging technologies like Artificial Intelligence (AI), automation, and blockchain in driving innovation and boosting productivity across various sectors, including Business Process Outsourcing (BPO), Knowledge Process Outsourcing (KPO), software development, and decentralized technologies. The global demand for digital services is expanding, and to remain competitive, Bhutan must leverage these advanced technologies to enhance service delivery, streamline workflows, and develop innovative solutions.

While Bhutan's ICT sector has seen growth, particularly in the areas of software development and digital services, there remains a significant opportunity to integrate AI and automation to optimize business operations and improve efficiencies. The current use of AI and automation in Bhutan is still in the nascent stages, and the adoption of blockchain-based decentralized technologies is also limited. For instance, while Bhutan has made strides in digitalizing government services and promoting e-commerce, there has been a lack of widespread application of AI technologies in areas such as customer service, data analytics, and operational efficiencies within both the public and private sectors.

Additionally, the country's workforce remains relatively undertrained in advanced technologies such as AI and machine learning, which limits the full potential of these technologies. The cost of implementation and lack of local expertise further slow down the integration of emerging technologies into mainstream business practices.

Bhutan's efforts to develop a digital economy, including initiatives such as the National Digital Identity (NDI) and promoting digital start-ups, highlight the potential for AI and blockchain to drive growth. However, to realize the full benefits, the country needs strategic intervention to improve digital literacy, build a conducive ecosystem for emerging technologies, and attract investments in AI and blockchain development. This strategic shift towards AI and emerging technologies is essential for ensuring Bhutan remains competitive in the rapidly evolving global digital services market.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Capacity Building in Emerging Digital Technologies</b>	Organize workshops, webinars, and training sessions for ICT professionals focused on foundational knowledge of AI, automation, and blockchain technologies to foster skill development and industry readiness.	Number of workshops, webinars, and training sessions conducted annually for ICT professionals on AI, automation, and blockchain technologies, with participant attendance and satisfaction rates tracked.	GovTech	MoICE, Private sectors
<b>Driving Innovation through Global Tech Collaboration</b>	Establish strategic partnerships with leading AI and automation companies or startups to facilitate knowledge transfer, foster early adoption, and drive technological innovation within Bhutan's ICT sector.	Number of strategic partnerships established with leading AI and automation companies/startups resulting in implemented knowledge transfer programs and measurable technological innovation within Bhutan's ICT sector.	GovTech	Private Sectors

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Piloting AI and Automation in Key ICT Sub-Sectors</b>	Launch pilot projects utilizing AI and automation to enhance business processes within BPO/KPO, software development, and decentralized technologies, demonstrating their potential to drive efficiency and innovation.	Number of AI and automation pilot projects launched in BPO/KPO, software development, and decentralized technologies, with documented improvements in efficiency and innovation outcomes.	GovTech	Private Sectors
<b>Fostering Tech Innovation through Dedicated Experimentation Space</b>	Establish dedicated innovation spaces for AI, blockchain, and automation, allowing companies to experiment with and develop cutting-edge solutions without regulatory constraints, fostering a thriving tech ecosystem.	Number of dedicated innovation spaces established for AI, blockchain, and automation, with active participation from companies developing cutting-edge solutions in a regulatory sandbox environment.	GovTech	TTPL, Private sector, DoEE

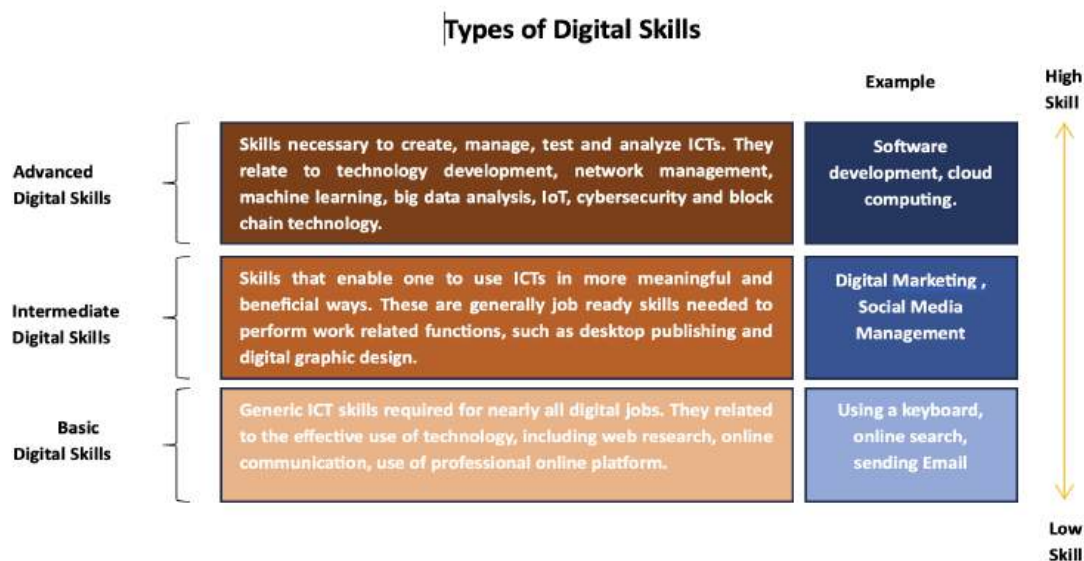
## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>National Strategy for Ethical AI and Emerging Technologies</b>	Develop a comprehensive national strategy and regulatory framework to ensure the responsible and ethical deployment of AI, automation, and blockchain technologies across all sectors, fostering innovation while safeguarding public interests and aligning with international best practices.	Completion and official adoption of a national strategy and regulatory framework for the responsible and ethical deployment of AI, automation, and blockchain technologies within the planned timeline.	GovTech	Private sectors, BICMA

## E. Capacity Building

### a. Bridging the Skills Gap: Building a Competitive ICT Talent Pipeline in Bhutan

Bhutan currently faces a limited talent pool in the ICT sector, particularly in high-demand areas such as artificial intelligence, data analytics, software development, decentralized technologies, and customer service. This constraint presents a significant barrier to the growth and global competitiveness of the BPO and KPO industries. To overcome this challenge, a comprehensive national skill development program is essential—one that addresses both short-term and long-term training needs, and aligns with evolving industry demands.



Source: Digital Jobs in Bhutan: Future Skilling & Demand Creation, 2021

To address this challenge effectively:

- **Integrate Coding and Digital Literacy into Formal Education**

Introduce coding and digital literacy from an early stage across school and tertiary education curricula to build foundational ICT competencies throughout the education system.

- **Offer Specialized ICT Training through TVET and Universities**

Provide targeted training programs through Technical and Vocational Education and Training (TVET) institutions and universities in high-demand areas such as artificial intelligence, cybersecurity, blockchain, and software engineering.

- **Facilitate Industry-Recognized Certifications and Global Partnerships**

Promote the development of industry-aligned certification programs and establish partnerships with global technology firms to co-design and deliver tailored training modules that meet international standards.

- **Identify and Engage Impact Sourcing Service Providers (ISSPs) for Bhutan Market Entry**

Conduct focused market scoping and strategic outreach to ISSPs such as Andela, Samasource, and Digital Divide Data (DDD) to explore and facilitate their entry into the Bhutanese market. These partnerships can accelerate workforce development, provide remote employment opportunities, and integrate Bhutanese talent into the global digital value chain.

- **Launch Industry-Led Internship/Fellowship Programs**

Create pathways for internships and fellowships in the BPO, KPO, and software startup sectors to provide trained youth with practical work experience. This initiative will allow graduates to gain hands-on industry experience, develop essential skills, and enhance their employability in the rapidly evolving digital landscape.

- **Collaboration with Universities & Tech Firms for R&D**

Partner with local universities and global technology firms to conduct joint research on emerging technologies such as artificial intelligence, blockchain, and Internet of Things (IoT). These collaborations will not only contribute to cutting-edge innovation but also enable the development of new software products, driving the advancement of Bhutan's ICT sector.

## Implementation Plan - Short & Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Capacity Building</b>	Integrate foundational coding, digital literacy, and ICT skills into the national school curriculum, starting from primary education and extending through to tertiary institutions, to build a digitally skilled workforce from an early age.	Percentage of educational institutions (primary to tertiary) that have integrated foundational coding, digital literacy, and ICT skills into their curricula within the designated implementation period.	MoESD	RUB
	Launch targeted awareness campaigns to showcase the diverse career opportunities within the ICT sector, with a focus on high-demand fields such as AI, data analytics, and cybersecurity, to inspire and attract future talent.	Number of targeted awareness campaigns launched annually, with measurable increases in student and job seeker engagement or enrollment in high-demand ICT fields like AI, data analytics, and cybersecurity.	GovTech	MoESD, RUB
	Introduce specialized ICT courses in high-demand areas like AI, cybersecurity, and software engineering through TVET institutions and universities, ensuring that students are equipped with the skills needed to excel in the evolving digital landscape.	Number of specialized ICT courses introduced in TVET institutions and universities in high-demand areas such as AI, cybersecurity, and software engineering, along with student enrollment and graduation rates in these courses.	RUB, MoESD	GovTech, DSP
	Partner with global tech companies to offer certification programs aligned with international standards in emerging fields such as AI, blockchain, and data analytics, and IoT enhancing the global competitiveness of Bhutanese professionals.	Number of partnership agreements established with global tech companies to offer internationally aligned certification programs in AI, blockchain, data analytics, and IoT, along with the number of Bhutanese professionals certified annually.	GovTech	MoESD, RUB
	Engage with Inclusive Sourcing Service Providers (ISSPs), such as Andela and Digital Divide Data, to explore remote work opportunities and integrate Bhutanese talent into global ICT projects, fostering international collaboration and expanding job opportunities for Bhutanese professionals.	Number of formal engagements and collaboration agreements established with Inclusive Sourcing Service Providers (ISSPs), resulting in Bhutanese professionals' participation in global ICT projects and remote work opportunities.	GovTech	MoICE, IT Park, DHI
	Launch an Industry-Led Internship/Fellowship Program	Number of ICT firms participating in the Industry-Led Internship/Fellowship Program and	MoICE	GovTech, RuB

in ICT firms (BPO, KPO, software startups)	the total number of interns or fellows placed annually in BPO, KPO, and software startups.		
Establish joint research and development programs in collaboration with universities and international tech firms to drive innovation in emerging technologies such as AI, blockchain, and IoT, positioning Bhutan at the forefront of technological advancements.	Number of joint R&D programs established with universities and international tech firms focused on AI, blockchain, and IoT, with measurable outputs such as patents, prototypes, or publications.	GovTech h	RuB
Develop a national database of ICT talent to efficiently match qualified professionals with local and international opportunities, optimizing recruitment and talent utilization within the industry.	Completion and active utilization rate of the national ICT talent database, measured by the percentage of qualified professionals registered and successfully matched with job opportunities locally and internationally.	GovTech h	DoEE

## F. Market Linkages and Support

### a. Enhancing Global Market Access through Trade Facilitation

To strengthen Bhutan's access to international BPO, KPO, and digital service markets, Bhutan should streamline export processes, reduce regulatory barriers, and support Bhutanese ICT firms in navigating global trade systems. Concurrently, Bhutan should strengthen its digital trade frameworks through bilateral and multilateral agreements and increase participation in international outsourcing networks. Strong public-private collaboration will ensure Bhutanese ICT services are visible, credible, and competitive in the global digital economy.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Market Access &amp; Linkages</b>	Launch an awareness campaign to educate Bhutanese ICT firms about available export opportunities, global trade systems, helping them expand their reach in international markets.	Number of awareness campaigns launched and percentage increase in Bhutanese ICT firms engaging in export activities or accessing global trade opportunities following the campaigns.	DoT	GovTech, MoF AET



Engage in strategic negotiations to strengthen bilateral and multilateral agreements, facilitating the seamless flow of ICT services across borders and reducing trade barriers to promote international collaboration.	Engage in strategic negotiations to strengthen bilateral and multilateral agreements, facilitating the seamless flow of ICT services across borders and reducing trade barriers to promote international collaboration.	DoT	MoFAET, DoI, GovTech
Establish robust public-private partnerships that provide comprehensive support for Bhutanese ICT firms, assisting them in marketing their services globally and expanding their presence in international markets.	Number of public-private partnership initiatives established that actively support Bhutanese ICT firms in global marketing and international market expansion efforts.	DoT, GovTech	Private Sector, MoFAET

## G. Brand Bhutan

### a. Create a “Bhutan Tech Brand”

Bhutan’s strong national identity—rooted in environmental stewardship, cultural preservation, and the philosophy of Gross National Happiness (GNH)—offers a powerful foundation upon which to build a distinctive and credible Bhutan Tech Brand. In the context of increasing global demand for ethical, sustainable, and socially responsible digital solutions, Bhutan has the opportunity to position its ICT sector as a values-driven alternative in the international marketplace.

Currently, Bhutan’s ICT industry is in the early stages of development, characterized by small but growing domestic capabilities in software development, digital services, and emerging interest in decentralized technologies. While infrastructure and human capital development are ongoing challenges, the nation’s political stability, environmental credentials, and unified national vision provide a strong platform for long-term growth.

The creation of a Bhutan Tech Brand should be a strategic, long-term initiative that aligns with the broader goals of national economic diversification, green development, and youth employment. This brand would embody principles of digital responsibility, low-carbon innovation, and cultural integrity, positioning Bhutan as a trusted and differentiated player in niche global markets such as ethical outsourcing, sustainable software development, green data services, and blockchain for good.

Over time, the Bhutan Tech Brand can serve not only as a marketing tool, but also as a unifying national identity for digital innovation—attracting foreign direct investment, inspiring domestic

entrepreneurship, and reinforcing Bhutan’s reputation as a country where technology and humanity coexist in harmony.

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Brand Bhutan</b>	Create a distinctive Bhutan Tech Brand by clearly defining the nation's unique selling points—such as its commitment to sustainability, the principles of Gross National Happiness (GNH), and a strong emphasis on ethical technology development—ensuring these values are embedded in all digital initiatives and marketing strategies.	Completion and official launch of the Bhutan Tech Brand strategy, with measurable incorporation of sustainability, GNH principles, and ethical technology values across digital initiatives and marketing campaigns.	MoICE	GovTech, IT Park, Private sectors



## 7. MedTech Wellness Industries

### 7.1. Background

For the purpose of this roadmap, the MedTech Wellness Industries include four key areas:

1. Modern Medicine
2. Traditional and Herbal Medicine
3. Medical Devices
4. Contract Development Manufacturing Organization (CDMO).

Together, they form strategic pillars for medical industrial growth and export development, leveraging Bhutan's natural resources, traditional knowledge, and clean brand to drive innovation and sustainability in healthcare.

The medical products industry in Bhutan presents untapped potential for economic diversification, import substitution, and export growth. Despite being underdeveloped, the sector is uniquely positioned due to Bhutan's rich biodiversity, strong traditional medicine heritage, and clean environmental image. According to the Bhutan Foundation, the country is home to over 600 documented species out of which 215 species are actively used in herbal and traditional Bhutanese medicine. The families *Asteraceae*, *Fabaceae*, and *Rosaceae* contain several high-value herbs that are used to treat common ailments such as fever, wounds, and gastrointestinal issues (Nepal & Manita, 2022). Bhutan's clean energy profile and reputation as a carbon-negative nation, creates a unique branding advantage for the country's medical products.

The natural abundance is supported by robust institutions and regulatory bodies like the Bhutan Medicines Board, the Bhutan Food and Drug Authority (BFDA), and the Medical and Health Professionals Council . Likewise, several policies highlight the importance of the medical industries in the country. The Economic Development Policy 2016 and the National Export Strategy 2022 identify medical manufacturing industries as a priority sector. The Export Strategy highlights the growing global demand for health products, particularly in European and other developed markets, suggesting promising export potential. Similarly, policy instruments such as the Import Substitution Report 2019 identifies medical products as a critical sector for import reduction. The report recommends targeted research into underutilized areas of medical production and encourages diversification of both domestic and export-oriented manufacturing.

Currently, the contribution of medical products to Bhutan’s GDP is minimal, subsumed under the manufacturing sector, which accounted for 8.05% of national GDP in 2023 (NSB, 2023). This reflects the country’s limited domestic production capacity and continued heavy reliance on imports, which amounted to approximately Ngultrum 795 million in 2024. However, the sector’s potential GDP contribution is significant if harnessed through targeted investments, R&D, and value chain development. By reducing imports of medical products and increasing local production, Bhutan can improve health security, generate employment, and build export capabilities, particularly in modern medicines, traditional medicines, and medical products.

This sector has been prioritized for its alignment with Bhutan’s comparative advantages namely clean energy, traditional knowledge, and ecological wealth, and its potential to contribute to key national goals, including economic self-reliance, sustainable development, and strategic sector growth as envisioned in the 13th Five-Year Plan and national economic policies. Promoting the medical products industry offers a path to inclusive growth while reinforcing Bhutan’s identity in the global wellness and sustainable health markets

## 7. 2. Situational Analysis (SWOT)

Strengths	Weaknesses
<div><div>1. Modern Medicine</div><div><ul style="list-style-type: none"><li>Strong legal and regulatory framework ensuring safety, efficacy, and quality control.</li><li>Regulatory support from BFDA and Bhutan Medicines Board.</li><li>Affordable electricity and clean energy.</li><li>Human capital support from KGUMSB.</li></ul></div></div> <div><div>2. Traditional and Herbal Medicine</div><div></div></div>	<div><div>1. Modern Medicine</div><div><ul style="list-style-type: none"><li>Absence of dedicated R&amp;D institutions and labs.</li><li>Heavy dependency on imports for APIs, excipients, packaging, and machinery.</li><li>No dedicated industrial zones for pharmaceutical production.</li><li>High cost of production.</li><li>Underdeveloped industrial base, limiting domestic production capacity.</li><li>Lack of international recognition and certification.</li></ul></div></div>

<ul style="list-style-type: none"> <li>● Rich biodiversity and abundant protected resources for rich flora.</li> <li>● Community-led sustainable harvesting practices.</li> <li>● Strong institutional support: FoTM and traditional knowledge systems.</li> <li>● Bhutan's carbon-negative branding and pristine environment.</li> <li>● Integrated traditional medical system under MoH.</li> </ul>	<ul style="list-style-type: none"> <li>● Absence of dedicated pharmaceutical R&amp;D infrastructure/ institutions.</li> <li>● Skills gap in pharma production and burdensome regulatory processes.</li> <li>● Low levels of FDI.</li> <li>● Regulatory delays such as long licensing and drug registration timelines deter new entrants.</li> </ul> <p><b>2. Traditional and Herbal Medicine</b></p> <ul style="list-style-type: none"> <li>● Overreliance on wild harvesting; limited domestication.</li> <li>● Lack of advanced R&amp;D in herbal pharmacology.</li> <li>● Limited standardized certification or international market recognition.</li> <li>● Regulatory bottlenecks and slow innovation approvals.</li> <li>● Limited investment in commercial-scale cultivation or processing.</li> </ul> <p><b>3. CDMO and Med Tech</b></p> <ul style="list-style-type: none"> <li>● Non-existent CDMO and Med Tech producers and manufacturers.</li> </ul>
Opportunities	Threats
<p><b>1. Modern Medicine</b></p> <ul style="list-style-type: none"> <li>● Development of biotechnology parks and AI-driven drug discovery.</li> <li>● R&amp;D development through PPPs and regional collaboration.</li> <li>● Reduced imports via local essential drug production.</li> <li>● Export to niche markets under a "clean pharma" brand.</li> </ul> <p><b>2. Traditional and Herbal Medicine</b></p> <ul style="list-style-type: none"> <li>● Global demand for natural and plant-based health products.</li> <li>● Wellness tourism integrating traditional healing.</li> <li>● Scope for herbal research centers and standardization labs.</li> <li>● Unified branding and global recognition.</li> </ul> <p><b>3. CDMO and Med Tech</b></p> <ul style="list-style-type: none"> <li>● Contract Development and Manufacturing (CDMO): Bhutan can enter regional value chains by offering specialized production services to neighboring pharma firms.</li> <li>● Digital health and med-tech: Scope for assembling basic medical devices and developing telemedicine tools tailored to Bhutan's remote areas.</li> </ul>	<p><b>1. Modern Medicine</b></p> <ul style="list-style-type: none"> <li>● Strong regional competition</li> <li>● Regulatory delays and lack of fast-track mechanisms.</li> <li>● Limited domestic market and lack of economies of scale.</li> <li>● Supply chain vulnerability and import shocks.</li> <li>● Policy uncertainty, deterring FDI and private capital.</li> </ul> <p><b>2. Traditional and Herbal Medicine</b></p> <ul style="list-style-type: none"> <li>● Climate change and environmental degradation affecting species.</li> <li>● Unsustainable harvesting if not regulated.</li> <li>● Strong regional competition with established branding and tech.</li> </ul> <p><b>3. CDMO and Med Tech</b></p> <ul style="list-style-type: none"> <li>● Low scalability due to lack of technical infrastructure.</li> <li>● Limited access to raw materials and components.</li> <li>● Low policy clarity on foreign participation and CDMO licensing.</li> <li>● Competitive ecosystems in India and China.</li> </ul>

## 7. 3. Vision and Expected Results

### **Vision:**

To develop a dynamic, inclusive, and sustainable health-based industrial sector that leverages Bhutan's natural heritage, traditional knowledge, and clean energy to drive economic diversification, innovation, and national well-being.

### **Expected Results**

- \$3 million GDP contribution annually with 12% growth rate in 2035 from less than \$1 million GDP contribution.
- 50% import reduction and \$150,000 annual export revenue by 2035.
- 500 + New Jobs with 20 Operational Facilities by 2035.
- 1 Pharma Tech Industrial Park 6 MPUs and 2 Herbal Hubs by 2035.

## 7. 4. Strategic Interventions and Action Plan

### A. Policy and Regulatory Support

Regulatory procedures are often slow and fragmented, with multiple clearances required for product registration, environmental compliance, and business licensing. These delays discourage private investment, hinder innovation, and restrict growth across all sectors of the industry. Therefore, the following interventions are recommended:

#### **a. Accelerated and Streamlined Regulatory Approvals**

- Launch a Green Corridor for Traditional/Herbal Products with simplified documentation and expedited approvals for low-risk products using indigenous knowledge (Target: 50% reduction in timeline by 2027).
- Expedite the launch of the Single Window Clearance Platform (IBLS): Fully integrate business registration, drug licensing, environmental approvals, and customs into a unified, paperless system.
- Pre-Approved Licensing Templates: Standardize checklists and formats for pharma zones and essential drug registrations to reduce case-by-case review burden.
- Clear Guidelines for Niche Activities: Issue regulatory frameworks for contract manufacturing, clinical trials, and bioprospecting to reduce legal ambiguity.

#### **b. Efficient Environmental Clearance for Pharma Park and Herbal Hubs**

- Define Pre-Certified Environmental Criteria for pharma and herbal zones to enable blanket Environmental Clearance (EC) for qualified hubs.
- Self-Certification with Smart Audits: Introduce automated self-reporting systems with random AI-driven audits to enforce compliance while reducing friction.

#### c. Innovation & R&D Facilitation

- Create an Innovation Sandbox allowing time-bound regulatory flexibility for high-potential R&D projects in traditional and modern medicine.
- Develop a Tiered Product Classification System for differentiated regulatory scrutiny based on product risk.

#### d. Traditional Knowledge & Bioprospecting Governance

- Establish a National Digital Repository to preserve and validate traditional medicinal knowledge and formulations for IP defense and benefit-sharing.
- Introduce IP & Safety Codes to standardize and protect indigenous products.
- Draft a Bioprospecting Legal Framework for ethical, benefit-sharing partnerships and licensing of genetic resources.

#### e. Medicinal Plant Conservation & Sustainable Commercialization

- Develop Medicinal Plant Cultivation Protocols for propagation and commercial farming.
- Launch a National Medicinal Plant Conservation Policy with incentives for community-based stewardship and cultivation.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Fast-Track Approvals</b>	Launch Green Corridor for traditional/herbal medicines	90% of applications processed within 30 working days by Q4 2026	BFDA, DoI	MoH, FoTM
<b>Regulatory Simplification</b>	Operationalize IBLS	Platform live and functional for 4+ services by Q4 2027	DoI	DoECC, NLCS, BFDA, MoH, DRC, GovTech
<b>Licensing Efficiency</b>	Publish 2 pre-approved templates for pharma zones and EDL registrations	Templates adopted across pharma park and herbal hubs by Q4 2027	DoI,, BFDA	DoECC, FoTM, MoH
<b>Environmental Fast - Track and Compliance</b>	Define and implement pre-certified EC criteria for designated pharma park /herbal hubs	Blanket EC and zone-level certification in place by Q4 2027	DoECC	DoI, MoH, MoENR



	Introduce self-certification with digital audit triggers in pharma zones	100% of pharma park and herbal hubs on self-certification by Q4 2028	DoECC	DoI
<b>Innovation Enablement</b>	Pilot Regulatory Sandbox for R&D in traditional and modern medicines	1 pilot launched with IP/ethics clauses by Q4 2028	MoH	FoTM, RUB, MoICE
<b>Knowledge Governance</b>	Launch digital repository for traditional knowledge	Repository live with 100+ validated entries by Q4 2028	MoH	NBC, MoAL, DoMCIIP, GovTech, FoTM
<b>Legal Framework Drafting</b>	Begin legal drafting on bioprospecting and benefit-sharing	Draft law completed and stakeholder consultation initiated by Q4 2028	MoH	NBC, MoAL, MoICE

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Risk - Based Oversight</b>	Adopt classification system for product-level regulatory differentiation	100% of new products registered under risk-based system by Q4 2031	BFDA	BSB, DoI, MoH
<b>IP Protection &amp; Standards</b>	Finalize digital repository, publish IP/safety codes	300+ validated entries, codes adopted nationally by Q4 2031	MoH	NBC, MoAL, DoMCIIP, GovTech, FoTM
<b>Bioprospecting Law</b>	Enact bioprospecting law; initiate pilot partnerships with benefit-sharing	Law enacted and 1 international partnerships signed by Q4 2030	MoH	NBC, FoTM, MoAL, MoICE
<b>Medicinal Plant Strategy</b>	Implement National Medicinal Plant Conservation Policy	Policy enforced in 2 biodiversity-rich dzongkhags by Q4 2031	MoAL, MoENR	LGs, MoH, MoICE

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Risk-Based Oversight</b>	Expand classification framework to cover biotech and AI-based health tech	100% of such products categorized under new system by Q4 2034	MoH	FoTM, RUB, MoICE
<b>Global IP Strategy</b>	Use traditional knowledge repository in IP/trade negotiations	TK cited in 2+ international GI/IP filings or trade pacts by Q4 2035	MoH	NBC, DoMCIIP, FoTM, GovTech, MoAL,
<b>Digital Benefit Sharing</b>	Operationalize Bioprospecting Fund and digital licensing for transparent benefit-sharing	100% of licenses issued through digital system by Q4 2035	MoH	NBC, FoTM, MoAL, MoICE



<b>Cultivation Incentives</b>	Scale long-term stewardship and community-based cultivation programs	3 programs launched; 500+ farmers incentivized by Q4 2035	MoAL, MoENR	LGs, MoH, MoICE
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## B. Infrastructure and Logistics Development/ Enhancement

Robust infrastructure and logistics are foundational to the growth of Bhutan’s medical products industry. Bhutan faces infrastructural gaps in Good Manufacturing Practices (GMP)-compliant facilities, cold chain systems, medicinal plant processing, and pharmacological testing. The limited testing capabilities of BFDA, lack of specialized pharma zones, and inadequate cold storage weaken Bhutan’s ability to meet domestic needs and export-readiness standards. Addressing these constraints through integrated infrastructure development will enable Bhutan to strengthen local manufacturing, support rural value addition, enhance supply chain reliability, and boost investor confidence across modern pharmaceuticals, traditional medicine, medical devices, and CDMO.

### a. BFDA Testing and Quality Assurance Expansion

- Modernize BFDA labs to include pharmacopoeial testing, microbiological validation, and stability studies to meet global benchmarks.
- Develop specialized units for device certification, herbal validation, and clinical trials in partnership with research institutions.

### b. Pharma Tech Industrial Park Near Gelephu Mindfulness City

- Establish a dedicated Pharmaceutical and Medical Products Industrial Park, clustered by:
  - GMP-Compliant Manufacturing Zones
  - R&D and Testing Laboratories
  - Shared CDMO Facilities
  - Cold Chain Storage & Packaging Units
  - Medical Device Engineering Zones
  - Eco-secure Waste Treatment Complex
- Zone to be export-oriented and SEZ-compatible with digital permitting, AI-led operations monitoring, and shared utilities.

### c. Smart Cold Chain Logistics

- Integrate pharma logistics into Bhutan’s national vaccine cold chain.
- Set up GSP/GDP-compliant storage hubs in Thimphu, Mongar, Gelephu, and Trashigang.

- Use IoT-enabled temperature control and traceability features for compliance and export readiness.

**d. Herbal Processing Infrastructure**

- Establish solar-powered High-Altitude Medicinal Processing Units (MPUs) in Bumthang, Trashiyangtse, and Gasa.
- Equip MPUs with primary drying, grading, extraction, and batch-level traceability systems.
- Designate Herbal Collection Hubs with secure, temperature-controlled storage linked to national highways and MPUs.

**e. Cluster-Based Herbal Industry Development**

- Create herbal industry clusters integrating MPUs, collection hubs, value-add units, and local cooperatives to form traceable, GMP-compliant export supply chains.
- Link to bioprospecting and IP frameworks under regulatory and policy strategy.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>BFDA Infrastructure</b>	Conduct infrastructure audit and begin upgrades for key testing facilities	100% infrastructure audit completed by Q4 2027	BFDA	MoH, MoF, DHI
<b>Pharma Tech Park Planning</b>	Complete feasibility study, land zoning, and master plan for Gelephu Tech Hub	Land secured, masterplan submitted by Q4 2027	NLCs	DoI
<b>Cold Chain Logistics</b>	Link pharma logistics to national vaccine cold chain; procure GSP equipment	GSP-compliant hubs operational in 4 dzongkhags by Q4 2028	MoH	BFDA, DoI, BSB, MoIT
<b>MPU Pilot</b>	Establish pilot MPU in Bumthang with solar dryers and traceability systems	MPU functional with traceable output by Q4 2028	MoAL	MoICE, BFDA, GovTech, MoH, FoTM
<b>Herbal Collection Hubs</b>	Construct 2 pilot hubs in Bumthang and Gasa linked to MPUs and highway network	2 hubs operational and networked by Q4 2028	MoAL	MoICE, BFDA, GovTech, MoH, FoTM

## Implementation Plan - Medium Term (2029-3031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>BFDA Capability Upgrade</b>	Launch 3 new labs for device, clinical, and herbal testing	All 3 labs operational by Q4 2031	BFDA	MoH, MoF
<b>Pharma Tech Park Development</b>	Develop core GMP zones, CDMO facilities, and utility infrastructure	Infrastructure for 2 GMP units, 1 CDMO, 1 R&D center by Q4 2031	DoI	MoF, MoIT
<b>MPU Expansion</b>	Set up MPUs in Trashiyangtse and expand existing MPUs with advanced grading & batch control	3 MPUs operational by Q4 2031	MoAL	MoICE, FoTM, MoH
<b>Herbal Hub Scaling</b>	Construct 3 new collection hubs in Zhemgang, Mongar, Dagana	70% increase in raw herb volume and 3 hubs live by Q4 2031	MoAL	LGs, MoICE, MoH, MoF, MoIT

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Fully Operational Pharma Tech Park</b>	Complete infrastructure and attract anchor tenants in Gelephu Pharma Tech Park	Hub 100% operational with 5 tenants, 3 export lines by Q4 2035	DoI	Private Sector
<b>End - to End Cold Chain</b>	Enable traceable, GSP/GDP-compliant cold chain across MPU to market	Full national certification achieved by Q2 2034	MoH	DoT, Private Logistics Operators, GovTech
<b>Advanced Herbal Clusters</b>	Integrate MPUs, collection hubs, and downstream herbal industries into export-ready clusters.	2 certified clusters traceable and GMP-ready by Q4 2035	MoAL	DHI, Bhutan Herbal Cooperative, MoICE

## C. Promotion of Industries/ Value Addition

Despite Bhutan's rich biodiversity, traditional knowledge systems, and growing demand for essential medicines, the country relies heavily on imports and lacks a robust value-added production system. There is limited R&D capacity, inadequate cultivation and processing infrastructure, and no local manufacturing of medical devices. This intervention aims to systematically unlock industrial potential through research, innovation, targeted zone development, and skill building to promote value addition across the medical products value chain.

### a. High-Value Medicinal Plant Cultivation Zone

- **Demarcate and develop HAMP zones** (Lingzhi, Gasa, Bumthang) for alpine herbs like *Cordyceps*, *Rhododendron anthopogon*.
- **Establish LAMP zones** (Pemathang, Zhemgang, Mongar, Sarpang) for Ayurveda-compatible species like *Berberis aristata*.
- Publish **sustainable cultivation protocols** and train farmers in ecologically safe harvesting and domestication practices.

### b. Evidence-Based Herbal Product Development

- Standardize herbal formulations (e.g., tinctures, capsules) through scientific validation, phytochemical fingerprinting, and toxicity testing.
- Develop an export-oriented product portfolio aligned with Indian, Chinese, and EU pharmacopeia.
- Include legal cannabis derivatives with therapeutic potential, guided by clear IP and safety frameworks.
- Traditional Medicine Certification & Testing Hubs
- Set up regionally networked certification labs for herbal products to ensure batch consistency, efficacy, and safety validation.
- Enable export certification based on international quality standards.

### c. Herbal Processing & Value Addition Units

- Establish processing units within cultivation zones to produce extracts, powders, and value-added herbal products.
- Integrate units with MPUs and collection hubs to boost local employment and shorten value chains.

#### d. Medical Device Innovation & Manufacturing

- Launch a Medical Devices Manufacturing Zone within the Pharma Industrial Park near Gelephu.
- Promote Bhutan-designed prototypes for low-cost IVDs, diagnostics, and PPE using natural materials.
- Support technology transfer with global manufacturers and link with local CSI/textile sectors for disposables and packaging.

### Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Medicinal Plant Zoning</b>	Identify and demarcate HAMP & LAMP zones	Atleast 6 zone mapped and gazetted for medicinal plant cultivation by Q4 2027	MoAL, MoENR	NBC, LGs, MoH, Private Sector
<b>Sustainable Cultivation</b>	Develop and disseminate sustainable cultivation protocols aligned with environmental standards	2 Cultivation manual published and distributed, and 100 farmers trained by Q4 2028	MoAL, MoENR	LGs
<b>Herbal Processing Units</b>	Pilot units for extracts, powders, packaged products in cultivation zones	2 units with 5+ products each operational by Q4 2028	DoI	NLCS, Private Sectors, MoH, MoAL, MoENR
<b>Standardized Product</b>	Develop and register validated formulations (capsules, tinctures)	3 formulations registered by Q3 2028	BFDA	FoTM, MoH
<b>Quality Certification Hubs</b>	Establish herbal product testing and export cert labs	2 testing hubs functional and certified by Q4 2028	BFDA	BSB
<b>Device Prototyping</b>	Launch prototyping support for diagnostics and PPE	3 prototypes developed by Q4 2027	MoH	RUB

### Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Herbal Product Compliance</b>	Create IP, safety, and export certification frameworks for herbal/cannabis products	Framework applied to 10+ products by Q4 2031	DoMCII P	BFDA, BSB, MoH
<b>Medical Device Industry</b>	Attract early-stage firms and investors into park	2 firms operational by Q4 2031	DoI	Private Sectors, Private Sector

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Herbal Brand</b>	Launch national herbal brand with GI and export certification	Brand launched with 2 international certifications by Q4 2035	DoMCII P	BFDA, BSB, DoI, Private Sectors, Private Sector
<b>Tech Transfer</b>	Sign MoUs and joint ventures for advanced medical device manufacturing	2 JVs and 2 MoUs signed by Q4 2035	DoT	MoFAET, MoH

### D. Value Chain Development/ Enhancement

Strengthening the value chain across production, distribution, and marketing is essential to scale Bhutan's domestic industry, reduce reliance on imports, and establish footholds in export markets. Interventions in this area will build institutional mechanisms, digital linkages, and market-driven incentives to strengthen both upstream (inputs) and downstream (sales, export) parts of the value chain.

#### a. Institutional Capability Enhancement

- Strengthen DoI, CSIPD, and Export Facilitation Cells to support:
  - Certification facilitation
  - Regulatory advisory for SMEs
  - Trade event participation and market linkages
- Facilitate CSI access to export SOPs, buyer engagement tools, and compliance checklists.

#### b. Digital Trade Platform for Medical Products

- Design and deploy a centralized "Bhutan MedLink" portal that connects:
  - Producers, suppliers, regional distributors, contract manufacturers, institutional buyers
- Platform features:
  - Verified listings with quality & certification badges
  - Matchmaking tools using AI/ML to link buyers with domestic suppliers
  - Embedded logistics support tools (cold chain visibility, export documentation trackers)

#### c. Local Procurement Mandate

- Enforce a policy giving preferential procurement status to:

- Essential Drug List (EDL) items produced domestically
- Locally manufactured PPEs and consumables
- Strengthen public-private coordination to ensure inclusion in government tender systems.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Export Facilitation Cell</b>	Develop SOPs for export advisory, certification facilitation, and trade event support.	SOP adopted with 5 CSIs supported by Q4 2028	DoI	DoT, Private Sector
<b>Trade Portal Design</b>	Conduct needs assessment and develop beta versions of the digital trade platform.	Needs assessment completed and beta portal launched with 25 products listed by Q4 2028	DoT	DoI, DHI, GovTech, TechPark
<b>Local Procurement Mandate</b>	Mandate domestically produced products for public procurement	Policy notification issued and mimumed 10 product categories incorporated into government tenders by Q4 2028	DoI	OCASC, MoH, MoF

## Implementation Plan - Medium to Long Term (2029-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Portal Launch</b>	Launch full trade portal with verified seller-buyer registry, product verification tags, and logistics support tools.	Portal launched by Q4 2034	DoT	DoI, DHI, GovTech, TechPark
<b>Buyer–Supplier Missions</b>	Facilitate regional trade missions and reverse buyer-seller meets	5 missions hosted with 30+ matches by Q4 2035	DoT	DoI, BCCI, Private Sector

## E. Technology Adoption

Embracing emerging technologies such as AI, blockchain, automation, and biotechnology can catalyze a leap in Bhutan’s pharmaceutical capabilities. This is particularly relevant in drug discovery, herbal authentication, real-time testing, and medical device prototyping. By promoting tech-transfer, digital traceability, and AI integration, Bhutan can accelerate product

development, ensure global quality standards, and position itself competitively in niche markets.

**a. Blockchain for End-to-End Traceability**

- Deploy pilot blockchain traceability systems for high-value and high-risk items (*Cordyceps sinensis*, *Swertia chirayita*, and 1 EDL drug).
- Scale into a National Blockchain Registry integrated with quality assurance, export certification, and supply chain logistics.

**b. Portable Field-Tech for Herbal Zones**

- Equip regional MPUs with portable phytochemical analyzers for real-time chemical profiling.
- Build local capacities (farmers, processors, collectors) for decentralized quality control.

**c. AI-Driven Biopharma Innovation Lab**

- Establish National AI Biopharma Lab at KGUMSB and Pharma Tech Hub for:
  - Drug discovery
  - Herbal compound identification
  - Machine learning-enabled product formulation
- Develop international research partnerships and a pipeline of Bhutanese AI specialists in biotech.

**d. Smart Manufacturing Adoption**

- Pilot Industry 4.0 tools (IoT, automation, real-time QA/QC) in 2 model units—one herbal, one pharmaceutical.
- Develop national Industry 4.0 adoption guidelines for phased rollout across Pharma Tech Park.

**e. 3D Printing for Medical Innovation**

- Launch a 3D Printing Lab within the Pharma Tech Hub focused on:
  - IVD prototypes
  - Low-cost assistive devices
  - Bio-compatible components using sustainable materials

**f. Global Positioning & Indigenous Innovation**

- Secure international recognition for Bhutan's blockchain traceability model (e.g., WHO, WTO, ITC).
- Formalize an Indigenous Device Innovation Program focused on AI-driven diagnostics and 3D-printed care tools with Bhutanese IP.



## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Blockchain Traceability</b>	Pilot for <i>Cordyceps</i> , <i>Swertia chirayita</i> , and 1 EDL drug	3 products actively tracked via blockchain by Q4 2028	GovTech, MoICE	BFDA, BSB
<b>Portable Phytochemical Analyzers</b>	Deploy analyzers and train users in 2 herbal zones	2 analyzers operational and 10 locals trained by Q4 2028	BFDA, MoAFET	MoH

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>National Blockchain Registry</b>	Establish registry for herbal/pharma traceability linked to export certification	Registry launched and live by Q4 2031	GovTech, MoICE	BFDA, BSB

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Smart Manufacturing Adoption</b>	Pilot Industry 4.0 upgrades and publish guidelines	2 pilot units + national guideline published by Q4 2035	MoICE, MoH	GovTech
<b>Biopharma AI Lab Phase 1</b>	Operationalize lab, secure international research partners	1 lab live, 1+ partnerships, 10 staff trained by Q4 2035	KGUMSB and RUB	MoH, MoICE, GovTech
<b>3D Printing Pilot</b>	Launch pilot 3D printing lab within Pharma Tech Hub. Focus on IVD kits and trial prosthetics.	1 lab setup by Q4 2035	MoICE	KGUMSB, RUB, DHI
<b>Global Traceability Certification</b>	Secure international recognition for Bhutan's blockchain traceability model. Use as a marketing asset.	Recognition secured from 2 international bodies by Q4 2035	MoICE	International Trade Centre, WHO

<b>Indigenous Device Innovation</b>	Establish a national medical device innovation program for AI-driven diagnostics and 3D printed care tools.	Program established by Q4 2035	MoICE	KGUMSB, MoH
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## F. Capacity Building

The situational analysis shows limited trained personnel in herbal processing, biopharmaceutical production, and device calibration. To foster a skilled, future-ready workforce, Bhutan must invest in structured technical training, national workforce development, and exposure to international best practices. Capacity building is crucial to ensure quality assurance, competitiveness, and long-term sustainability of the medical products sector.

### a. Modular Bootcamps & Certification

- Launch modular bootcamps in:
  - GMP herbal production, API basics, AI for drug discovery
  - Labeling, traceability, compliance, and international certification
- Run short-term certifications via TVETs, KGUMSB, and RUB for device calibration, disposables testing, and diagnostic tools

### b. Structured Workforce Development Program

- Establish a National Pharmaceutical Workforce Development Program:
  - Integrated training + job placement for manufacturing, QA/QC, and regulatory affairs
  - Monitor by region, age cohort, and skills progression

### c. Scholarships, Internships & International Exposure

- Award national scholarships for R&D, regulatory science, and biomanufacturing.
- Forge international placements and exchange programs with leading global firms and universities.

### d. Community-Based Certification

- Roll out community collector certification in sustainable, traceable harvesting.
- Embed digital tools (QR, traceability apps) and link to blockchain pilot zones.

### e. Institutionalize GMP and QA Training

- Conduct annual trainings for regulators and industries on:

- ISO standards, GMP compliance, and quality audits

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Modular Bootcamps</b>	Launch bootcamps in GMP herbal production, labeling, compliance, and API basics in 3 pilot locations.	3 bootcamps conducted with 100 participants by Q4 2028	MoH	RUB, KGUMSB, FoTM
<b>Device Testing Certificates</b>	Develop 2 short-term certificate programs for testing and calibration of disposables and diagnostics.	2 certificate programs launched and 50 participants certified by Q4 2028	KGUMSB and RUB	TVET, MoICE, MoH
<b>Scholarships</b>	Provide 10 national scholarships in R&D, pharma tech, and regulatory sciences.	10 scholarships awarded by Q4 2028	MoESD	MoH
<b>Collector Certification</b>	Certify herbal collectors in Gasa, Bumthang, and Trashiyangtse in traceable, sustainable harvesting.	50 collectors certified by Q4 2028	MoAL	BFDA, BSB, NBC

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Scale Bootcamps</b>	Scale modular training to 6 regions; include AI-driven drug discovery and international certification modules.	Bootcamps held in 6 regions with 200 participants BY Q4 2031	MoH	RUB, KGUMSB, FoTM
<b>Internship/ Exchange</b>	Secure 10+ international placements/year in pharma firms or universities for hands-on training.	20 students placed internationally by Q2 2035	MoICE	MoFAET, DHI, MoH
<b>National Workforce Program</b>	Launch structured workforce development strategy with curricula, targets, and placement tracking.	Program launched by Q2 2032	MoICE, MoH	KGUMSB, MoESD
<b>Annual GMP/QA Trainings</b>	Institutionalize GMP, ISO, and QA workshops for regulators and firms through BFDA and private associations.	1 training per year conducted	BFDA	BSB, Private Sector

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Talent Intelligence System</b>	Develop a digital dashboard for workforce mapping, forecasting & gap analysis	Talent dashboard live by Q1 2035	MoESD	RUB, GovTech
<b>Credential Recognition</b>	Enable regional/international recognition of national certifications	Bhutan certifications recognized in at least 2 export markets by Q4 2035	MoICE	BSB, BFDA, MoESD

## G. Market Linkages and Support

The situational analysis identified fragmented supply chains, limited international outreach, and absence of digital platforms linking Bhutanese producers with global buyers. Strengthening market linkages is therefore essential to drive export readiness, attract investment, and promote Bhutanese brands in regional and international markets. Strategic digital tools, trade diplomacy, and curated B2B forums will serve as key enablers for integration into global value chains.

### a. Dual Export Accelerator Portals

- Launch two interconnected platforms:
  - Herbal & Traditional Medicine Portal: Product showcase, GI traceability, certified collector directory, and export-ready documentation.
  - Pharma Export Portal: Real-time inventory of EDL/API availability, GMP certifications, contract manufacturers, and investor outreach tools.

### b. Bhutan Herbal & Pharma Industry Forum

- Host annual trade and innovation forums:
  - Facilitate buyer-seller B2B matchups
  - Promote regional diplomacy and policy roundtables
  - Include product demos, regulatory updates, and pitch sessions

### c. Bilateral & Regional Trade Facilitation

- Initiate mutual recognition agreements (MRAs) with India, Bangladesh, and ASEAN neighbors.
- Fast-track product acceptance, customs cooperation, and lab testing equivalence.

#### d. Market Intelligence & Trade Analytics Unit

- Establish a Trade Intelligence Cell within MoICE:
  - Track global trends, regulatory changes, buyer behavior
  - Provide export insights, policy feedback, and strategic trade forecasts

#### e. International Branding Campaign

- Launch a "Bhutan Wellness & MedTech" campaign in regional expos, embassies, and digital media
- Focus on clean ingredients, traceability, sustainability, and Bhutan's unique GI-tagged products

### Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Herbal and Pharma Portal</b>	Design and launch dual export platforms with certification uploads and buyer tools	1 unified portal live by Q4 2028 with 50+ products and suppliers listed	MoICE	MoH, GovTech, MoAL, NBC
<b>Industry Forum</b>	Host Bhutan Herbal & Pharma Forum annually, with participation from regional buyers.	2 forums held by Q4 2028	MoICE	Private Sectors, MoFAET, MoF
<b>Market Access</b>	Initiate bilateral talks with India and Bangladesh on mutual recognition of herbal and pharma standards.	2 formal bilateral consultations conducted by Q4 2028	Dot	MoH

### Implementation Plan - Medium to Long Term (2029-3035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Market Intelligence Unit</b>	Establish trade analytics and market intelligence cell at MoICE	Unit operational with quarterly reports by Q2 2030	MoICE	MoH
<b>International Branding Campaign</b>	Launch Bhutan-branded campaigns for herbal and modern medical products in regional trade expos and embassies.	Brand featured in at least 3 regional expos by Q4 2035	MoICE	MoFAET, MoH

## H. Branding and Global Marketing

Bhutan's rich biodiversity, pristine environment, and cultural heritage present an opportunity to differentiate its medical products globally. However, a fragmented branding approach, lack of international certifications, and low visibility in foreign markets limit Bhutan's export competitiveness. As global demand grows for sustainable, ethical, and plant-based wellness products, Bhutan can carve out a premium niche by developing a unified national brand, pursuing GI tagging, and leveraging its ecological advantage in wellness tourism. Strategic branding and marketing will enhance recognition, trust, and value of Bhutanese pharmaceutical and herbal products in both regional and high-end international markets.

### a. GI Tagging for Bhutanese Botanicals

- Secure Geographical Indication (GI) status for high-value species like:
  - *Cordyceps sinensis*
  - *Swertia chirayita*
  - *Rhododendron anthopogon*
- Promote these as premium regional specialties in global herbal and nutraceutical markets.

### b. Unified National Branding Architecture

- Develop and roll out a comprehensive brand identity that includes:
  - QR-based traceability & eco-labeling
  - Packaging standards rooted in Tibetan medical lineage and Bhutanese sustainability ethos
  - Certification badges (e.g., organic, WHO-GMP, FairWild)

### c. Wellness Tourism Clusters

- Design "Healing Villages" as exportable wellness experiences in biodiversity-rich dzongkhags.
- Integrate traditional medicine, herbal therapies, meditation, local nutrition, and eco-lodging.
- Package under the national brand as experience-driven market entry.

### d. Third-Party Global Certifications

- Partner with Ecocert, WHO-GMP, FairWild, Organic India, and similar agencies to:
  - Certify key products
  - Use certification as a brand marketing asset
  - Build trust among buyers in Europe, East Asia, and ASEAN.

## Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>GI Tagging</b>	File GI applications for Cordyceps sinensis, Rhododendron anthopogon, Swertia chirayita through national IPR office.	3 GI application filed and published by Q4 2028	MoICE	MoAL, NBC
<b>Branding Toolkit</b>	Develop branding toolkit (standard logos, QR traceability formats, eco-label criteria).	Toolkit finalized and distributed by Q3 2028	MoICE	BFDA, BSB, Private Sector
<b>Wellness Village Design</b>	Conduct feasibility and pilot design for 1–2 healing villages (e.g., Gasa, Bumthang).	Feasibility studies completed by Q4 2028	MoICE, MoH	LGs, NLCs
<b>Certification Dialogue</b>	Initiate dialogue with certification agencies (FairWild, WHO-GMP, Ecocert).	3 certification dialogues conducted by Q4 2028	MoICE	MoH, MoFAET

## Implementation Plan - Medium to Long Term (2029-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>National Brand Launch</b>	Roll out national brands for Bhutanese Medical Products across trade expos, embassies, and packaging.	National brand launched by Q4 2031	MoICE	BFDA, BSB, Private Sector
<b>Healing Village Operations</b>	Launch 2–3 fully operational healing villages with licensed therapies, eco-accommodation, and herbal spas.	2 healing villages operational by Q4 2035	MoICE, MoH	LGs, NLCs
<b>Global Certifications</b>	Obtain organic, fair trade, and sustainability certification for 10–15 major products.	10 key products certified by 2 international bodies by Q4 2035	MoICE	MoH, MoFAET



## 8. Mineral Based Industries

### 8. 1. Background

Bhutan's mineral sector holds significant potential to contribute meaningfully to the national economy, particularly as the country pursues its goal of becoming a high-income nation by 2034, driven by innovation and sustainability. In 2023, the mining and mineral processing sector contributed approximately Nu. 5,513 million, accounting for 2.21% of GDP. Despite this modest contribution, the sector's untapped potential is vast, underpinned by rich reserves of industrial minerals such as dolomite, limestone, gypsum, coal, quartzite and feldspar.

The country's 342 mineral-based industries are currently focused predominantly on raw mineral extraction. However, there is significant opportunity for value addition through downstream processing, green mineral processing, strategic minerals exploration, linkages with other sectors and product diversification. Products like silicon-rich materials, ferro-silico-manganese, dolomite, crushed stones, and cement already represent some of Bhutan's top exports. With over 14 billion tonnes of dolomite and significant quantities of limestone and gypsum, Bhutan has the resources to expand into high-value processed goods, including engineered stone, specialty cements, and solar-grade silica.

In terms of strategic positioning, Bhutan is advantageously located near major regional markets, particularly India and Bangladesh. Furthermore, the development of inland logistics infrastructure—including dry ports at Nganglam and Pasakha, and the forthcoming Jogighopa Inland Waterways Terminal in Assam—offers a major boost to trade facilitation. These investments are expected to reduce logistics costs and improve competitiveness.



Nevertheless, the sector is constrained by several structural and systemic challenges such as low domestic value addition, infrastructure and logistical bottlenecks, skilled manpower shortage, access to finance, regulatory unpredictability, environmental and geopolitical sensitivities.

To address these issues, Bhutan has initiated reforms and strategies aimed at strengthening the mineral sector's contribution to economic transformation. The airborne geophysical survey initiated recently is expected to reduce exploration risk and support industrial planning. The establishment of dedicated mineral processing zones in regions like Samrang, Nganglam, and Gomtu, aligned with land allocation policies and infrastructure expansion, will help scale operations and attract investment.

For long-term competitiveness, Bhutan should pursue branding strategies that highlight its green credentials and sustainable mining practices, thereby positioning its mineral exports in premium international markets.

Overall, with focused reforms, infrastructure investments, and coordinated policy action, Bhutan's mineral-based industries can evolve from extractive to transformative, becoming a dynamic engine for economic diversification, employment generation, and industrial innovation.

The different types of minerals available in Bhutan is attached as **Annexure 4**.

## 8. 2.Situational Analysis (SWOT)

Strengths	Weaknesses
<p><b>Green Energy Supply:</b> Industries are powered by renewable energy (hydro, solar, wind), offering an edge in sustainability and eco-branding.</p> <p><b>Carbon-Negative Branding:</b> Bhutan's unique carbon-negative status enhances the international marketability of its products.</p> <p><b>Political Stability:</b> Stable governance provides investor confidence and long-term policy predictability. - remove</p> <p><b>Low-Cost Electricity:</b> Competitive electricity tariffs attract energy-intensive industries.</p> <p><b>Abundant Industrial Minerals:</b> Presence of key minerals like dolomite, quartzite, limestone, marble.</p> <p><b>Presence of Existing Industrial Infrastructure:</b> Established industrial parks and dedicated energy allocations.</p>	<p><b>Limited Access to Finance:</b> High collateral requirements and lack of alternative financing (VCs, equity) hinder investment.</p> <p><b>Small Domestic Market:</b> Restricts economies of scale and makes export orientation critical.</p> <p><b>Limited Market Access &amp; Logistics:</b> Landlocked geography and dependency on third-country transit routes.</p> <p><b>Overdependence on Ferro Alloys:</b> Vulnerability to global market shocks; insufficient diversification.</p> <p><b>Short Lease Periods:</b> 15-year mining leases disincentivize long-term investments (investors seek 50+ years).</p> <p><b>Mandatory Value Addition:</b> Current requirement lacks flexibility and disincentivizes investors where value addition is not viable.</p> <p><b>FDI Limitations:</b> FDI disallowed in captive mining discourages vertically integrated value chains.</p> <p><b>Energy Quota Inequities:</b> Disparity in electricity allotment among industries hampers emerging sectors.</p>

<p><b>Environmental Credibility:</b> Clean industrial profile supports green product narratives.</p>	<p><b>Insufficient Skilled Manpower:</b> Lack of training for mineral processing, product development, and innovation.</p> <p><b>Lack of Comprehensive Mineral Value Chain Mapping:</b> Gaps in understanding the potential of value addition across mineral types.</p> <p><b>Border Delays and Customs Bottlenecks:</b> Manual documentation, lack of harmonized customs procedures and inconsistent application of rules lead to border delays.</p> <p><b>Use of low-tech or basic technology:</b> Limiting efficiency, increasing operational costs and reducing productivity and sustainability.</p>
Opportunities	Threats
<p><b>Value-Addition:</b> Potential to move from raw material exports to higher-value processed products (e.g., specialty cements, engineered stone).</p> <p><b>Green Mineral Processing:</b> Leveraging clean energy for environmentally friendly mineral refining.</p> <p><b>Linkages with Other Sectors:</b> For example, construction, electronics, and renewable technologies (e.g., silica for solar panels).</p> <p><b>Export Diversification:</b> Mineral-based industries can target regional markets.</p> <p><b>Strategic Minerals Exploration:</b> Continued surveys may identify rare earth elements or battery metals important for green technologies.</p> <p><b>Green Branding for Export:</b> Bhutan's clean energy and carbon-negative status can command premium markets.</p> <p><b>Job creation:</b> The mineral industry holds significant potential for job creation. By expanding value addition, mechanized mining and mineral-based manufacturing, the sector can generate employment across various skill levels—from unskilled labor to specialized technical and managerial roles.</p> <p><b>Small &amp; Cottage Industry Growth:</b> Mineral-based MSME products like tiles, sculptures, natural stone crafts.</p> <p><b>Product Diversification:</b> Explore high-value minerals, rare ores, semi-precious stones.</p> <p><b>FDI Attraction:</b> Captive mining leases with conditions; exploration rights with ESG safeguards.</p> <p><b>Digital &amp; Remote Tech in Mining:</b> Adoption of best practices and sustainable technologies.</p> <p><b>Research and Innovation:</b> Invest in geological studies, feasibility analysis, and market trends to guide industrial development.</p> <p><b>Skill Development Programs:</b> Train workforce for downstream mineral processing and value-added production.</p>	<p><b>Market Volatility:</b> Global commodity cycles and economic shocks (e.g., trade wars, COVID-like disruptions).</p> <p><b>Substitute Products:</b> Synthetic and alternative materials can make Bhutanese minerals (e.g., natural gypsum) obsolete.</p> <p><b>Policy Inconsistencies:</b> Frequent changes and contradictions in regulation deter long-term planning.</p> <p><b>Environmental Degradation Risks:</b> Unsustainable practices can harm Bhutan's ecological integrity and image.</p> <p><b>Product Rejection in Export Markets:</b> Due to non-alignment with international standards.</p> <p><b>Regional Competition:</b> Competing countries may offer more attractive investment conditions and logistics.</p> <p><b>Community resistance:</b> Community resistance to mineral exploration due to pollution and sacred site concerns.</p>

<b>Export Platform Integration:</b> Participation in international trade fairs, expos, and roadshows to promote Bhutanese mineral products.	
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## 8. 3. Vision and Expected Results

### Vision:

To foster a highly sustainable, technologically advanced and economically vibrant mineral industry that responsibly harnesses Bhutan’s geological endowment including its unique capacity for clean power to contribute significantly to the nation’s high income GNH economy, while upholding environmental integrity, ensuring social equity and promoting intergenerational well-being.

### Expected Result:

- Sector’s (both mining and downstream manufacturing) contribution to overall GDP - USD 226.35 million with annual growth rate at 11.9% by 2035.
- Offset or reduce import by 45% with annual export revenue between USD 1.1 to 1.5 billion.
- Employment (both mining and downstream manufacturing) is expected to create 5,000+ jobs by 2035.
- 2-3 new Industrial Parks/ Mineral Processing zones are expected to be fully operational or at an advanced stage of development by 2035.

## 8. 4. Strategic Interventions and Action Plan

### A. Policy and regulatory support

- Integrated Clearance and Permit System Reform:** The DGM and Department of Environment and Climate Change shall review the existing clearance and permit systems relevant to the mineral sector and recommend harmonization and integration of all platforms into a single integrated system. This reform aims to streamline inter-agency coordination, reduce turnaround time (TAT) and enhance the ease of doing business.

- b. Feasibility of privatizing State-Owned mines:** A feasibility assessment shall be undertaken to explore the privatization of mines currently operated by State Mining Corporation Limited. The objective is to foster a competitive and dynamic mineral sector by encouraging private sector participation, improving operational efficiency and enabling a level playing field across the entire mineral value chain.
- c. Review of Electricity Tariffs for Mineral Processing Industries:** The review of existing electricity tariffs for mineral processing industries would be critical to improve Bhutan's export competitiveness. Currently, the medium voltage (MV) tariff is Nu. 1.60/kWh, fixed by the Electricity Regulatory Authority until June 2025. While it was Nu. 0.70/kWh in 2000 and Nu. 1.34/kWh in 2018, the power traffic has increased by 128% over the span of 25 years (2000-2025). The inconsistent power tariff causes confusion and inefficiencies in cost planning and forecasting for mineral processing industries. Targeted subsidies or preferential energy tariffs, particularly for export-oriented mineral processing units, could significantly enhance cost competitiveness.
- d. Subsidized Minimum Lending Rate for the Mineral Sector:** The MoICE to initiate bilateral discussions with MoF, RMA, and FIs regarding the subsidized Minimum Lending Rate for the sector in view of the potential growth of the mineral sector.
- e. Fiscal Incentives to boost Investment:** The fiscal incentives should be continued to boost and enhance investment capacity of Mineral based industries to enhance the export of minerals and promote value addition to achieve broader economic resilience.
- f. Introduction of Creditworthiness-Based Lending Schemes for Mineral Sector Investment:** Funds are provided with specific terms to ensure money is used exclusively for factory construction and related activities, based on the borrower's creditworthiness, minimizing risk for the bank. This should be aligned with global best practices such as India's SIDBI (Small Industries Development Bank of India), which offers venture debt and project finance for MSMEs based on creditworthiness rather than physical collateral.
- g. Private Sector Support for Exploration:** MoICE to recommend Private Public cost sharing initiatives to encourage and support the private sector in undertaking mineral exploration and feasibility studies through a Public-Private Partnership (PPP) model with shared financing responsibilities. This will help mitigate financial risks, attract private participation, and speed up resource development.

- h. Skilling and upskilling workforce for the Mineral Industry:** To address labor market challenges and support the growth of the mineral industry, existing employment support programs must be strengthened and aligned with evolving sectoral demands. Tailored training programs focused on mineral processing, product development and diversification and product innovation should be introduced to build a technically competent workforce. Partnerships with technical institutes and international agencies will be critical to ensure relevance and quality.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Policy and Regulatory Support	Harmonize and implement an integrated system for all types of clearances to ease undertaking mining business	Integrated clearance system implemented by Q4 2027.	DGM	DoI, DoECC, GovTech, Private Sector
	Feasibility assessment for privatization of State-Owned Mines	Feasibility study completed and recommendations submitted by Q2 2027.	DGM	DoI, MoF, Private Sector
	Review existing power tariffs and recommend subsidies for mineral processing industries	Recommendations on power tariff subsidies submitted by Q3 2026.	ERA	DGM, MoF, DoI
	Skilling and upskilling workforce for the Mineral Industry	2 training programs initiated by Q4 2027, with 100 individuals skilled/upskilled.	DGM	DoEE, Private Sector, MoF

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Policy and Regulatory Support	Review royalty on processed mineral products and propose downward revision	Proposal for royalty revision submitted by Q2 2030.	DGM	DoI, MoF

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Policy and Regulatory Support	Develop PPP model to finance feasibility and exploration works	PPP model developed and launched by Q4 2033.	DGM	MoF, DoI, Private Sector

## B. Promotion of industries/Value addition

- a. **Identify Key Minerals for Beneficiation and Value Addition:** Identify minerals with strong potential for beneficiation and value addition to prioritize them for downstream industrial development.
- b. **Establish mineral royalty investment fund for sector development:** Bhutan's mineral sector generates significant royalty income, contributing to the national economy. To better support sectoral development, it is recommended to establish a dedicated investment fund, allocating 5–10% of mineral royalty revenues. This fund should focus on developing value-added industries, especially for enterprises lacking access to traditional collateral. Global best practices, such as Australia's Resource Super Profits Tax, Chile's Economic and Social Stability Fund (ESSF), and Canada's use of royalty revenues for sectoral reinvestment, have proven effective in supporting long-term industrial growth, innovation, and private sector participation in the mineral industry.
- c. **Establishment of value added Mineral based Industries:** MoICE, in coordination with relevant stakeholders, should facilitate the support of linked industries that will enhance the sustainability and resilience of Bhutan's mineral-based production. These industries will act as downstream consumers of processed minerals, strengthening value chains and promoting industrial diversification.
- d. **Promote production of green mineral products:** Bhutan should invest in green technology and engagement in the production of green mineral products—such as green cement, low-carbon clinker, recycled aggregates, geopolymers binders, eco-friendly gypsum board, and value-added dolomite products—can position Bhutan as a regional hub for sustainable and environmentally responsible industrial development. "Industries should be supported under the Bhutan Climate Fund and the Bhutan Carbon Market Scheme through targeted incentives, technical assistance, and fast-tracked approval processes for green technology adoption and low-carbon industrial initiatives.
- e. **Strategic Industrial Location:** While the economic viability of mineral-based industries is significantly enhanced when located near the resource base (mining sites), current zoning criteria and industrial land use policies often make such proximity unfeasible. This misalignment between resource location and permissible industrial zones leads to higher transportation costs, logistical inefficiencies, and underutilization of local mineral resources. Revisiting and revising the zoning regulations to align with mineral resource distribution—while ensuring environmental safeguards—would greatly improve the feasibility and competitiveness of mineral-based industries in Bhutan.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Promotion of Industries/ Value Addition	Identify key minerals for beneficiation and value Addition	Identification report of key minerals completed by Q4 2026	DGM	Private Sector
	Establish mineral royalty investment fund for sector development	Fund established and operational by Q2 2027.	DGM	MoF, Private Sector
	Promote downstream mineral based industries	3 new downstream mineral-based industries promoted by Q4 2028.	Dol	DGM, Private Sector
	Promote production of green mineral based products	2 green mineral-based products promoted by Q4 2028.	Dol	DGM, Private Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Promotion of Industries/Value Addition	Identification of Strategic Industrial Location for establishment of high value mineral based industries	Strategic industrial locations identified and designated by Q4 2030.	Dol	DGM, NLC, Private Sector

## C. Infrastructure and logistics development

- a. **Road and Transportation Network Improvement:** Identify and initiate support to develop and upgrade road and transportation networks linking key raw material sources to processing zones. This will reduce logistical costs, improve operational efficiency, and strengthen the entire mineral value chain.
- b. **Operationalization and Expansion of Dry Ports:** Operationalize the dry ports at Nganglam and Pasakha through private sector outsourcing to enhance service quality and management efficiency. Expedite the construction of additional dry ports, considering its strategic location for mineral exports in order to ease congestion and facilitate seamless trade.
- c. **Strengthening Standards and Certification Infrastructure:** Strengthen the institutional capacity of the Bhutan Standards Bureau (BSB) to provide comprehensive testing and certification services for key minerals and mineral-based products. This will enhance product quality, improve international market access, and ensure compliance with global

standards. Currently, certification issued by BSB is not recognized in the regional export market. Bhutan may have to consider resolving such issues through mutual recognition arrangements (MRAs) with other countries' standardization bodies.

**d. Feasibility study for dedicated Mineral Processing Zones:** Conduct detailed feasibility studies to establish dedicated mineral processing zones. Selection criteria should include proximity to mineral deposits, market access (domestic and regional), suitable land availability, logistical convenience, transport cost efficiency, and potential for future industrial growth. Proposed areas to be considered:

- **Proximity to raw materials**
  - Deothang and Samdrupcholing - Samdrup Jongkhar
  - Pemagatshel
  - Pugli, Samtse
- **Proximity to market**
  - Samdrup Jongkhar
  - Gelephu
  - Samtse - **near to market and raw material location**
  - Phuntsholing
  - Nganglam- **near to market and raw material location**
  - Samrang -**near to market and raw material location**
  - Thimphu (Capital Urban Centre- Feasible for construction industries, such as steel, gypsum board, tiles etc)

**e. Enhancing Trade Routes:** Conduct feasibility studies to explore alternative trade routes for mineral exports, including regional transit. Accelerate efforts to establish railway connectivity between Bhutan and India, focusing on commercial hubs such as Phuntsholing, Samtse, Nganglam, Gelephu, and Samdrup Jongkhar to reduce transport costs and enable large-scale export operations.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Infrastructure and Logistics Development	Improve road networks connecting mineral sites and processing	20% improvement in road network condition to mineral sites by Q4 2027.	DGM	DoST/MoIT, LGs
	Operationalize Nganglam and Pasakha dry ports and expedite Samtse dry port construction	Nganglam and Pasakha dry ports operational by Q2 2026; Samtse dry port construction 50% completed by Q4 2028.	DoT	DoI, MoF, Private Sector



## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Infrastructure and Logistics Development	Strengthen BSB capacity for testing/certification to meet international standards	BSB accredited for 3 new international standards by Q4 2030.	BSB	DGM, DoI, MoF
	Conduct feasibility for strategic establishment of mineral processing zone in Samdrup Jongkhar, Samtse, Nganglam, Phuntsholing	Feasibility study completed and recommendations submitted by Q2 2030.	DGM	DoI, NLCS, LGs

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Infrastructure and Logistics Development	Develop rail and road connectivity integrated within land waterways in India to reduce logistics costs and expand regional trade routes	Complete feasibility study for rail/road/waterway integration by Q4 2033; initiate development of 1 integrated route by Q4 2035.	DoT	MoF, MoFAET, DoI, Private Sector

## D. Technology Adoption

- a. **Adoption of Green and Energy-Efficient Technologies:** To support cleaner operations in Bhutan's mineral-based industrial sector, the government should encourage the adoption of green and energy-efficient technologies. This can be facilitated through targeted incentives, such as low-interest loans, preferential credit schemes, and carbon credit schemes, which can help offset the higher initial costs of adopting these technologies. Industries should be supported and encouraged to adopt Industrial Internet of Things (IIoT) solutions that enable energy efficiency, emissions monitoring, predictive maintenance, and optimized resource utilization in manufacturing and mineral processing."
- b. **Trade Facilitation System Improvement:** Bhutan's trade facilitation system currently faces challenges due to the absence of a Custom to Custom (C2C) Electronic Data Interchange (EDI) system. This results in manual documentation at customs points, causing delays, administrative errors, and redundant paperwork. The lack of real-time data sharing between customs authorities in Bhutan, India, Bangladesh, and Nepal leads to inefficiencies in trade processing, discrepancies in declarations, and prolonged border

delays. Integrating Bhutan's eCMS (electronic Customs Management System) with international platforms such as ICEGATE (India), ASYCUDA (Bangladesh), and CAS (Nepal) would expedite the clearance process and reduce administrative burdens for exporters and customs officials.

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Technology Adoption	Introduce low-interest loans and carbon credit-linked incentives for adopting clean technologies	Launch loan and incentive programs by Q2 2029; achieve 10% adoption rate of clean technologies by Q4 2030.	DGM	MoF, RMA, Financial Institutions
	Strengthen electronic systems like C2C (Custom to Custom) EDI for seamless coordination in cross-border trade and customs facilitation to improve efficiency.	Implement C2C EDI system for key trade routes by Q4 2029.	DoT	DGM, MoFAET, Private Sector

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
Technology Adoption	Promote advanced tech for beneficiation and cleaner production in large industries	2 advanced beneficiation and cleaner production technologies adopted by large industries by Q4 2035.	DGM	DoI, MoF, Private Sector

## E. Capacity Building

- a. **Skills Shortages and Barriers to Private Sector Employment:** Bhutan faces critical skills shortages in many areas, hampering development. Barriers to private sector employment include high costs, competition with the public sector, labor market constraints, skills mismatches, limited MSME growth, and informality. The MoICE will collaborate with relevant stakeholders to identify these skill gaps and implement targeted interventions to address them.
- b. **Strengthening Industry Associations:** The Bhutan Exporters Association (BEA) and the Association of Bhutanese Industries (ABI) play a critical role in facilitating private sector participation in the formulation of policies and development plans for Bhutan's mineral-based industries. With adequate institutional, financial, and technical support,

these associations can provide more dynamic services—such as market intelligence, policy advocacy, capacity building, and investment facilitation. Strengthening their role and engagement will enhance coordination between government and industry, ensuring that private sector perspectives are well integrated into national industrial strategies. An empowered BEA and ABI will significantly contribute to the growth, competitiveness, and sustainability of Bhutan’s mineral-based sector.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Capacity Building</b>	Support programs to reduce skill mismatches with targeted TVET, CST, JNEC collaboration	Launch 3 targeted skill development programs by Q4 2027; reduce skill mismatch by 10% in the mineral sector by Q4 2028.	DGM	DoI, DoWPSD, RUB

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Capacity Building</b>	Strengthen ABI & BEA to provide advisory and business promotion support	Increase uptake of advisory services by 20% by Q4 2030; support 5 new business promotions by Q4 2030.	DoI, DoT	BEA, DGM, Private Sector

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Capacity Building</b>	Develop long-term skills development plan for mineral-based industries (Such as developing new vocation training institutes)	Develop and approve long-term skills development plan by Q4 2033	DoEE	MoESD, MoLHR, Private Sector

## F. Market linkages and support

- a. **Participation in International Trade Fairs:** Support Bhutanese businesses' participation in key international trade fairs through solely Government or PPP funding, to showcase their products and engage with potential global buyers. Notable trade fairs include:

- India: India International Mining & Machinery Exhibition (IMME)-biennial event, The Big 5 Construct India Minerals-Annual, Metals, Metallurgy & Materials

(MMMM) Expo-The Metals, Metallurgy & Materials (MMMM) Expo is a biennial international.

- Thailand: Building Construction Technology Expo (BCT Expo)-Annual event
- Indonesia: Con-Mine Exhibition-Annual event
- Singapore: Mining Asia Conference & Exhibition- Annual event
- Bangladesh: Build Bangladesh International Expo- Annual Event

- b. Enhancing global recognition of Mineral-Based Products:** Promote mineral based products leveraging Brand Bhutan to enhance the credibility of Bhutanese mineral-based products, increasing global recognition and demand.
- c. Leverage E-Commerce platforms for market enhancement:** Promote marketing using e-commerce platforms in the mineral-based industry to enhance market access and streamline transactions, making it easier for businesses to connect with buyers globally.
- d. Negotiate Bilateral and Regional Trade Agreements:** Advocate for preferential market access for Bhutanese processed minerals through trade agreements or regional cooperation particularly with India, Bangladesh, Nepal, Southeast Asia and other international potential markets.
- e. Enable Market Intelligence and Demand Forecasting:** Develop a market intelligence system that provides regular updates on global mineral demand, price trends, and trade regulations to help Bhutanese businesses make informed decisions.
- f. Leveraging Bhutan's Overseas Embassies/Missions for global market access:** Bhutan's overseas embassies/missions should be strategically utilized to facilitate new market entry for mineral-based industries. They can support by organizing promotional roadshows, trade delegations and buyer-seller meets to enhance visibility in target markets. They can also assist in identifying and connecting Bhutanese firms with credible buyers and distributors through business matchmaking services.
- g. Business-to-Business (B2B) Platforms:** Establish and promote national and international B2B platforms (buyers-to-buyers and buyers-to-suppliers). These platforms will allow Bhutanese firms to directly connect with international buyers, suppliers, and strategic partners. Integration with the Bhutan Trade Information Portal (BTIP) will streamline export processes and improve access to trade documentation, tariff data, and regulatory requirements.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Market Linkage and Support Summary</b>	Sensitize industries on BTIP and B2B platforms	Conduct 5 sensitization workshops by Q4 2026	DoT	DGM
	Leverage E-Commerce platforms for market enhancement for mineral based products	Onboard 10 mineral-based products onto e-commerce platforms by Q4 2027.	DGM	DoI, DoT, Private Sector
	Enable Market Intelligence and Demand Forecasting	Publish 2 market intelligence reports by Q4 2027.	DGM	Private Sector
	Negotiate Bilateral and Regional Trade Agreements	Conclude negotiations for 1 new bilateral or regional trade agreement by Q4 2028.	DGM	DoT, Private Sector

## Implementation Plan- Medium Term (2029-2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Market Linkage and Support Summary</b>	Facilitate Bhutanese participation in international trade expos	Facilitate participation in 3 international trade expos by Q4 2030.	DGM	DoT, MoFAET, Private Sector
	Develop public-private partnerships to jointly fund and organize trade missions	Establish 2 PPPs for trade missions by Q4 2030.	DGM	Private Sector
	Leveraging Bhutan's Overseas Embassies/Missions for global market access	Conduct 5 outreach programs with overseas embassies/missions by Q4 2030.	DGM	MoFAET, DoT, Private Sector
	Promote mineral based products leveraging Brand Bhutan	Launch 1 marketing campaign leveraging Brand Bhutan for mineral products by Q2 2029.	DoT	DGM, Private Sector

## Implementation Plan- Long Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agencies
<b>Market Linkage and Support Summary</b>	Promote "Made in Bhutan" for mineral-based products through global campaigns	Launch 1 global campaign for "Made in Bhutan" mineral products by Q4 2033.	DGM	DoT, Private Sector



## 9. Renewable Energy

### 9. 1. Background

Bhutan is endowed with abundant renewable energy resources, with an estimated hydropower potential of 32,600 MW, complemented by significant solar and wind energy capacities of 12,000 MW and 800 MW respectively, as outlined in the Power System Master Plan 2040 (Ministry of Economic Affairs, 2019). Hydropower remains Bhutan's most mature and economically significant renewable energy source. In 2023, it accounts for 11.61% of Bhutan's GDP, amounting to Nu. 28,951.83 million as reported in the National Revenue Report by the Ministry of Finance (2023). Additionally, hydropower generated Nu. 4,260.957 million in royalty revenues, according to the National Statistics Bureau (2023).

Additionally, exports during the monsoon months continue to be a vital source of foreign exchange. However, electricity demand has grown steadily in tandem with industrial development, recording a 20% compound annual growth rate over the past four decades. In 2023, high-voltage industrial loads alone accounted for 84.6% of total electricity consumption, significantly increasing base load demands (Ministry of Energy and Natural Resources, 2024). Seasonal shortfalls during dry months have necessitated growing power imports, projected to reach 1,500 to 1,900 MW annually from 2025 to 2030. This overreliance on seasonal river flows and vulnerability to climate variability have exposed systemic risks, prompting the need for a diversified energy portfolio. While hydropower has historically underpinned Bhutan's energy landscape, the focus is now being expanded to include solar, wind, and emerging technologies such as green hydrogen.

Recognizing this, Bhutan has set ambitious goals under the Renewable Energy Development Roadmap 2024, targeting 20,000 MW of hydropower and 5,000 MW of solar energy by 2040 . Bhutan also initiated policy reforms to open the sector to private investment, permitting up to 49% foreign direct investment (FDI) in hydropower and fully liberalizing solar energy projects. Wind power is also being explored as a complementary solution, particularly for remote and off-grid regions. Meanwhile, green hydrogen is gaining attention as a future strategic export, especially given Bhutan’s clean energy surplus, which provides an ideal base for zero-emission hydrogen production through electrolysis.

Therefore, the priority on the renewable energy sector reflects its alignment with core objectives of economic self-reliance, sustainable development, green industrialization, and climate leadership. The sector’s strategic potential lies not only in powering domestic growth but also in enhancing Bhutan’s role as a regional provider of clean energy. With coordinated investments, regulatory reform, and international partnerships, Bhutan’s renewable energy sector offers transformational potential, not only as a generator of clean power, but also as a catalyst for industrial innovation, export growth, and long-term national prosperity.

## 9. 2.Situational Analysis (SWOT)

Strengths	Weaknesses
<p><b>Abundance of renewable energy sources (hydro and solar):</b> Bhutan possesses vast untapped potential in hydro and Solar.</p> <p><b>Government commitment to sustainability:</b> The government promotes sustainable energy through policies aimed at increasing renewables and becoming a regional clean energy exporter.</p> <p><b>Carbon-negative status:</b> Bhutan remains one of the few carbon-negative countries, with significant forest cover that acts as a carbon sink.</p> <p><b>Mature market:</b> Bhutan has a strong foothold in the renewable energy sector, exporting hydropower to the mature Indian energy market.</p>	<p><b>Policy fragmentation:</b> Multiple overlapping energy policies create uncertainty, hindering investor confidence and sector stability.</p> <p><b>Limited access to affordable capital:</b> Bhutan lacks tailored incentives and affordable financing for renewable energy, making project viability challenging.</p> <p><b>Grid infrastructure &amp; market access constraints:</b> Bhutan's grid is untested for variable renewables, with unclear regulations on access, pricing, and PPAs.</p> <p><b>Limited public-private dialogue and advocacy:</b> Infrequent engagement with the private sector leads to misaligned policies and missed investment opportunities in renewable energy.</p> <p><b>Limited access to land and procedural delays:</b> Private investors face challenges due to restricted land availability and lengthy bureaucratic processes like forest and environment clearances, land leasing, and immigration, delaying project implementation.</p> <p><b>Energy storage capability is very low in Bhutan:</b> Since all the existing hydropower projects are Run-of-River (RoR) schemes with minimum storage capability, addressing this weakness through pumped hydro, batteries, and smart grid solutions</p>



	<p>will be crucial for energy resilience, renewable expansion, and economic efficiency.</p> <p><b>Lack of domestic solar panel manufacturing:</b> Bhutan's dependence on imported solar panels poses a significant long-term weakness for its renewable energy sector, resulting in increased expenditure, susceptibility to global supply chain issues, and a failure to cultivate local economic growth and expertise.</p> <p><b>Limited local expertise:</b> The country faces a critical shortage of skilled professionals in renewable energy (RE) sectors like solar, wind, and energy storage.</p> <p><b>Overdependent on hydropower:</b> Bhutan's heavy reliance on hydropower creates vulnerabilities that could impact energy security, economic stability, and long-term sustainable growth.</p> <p><b>Climate vulnerability:</b> Country's heavy reliance on hydropower and mountainous terrain makes its energy system highly exposed to climate change impacts, threatening long-term energy security, economic stability, and sustainable development.</p> <p><b>Intermittency of solar and wind energy:</b> Unlike hydropower's stable baseload, solar and wind depend on weather and seasons, posing challenges for grid stability and reliability.</p> <p><b>Lack of a competitive energy market and price discovery mechanism:</b> Bhutan's electricity sector is state-controlled with a single-buyer model, lacking transparent market pricing, which limits efficiency, private investment, and renewable energy growth.</p>
Opportunities	Threats
<p><b>Diversification into other renewables:</b> There is significant potential for solar photovoltaic (PV) installations (both for on-grid and off-grid applications), wind, and biomass, geothermal energy in Bhutan. Businesses can invest in these sectors to complement hydropower and reduce seasonal variability. Opportunities exist for businesses involved in solar PV installation, maintenance, and distribution.</p> <p><b>Carbon market for hydropower:</b> Bhutan's hydropower-dominated energy sector presents a major opportunity in global carbon markets. By monetizing its clean electricity generation through carbon credits, Bhutan can attract climate finance, boost renewable energy investment, and strengthen its position as a carbon-negative country.</p> <p><b>Energy storage solutions:</b> Developing energy storage systems, such as batteries or pumped-storage projects, can help address the seasonal mismatch between supply and demand. This presents an</p>	<p><b>Economic downturns in neighboring countries:</b> economic downturns in neighbouring countries represent a potential external threat to Bhutan's renewable energy sector, primarily by reducing/changing energy demand, decreasing export revenue, impacting future investment prospects, and potentially increasing competition.</p> <p><b>Changes in regional energy policies and regulations:</b> Bhutan's renewable energy sector, heavily reliant on exports to a single neighboring country, is inherently vulnerable to shifts in that country's energy policies and regulations. These changes could directly impact demand, prices, market access, and the overall economic viability of Bhutan's renewable energy exports, posing a significant threat to its current revenue streams and future development plans.</p> <p><b>Geopolitical instability:</b> Geopolitical instability can significantly disrupt and negatively impact cross-border renewable energy trade by disrupting existing relationships, hindering infrastructure development, creating policy uncertainty, impacting supply chains, and limiting technological cooperation.</p>



<p>opportunity for businesses specializing in energy storage technologies.</p> <p><b>Export of surplus energy:</b> Neighboring countries like India and potentially Bangladesh have increasing energy demands and are looking towards cleaner energy sources to meet their growing needs and climate commitments. This presents a favorable market for Bhutan's renewable energy exports.</p> <p><b>Green Technology:</b> Opportunities exist for companies specializing in green technologies, including energy storage solutions, smart grid technologies, and bioenergy.</p> <p><b>Energy efficiency and conservation:</b> There is growing interest in energy efficiency measures, such as smart grids, energy-efficient appliances, and building designs. Businesses can offer solutions and technologies in this space.</p> <p><b>Tourism and renewable energy synergy:</b> Bhutan's focus on sustainable tourism creates opportunities for businesses to develop eco-friendly resorts and facilities powered by renewable energy.</p> <p><b>Public-Private Partnerships (PPPs):</b> The government is encouraging public-private partnerships (PPPs) for energy projects. Businesses can collaborate with the government to develop and operate renewable energy projects.</p> <p><b>Employment opportunities:</b> Renewable energy sector has strong potential to create sustainable, long-term employment across technical, entrepreneurial, and support roles.</p> <p><b>Setting up of renewable energy manufacturing industries:</b> There are opportunities for setting up local manufacturing industries for renewable energy components, including solar panels. Additionally, opportunities exist for local Maintenance Service providers to establish service centers for operation and maintenance (O&amp;M).</p>	<p><b>Regional solar competition:</b> The competitive pricing and aggressive promotion of solar energy in the region (primarily India) can pose a threat to Bhutan's renewable energy sector especially in solar PV deployment. Nevertheless, this also opens opportunities to tap into the solar energy generation from India at a potentially competitive price without the liabilities and risks including environmental impacts associated with constructing solar plants domestically.</p> <p><b>Natural calamities:</b> Bhutan's heavy reliance on hydropower makes it particularly vulnerable to climate change-related natural disasters like GLOFs, flash floods, and altered monsoon patterns.</p> <p><b>Cyber security:</b> Cyber security poses a significant and growing threat to Bhutan's renewable energy sector. As Bhutan modernizes its energy infrastructure and integrates digital technologies for control, monitoring, and management, it becomes increasingly vulnerable to cyberattacks.</p>
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## 9. 3. Vision and Expected Results

### Vision:

By 2035, Bhutan will be a global leader in sustainable energy, harnessing its abundant renewable resources to achieve energy self-sufficiency, drive green industrialization, and emerging a key exporter of clean power and green technologies.

## Expected Results

- Expand renewable energy capacity by adding 10,000 MW of hydropower and 3,000 MW of solar power by 2035.
- Increase renewable energy's contribution to GDP to over 12% by 2035.
- Generate approximately 15,000+ jobs in the renewable energy sector by 2035.

## 9. 4.Strategic Interventions and Action Plan

To address the challenges and overcome weakness whilst leveraging the opportunities in the renewable energy sector, the government can implement a series of strategic interventions to shift towards encouraging private sector participation, including foreign direct investment. These interventions aim to diversify energy sources, enhance energy security, attract private investment, and promote sustainable development.

### A. Policy and Regulatory Support

To attract renewable energy investments, the Government must establish a unified, stable energy policy by consolidating existing policies like Alternative Renewable Energy Policy (2013), Domestic Electricity Tariff Policy (2016), National Energy Efficiency and Conservation Policy (2019), and Sustainable Hydropower Development Policy (2021) to reduce investor uncertainty. Below outlined are suggested recommendations for government strategic interventions.

- a. Fast-Track National Energy Policy Approval and Implementation for Investor Confidence:** Expedite the approval and publication of the National Energy Policy (2025), ensuring it addresses all sub-sectors clearly, solar, wind, hydro, and biomass (hydrogen also). Clearly articulated timelines and transitional clauses would provide essential predictability for investors.
- b. Streamline Investment Processes Through Clear Guidelines and Digital Platforms:** Develop comprehensive procedural manuals, investor guides, and online platforms clearly detailing all processes from initial inquiries through project implementation.
- c. Reduce Bureaucratic Hurdles to Attract Private Sector Participation:** Simplify and expedite the approval process for renewable energy projects to encourage private investment by reducing bureaucratic delays, such as complex processes for forest clearance, environment clearances, land leasing and immigration etc.

- d. **Establish Clear Grid and Tariff Frameworks:** The government must clearly outline grid interconnection guidelines, and tariff mechanisms, and provide standardized, transparent templates for Power Purchase Agreement (PPAs), facilitating smoother integration of renewable projects.
- e. **Institutionalize Public-Private Consultations:** Institutionalize regular consultations between the government and the private sector during policy formulation, implementation, and review phases to ensure that policies adequately reflect practical, on-the-ground realities.
- f. **Standardize Project Development Procedures:** Develop guidelines for the preparation of Detailed Project Reports/Proposals for private developers as Independent Power Producers.
- g. **Promote Solar Rooftop Adoption:** Develop solar rooftop implementation guidelines for private buildings seeking to use solar energy for commercial purposes.
- h. **Streamline Multi-Agency Clearances:** Facilitate issuance of clearances concerning environment, forest, water, land, cultural and other approvals for development of renewable energy projects.
- i. **Harmonize Agreement Templates:** Develop standardized templates for PPAs and Power Sale Agreement (PSAs) to streamline the approval process and ensure consistency.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>National Energy Policy (2025)</b>	Accelerate the approval and publication of the National Energy Policy (2025).	Policy officially approved & published by July 2025.	MoENR	
<b>Bureaucratic Delays</b>	Develop a fast-track approval mechanism for renewable energy projects to reduce bureaucratic delays. Facilitate issuance of clearances concerning environment, forest, water, land, cultural and other approvals for development of renewable energy projects.	Reduce renewable energy project approval time from 100 days to 60 days.	DoE	DoI

<b>Guideline</b>	Develop comprehensive procedural manuals, investor guides, and online platforms clearly detailing all processes. Clearly outline grid interconnection guidelines, and tariff mechanisms, and provide standardized, transparent templates for Power Purchase Agreement (PPAs), facilitating smoother integration of renewable projects. Develop guidelines for Independent Power Producers (IPPs) to prepare Detailed Project Reports (DPRs) or Detailed Project Proposals (DPPs). Finalize and implement solar rooftop guidelines for private and commercial buildings.	Launch procedural manuals and an online platform by Q4 2027.	DoE	ERA
<b>Private Sector Consultation</b>	Institutionalize regular consultations between the government and the private sector during policy formulation, implementation, and review phases to ensure that policies adequately reflect practical, on-the-ground realities	Formal framework established and disseminated by end of 2026.	MoENR	Private Sector

## B. Infrastructure Development

Bhutan's existing grid infrastructure may not be adequately equipped or flexible enough to accommodate variable renewable energy generation. Limited land access for private investors, complicated by lengthy bureaucratic processes like forest and environmental clearances, and land leasing, presents another hurdle. Below outlined are suggested recommendations for government strategic interventions.

- a. **Enhance Grid Connectivity:** Enhance grid connectivity by investing in the expansion and modernization of the national grid to improve energy distribution, particularly in remote and rural areas.
- b. **Advance Energy Storage Solutions:** Develop energy storage solutions to promote the advancement of energy storage systems, such as batteries and pumped-storage hydropower, to address seasonal variability and ensure a stable energy supply.
- c. **Strengthen Transmission and Cross-Border Links:** Develop and strengthen the Associated Transmission Systems (ATS) and cross-border links. Expanding renewable energy requires simultaneous upgrades to transmission infrastructure, including cross-border connections with India, to manage increased capacity and export surplus

power.

- d. Facilitate Land Access for Private Investment:** Government to facilitate access to land/areas suitable for private investment and streamline the process for allocating land in these zones. Create government-managed land banks to acquire and hold land for solar development projects.
- e. Develop Solar Site Inventory:** Prepare inventory of solar sites with minimum details which shall be made available for investments through appropriate mechanisms.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Enhance Grid Connectivity</b>	Begin upgrading the national grid to improve connectivity, especially in rural and remote areas for the establishment of solar energy.	Increased grid hosting capacity for solar PV by X MW in rural areas.	BPC	MoENR
<b>Energy Storage</b>	Develop energy storage solutions to promote the advancement of energy storage systems, such as batteries and pumped-storage hydropower, to address seasonal variability and ensure a stable energy supply.	X % of all new utility scale solar projects are paired with storage.	MoENR	
<b>Strengthen ATS</b>	Strengthen the Associated Transmission Systems (ATS) and cross-border links.	Increase transmission capacity by X MW.	BPC	MoENR
<b>Area Identification</b>	Identify areas suitable for private investment and streamline the process for allocating land in these zones. Create government-managed land banks to acquire and hold land for future development projects.	Online land inventory established by the end of 2028 and updated quarterly.	DoE/ MoENR	NLCS
<b>Solar Inventory</b>	Prepare inventory of solar sites with minimum details which shall be made available for investments through appropriate mechanisms. Conduct workshops and seminars to promote the inventory and educate potential investors.	Online solar site inventory established by the end of 2028.	DoE/ MoENR	

## Implementation Plan- Medium - Long Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Enhance Grid Connectivity</b>	Complete the modernization and expansion of the national grid to ensure reliable energy distribution across the country.		BPC	MoENR
<b>Integrate Energy Storage</b>	Scale up and integrate energy storage solutions to enhance grid stability.	Deploy an additional X MW of grid-connected energy storage by the end of 2031 to enhance stability.	DoE/ MoENR	MoENR
<b>Strengthen ATS</b>	Complete the development of ATS and cross-border transmission links with India.		BPC	

### C. Investment, Taxes, and Financial Incentives

Bhutan's current financial ecosystem lacks renewable energy-specific incentives and affordable financing options, making such projects less commercially viable. To address these challenges, the following interventions are recommended to enhance financial attractiveness and encourage private investment in the sector.

#### a. Establish dedicated Green Financing facilities:

- Create specialized funds or credit lines within existing financial institutions specifically for renewable energy projects.
- Offer concessional interest rates, longer repayment periods, and reduced collateral requirements compared to traditional financing.
- Explore partnerships with international green climate funds to leverage their resources.

#### b. Fiscal Incentives:

- Introduce tax credits or rebates for investments in renewable energy technologies.
- Consider Custom duty (CD) exemptions on renewable energy critical equipment, plant, machinery and components.

#### c. Promote Innovative Financing models:

- Facilitate the development of public-private partnerships (PPPs) for larger renewable energy projects, leveraging both public and private sector expertise and capital.

## Implementation Plan- Short - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Investment Allowance Scheme</b>	Grant an investment allowance scheme with a carry-forward provision.		MoF	MoENR/ MoICE
<b>Concessionary interest rate</b>	Offer a concessionary interest rate with longer repayment periods.		MoF	Fls/MoENR /MoICE
<b>CD Exemption</b>	Grant Customs duty (CD) exemptions on critical materials, equipment, plant and machinery.		MoF	MoENR/ MoICE
<b>Tax Credit Incentives</b>	1. Introduce a tax credit incentive for research and development (R&D) to promote innovation. 2. Grant tax credit or rebates for investment in renewal energy technologies.		MoF	MoENR/ MoICE
<b>Green Bond</b>	Explore partnerships with international green climate funds to leverage their resources.		MoF	MoENR/ MoICE
<b>PPP</b>	Facilitate the development of public-private partnerships (PPPs) for larger renewable energy projects	Minimum of one new PPP projects per year	MoF	MoENR

### D. Capacity Building

With a growing emphasis on diversifying the energy mix, enhancing energy security, and exploring sustainable development pathways, the focus on other renewable energy sources like solar, wind, and energy storage is increasing. This shift creates a burgeoning demand for a skilled workforce that currently outstrips the available supply. Therefore, strategic interventions by the government are needed to proactively build a skilled workforce capable of supporting the growth and sustainability of Bhutan's renewable energy sector. Below outlined are suggested recommendations for government strategic interventions:

- a. Strengthen institutions and enhance national capacities including the private sector.
- b. Support training and capacity-building programs for local engineers, technicians, and policymakers to enhance their skills in renewable energy technologies.

- c. Facilitate technology transfer by forming partnerships with international companies to enable the adoption of advanced renewable energy technologies.
- d. Promote technical training institutions to provide in-country training and diversify course offerings to meet the training, reskilling, and upskillings requirements in the market.

## Implementation Plan- Short - Long Term ( 2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>National Capacity Building</b>	Strengthen institutions and enhance national capacities including the private sector. Support training for the local workforce in renewable energy technologies. Educate government officials and stakeholders on renewable energy policies and regulations. Initiate partnerships with international companies for technology transfer and knowledge sharing. Promote the establishment of private technical training institutions in collaboration with MoESD.	500+ professionals trained by the end of 2035.	MoENR	MoICE, MoESD, Private Sector

## E. Technology Adoption

Bhutan's renewable energy sector faces several technological challenges impacting its adoption, including the need for advanced grid infrastructure to support diverse energy sources, efficient storage solutions for managing the variability of hydropower generation, and the integration of solar and wind energy technologies. Limited access to cutting-edge technology and technical expertise poses further hurdles. Addressing these issues is crucial for enhancing the country's energy security and achieving its sustainable development goals. Below outlined are suggested recommendations for government strategic interventions:

- a. Establishing partnerships with international research institutions and technology providers.
- b. Facilitating the transfer of knowledge and best practices.
- c. Encourage the development and integration of the hydropower value chain by adopting emerging renewable energy technologies and innovations including green hydrogen and



its derivatives.

- d. Promote and advance use of green hydrogen as an alternative fuel for the transport sector and related industries, along with green ammonia and other derivatives.

## Implementation Plan- Short - Long Term (2026 - 2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Establish Partnership</b>	Establish partnership with international research institute and technology provider Facilitate the transfer of knowledge and best practices	Established partnership with entities from at least two countries.	MoENR	MoIT
<b>Hydropower Value Chain</b>	Encourage the development and integration of the hydropower value chain by adopting emerging renewable energy technologies and innovations including green hydrogen and its derivatives. Promote and advance use of green hydrogen as an alternative fuel for the transport sector and related industries, along with green ammonia and other derivatives	Achieve X % of green hydrogen production by 2035	DoE, MoICE	MoIT

## F. Market Linkages and Support

Bhutan's electricity sector, currently dominated by a single government-owned utility, is expected to open up to competition by allowing Independent Power Producers (IPPs) and Public-Private Partnerships (PPPs) to generate and sell power. The scheduling and commercial settlements of medium and long-term transactions of power through Power Purchase Agreements (PPAs) and Power Sales Agreements (PSAs) will also be through the Power Market Platform. Ultimately, this aims to improve efficiency, attract investment, and modernize Bhutan's electricity market.

- a. With a view to move towards a market-based platform for domestic power transactions, it is important that the sector works towards putting in place all legal and regulatory

mechanisms to govern the establishment and operation of such a platform.

- b. Strengthen the Role of the Department of Energy (DoE) as the Central Authority for Power Systems and Energy Markets, Actively Promoting Cross-Border Electricity Trade.

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Energy Market</b>	Govern the establishment and operation of a market-based platform	Sign X new or revised energy trading agreement by 2031.	MoENR	MoFAET
<b>Expand Cross Border Energy Trade</b>	Expand cross-border energy trade with neighboring countries to export surplus renewable energy.		MoENR	MoFAET

## G. Growing Renewable Value Chain

The rapid expansion of the renewable energy sector acts as a powerful catalyst for the creation of numerous business opportunities beyond just electricity generation. As solar, wind, and other clean energy technologies gain prominence, they generate a significant demand for specialized goods and services. This demand fuels the growth of ancillary industries that support the core renewable energy activities. These include manufacturers of components like solar panels and wind turbine blades, companies specializing in installation and maintenance, the burgeoning energy storage sector providing batteries and other solutions, businesses developing smart grid technologies and grid management services, and even those focused on recycling and end-of-life management of renewable energy equipment. Essentially, the shift towards clean energy fosters a dynamic ecosystem where a wide array of innovative and essential businesses can emerge and thrive by addressing the specific needs of the renewable energy landscape. Below outlined are suggested recommendations for government strategic interventions:

- a. Support the establishments of local manufacturing industries for renewable energy components, such as solar panels and others.
- b. Support and promote local maintenance Service Providers for operation & maintenance (O&M).

## Implementation Plan- Short - Medium Term (2026-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Local manufacturing industries</b>	Support local industries in manufacturing renewable energy components.	Facilitate Nu.100 million in financing for local renewable energy components manufacturers annually.	DoI, DoE	MoENR
<b>Promote maintenance service provider</b>	Support & promote local maintenance service providers for O&M		DoI, DoE	MoENR



## 10. Tourism

### 10.1. Background

Tourism is a vital pillar of Bhutan’s socio-economic development, guided by the country’s distinctive “High Value, Low Volume” policy. This approach ensures the protection of Bhutan’s cultural identity, environmental integrity, and the overarching philosophy of Gross National Happiness (GNH). Since its formal opening to tourism in the 1970s, the sector has steadily contributed to the national economy through foreign exchange earnings, job creation, and rural income generation, while reinforcing Bhutan’s global image as a sustainable and exclusive destination.

Despite its selective nature, Bhutan’s tourism sector has high economic multipliers across the value chain. It contributes significantly to GDP by attracting foreign currency inflows and supporting macroeconomic stability. Tourism is among the largest sources of employment in the country, directly and indirectly supporting thousands of Bhutanese, including tour guides, hotel and restaurant staff, travel agents, artisans, drivers, and cultural performers.

The sector stimulates broad-based economic activity through strong forward and backward linkages. Farmers, vegetable vendors, and rural cooperatives benefit from increased demand for local produce in hotels and restaurants. Cottage and small industries (CSIs)—especially in handicrafts, textiles, incense, and wellness products—gain access to a premium market for

tourists seeking authentic Bhutanese experiences. The transport sector, including taxis, buses, car rentals, and airlines, also sees increased demand due to tourist movement within and across districts.

Moreover, tourism generates substantial government revenue, not only through the Sustainable Development Fee (SDF), but also from business taxes, license fees, and customs duties on related services. These revenues are reinvested into infrastructure, public services, and community development. Importantly, tourism incentivizes cultural preservation and environmental conservation, aligning economic objectives with Bhutan’s national values.

In 2019, tourism contributed 10% to Bhutan’s national GDP, generating over USD 345 million in receipts. The revenue contribution from tourism was Nu. 1,913.773 million in FY 2022–23 (Ministry of Finance, 2023). The contribution to GDP through the Sustainable Development Fee (SDF) was USD 26 million in 2023 and USD 29 million in 2024. Tourist arrivals were 315,599 in 2018 and 103,066 in 2023. Following the pandemic, the number of tourist visits stood at 20,897 in 2022 and 103,066 in 2023. The sector’s influence extends beyond its direct impact, creating a multiplier effect across agriculture, entertainment, transport, and allied services, while supporting over 52,000 jobs through nearly 7,000 tourism related establishments (Bhutan Integrated Tourism Master Plan, 2025).

With its inclusive nature and potential for 100% value addition, tourism is a strategic lever for post-pandemic recovery and long-term economic diversification. As Bhutan embarks on major national initiatives like the Gelephu Mindfulness City, the tourism sector stands at a transformative juncture, offering a unique opportunity to position Bhutan as a global leader in regenerative, wellness, and cultural tourism. In the short to medium term, tourism can play a catalytic role in revitalizing both national and rural economies, reducing youth unemployment, enhancing foreign exchange earnings, and strengthening Bhutan’s global competitiveness in a way that is both equitable and sustainable.

## 10. 2.      Situational Analysis (SWOT)

STRENGTH	WEAKNESS
<b>Cultural and Natural Treasures:</b> Bhutan's rich cultural heritage, deeply rooted spiritual traditions, and pristine natural environment are invaluable assets. These provide a compelling allure for discerning travellers seeking authentic and transformative experiences. Stringent conservation policies ensure these treasures remain protected for generations to come.	<b>Regional Disparity:</b> Limited product development and experiences in regional areas, coupled with accessibility challenges and a lack of visitor interpretation and education, hinder the dispersal of tourism benefits beyond the core western circuit. This contributes to uneven development and limits opportunities for local communities.

<p><b>The Bhutanese Ethos:</b> The philosophy of Gross National Happiness, coupled with a commitment to high-value, low- volume tourism, positions Bhutan as a sanctuary of tranquility and well-being in an increasingly frenetic world. This unique selling proposition differentiates Bhutan from mass-tourism destinations. Initiatives like the Gelephu Mindfulness City further solidifies this image.</p> <p><b>Ecotourism Potential:</b> Bhutan's diverse ecosystems, recognized through prestigious awards and ecological conservation efforts, offer immense potential for ecotourism development. These nature-based areas provide a foundation for unique</p> <p><b>Untapped Geographic Diversity:</b> A significant, underutilized asset base spread across the country presents an opportunity for balanced regional tourism development, moving beyond the concentration in western Bhutan.</p>	<p><b>Capacity Constraints:</b> A shortage of skilled human resources and training opportunities compromises the quality-of-service delivery. This is further exacerbated by talent migration due to limited job opportunities and career progression within the tourism industry.</p> <p><b>Coordination and Collaboration Gaps:</b> Poor coordination between government agencies, private sector stakeholders, and NGOs leads to fragmented planning, duplicated efforts, and inefficient resource allocation. The absence of a unified tourism vision and inadequate data- driven management further hinder effective decision-making.</p> <p><b>Inadequate Infrastructure:</b> Limited accessibility to and within peripheral areas, coupled with the perceived high Sustainable Development Fee (SDF), and airfare poses a barrier to wider tourism development and exploration of diverse experiences.</p>
OPPORTUNITY	THREATS
<p><b>Diversification and Seasonality:</b> Developing new festivals, events, and experiences, particularly in regional areas, can establish Bhutan as a year-round destination. Strategic alliances with regional and international tourism organizations can open doors to new markets and product development.</p> <p><b>Digital Marketing and Niche Tourism:</b> Leveraging digital platforms to promote Bhutan's unique offerings, particularly in wellness, spiritual, and conscious tourism, can attract a growing segment of travelers seeking meaningful experiences.</p> <p><b>Private Sector Engagement:</b> Creating a conducive environment for private sector investment, particularly in ecotourism and regional development, can unlock significant potential and drive innovation. Streamlining regulations and clarifying investment procedures are crucial.</p> <p><b>Community-Based Tourism:</b> Promoting inclusive tourism models that empower local communities to participate actively and share equitably in the benefits can foster sustainable development and preserve Bhutanese culture and traditions.</p>	<p><b>Global Competition and Economic Volatility:</b> The global tourism landscape is highly competitive. Fluctuations in fuel prices, travel costs, and global economic crises pose a threat to Bhutan's tourism stability and resilience.</p> <p><b>Human Resource Challenges:</b> Brain drain due to limited career prospects and migration poses a significant threat to the long-term sustainability of the tourism sector. Attracting and retaining talent requires focused efforts on training, development, and creating rewarding career paths.</p> <p><b>Marketing and Funding Instability:</b> Inconsistent marketing resources and funding hinder effective promotion of Bhutan's diverse offerings. A clear and consistent brand message, coupled with sustained marketing efforts, is crucial for building brand awareness and attracting target audiences.</p> <p><b>Seasonal Uncertainty and Climate Change:</b> While efforts are being made to address seasonality, climate change presents a new layer of uncertainty, potentially impacting weather patterns and affecting tourism activities. Adapting to these changes and promoting climate-resilient tourism practices is crucial.</p>



## 10.3. Strategic Gap Analysis of Bhutan

### 1. Policy and Regulatory Framework:

Inconsistencies in tourism policy, particularly concerning the Sustainable Development Fee (SDF), create confusion among visitors and erode confidence in Bhutan's governance of the sector. The Tourism Rules and Regulations (TRR) 2022 require updates and stakeholder consultations to reflect the evolving tourism landscape post-pandemic. A more stable and transparent policy environment is crucial for long-term sector development.

### 2. Destination Development and Management:

A lack of coordination and collaboration among tourism stakeholders, including government agencies, the private sector, and NGOs, hinders effective destination development. Disparate tourism projects and investments proceed without adequate communication and awareness among key stakeholders. A dedicated Tourism Commission with multi-sectoral representation is needed to streamline planning and development efforts. Furthermore, a robust system for collecting and sharing data on visitor demographics, motivations, spending patterns, and satisfaction levels is essential for evidence-based decision-making.

### 3. Tourism Marketing and Brand Awareness:

While Bhutan enjoys recognition as a sustainable tourism destination, its diverse regional offerings remain relatively unknown. The "Bhutan Believe" brand lacks clarity and understanding among both domestic stakeholders and international partners. Promoting Bhutan as a year-round destination requires targeted marketing campaigns. Educating local stakeholders about Bhutan's brand, product inventory, and arrival facilitation processes is essential. Strengthening international publicity and exploring proactive private sector engagement in international marketing are key to raising Bhutan's tourism profile.

### 4. Partnership and Collaborative Alignment:

Despite acknowledging tourism's contribution to national growth, stakeholders lack a shared vision for the sector. Bhutan's diverse regional experiences offer potential for creating a more comprehensive and appealing tourism product, attracting more visitors, and encouraging longer stays. A more consistent and integrated regional approach to tourism development is necessary.

### 5. Private Sector Investment and Engagement:

Private sector investment, especially in regional ecotourism, remains limited. Investment in tourism attractions and activities faces challenges due to unclear roles and responsibilities among different agencies. Restrictive regulations and a lack of clarity on investment procedures hinder new start-ups and innovative tourism ventures. Liberalizing regulations and streamlining

investment processes can encourage greater private sector participation.

#### **6. Regional and Peripheral Development:**

Tourism development remains concentrated in core areas, leading to imbalanced growth and inequitable distribution of tourism benefits. Regional areas lack iconic attractions and distinct branding. Improving accessibility to eastern regions, developing thematic routes, and creating culturally and ecologically valuable experiences in each Dzongkhag are crucial for promoting more balanced regional tourism. A long-term strategic vision is needed to guide regional tourism development.

#### **7. Quality Standards and Guest Experience:**

Inconsistent service quality across Bhutan's tourism industry negatively impacts the overall visitor experience. Given Bhutan's premium pricing, maintaining high standards is paramount. Nationwide service training and standardization programs are needed across all tourism-related sectors, including transportation, airport services, and retail outlets.

#### **8. Accessibility to and within Bhutan:**

Improving accessibility to Bhutan by air and land is vital. Exploring new air routes and streamlining entry/exit points for eastern and southern regions are necessary. Enhancing domestic connectivity, particularly to peripheral and ecotourism destinations, is crucial for expanding tourism reach.

#### **9. Training and Capacity Building:**

Frontline staff, including immigration officials, police, airline personnel, drivers, and tourism professionals, require training in customer care and communication. Professional skills development and qualification upgrades for in-service tourism personnel are essential. Capacity building and awareness programs for local leaders (Dzongdas, Thrompons, Gups) on destination-level tourism management are also needed.

#### **10. Resident Attitudes Towards Tourism:**

Engaging local residents as active participants in the tourism sector and fostering awareness of its economic benefits can strengthen community support for tourism development. Promoting domestic tourism and implementing awareness campaigns can enhance local understanding of Bhutan's tourism potential and foster a sense of ownership.



## 10. 4. Vision and Expected Results

### **Vision:**

By 2035, Bhutan will establish itself as a "A global leader in regenerative tourism, driving economic growth, and championing culture and environment stewardship"

### **Expected Results**

The implementation of this IDR for the tourism industry is to achieve the following targets:

- Achieve annual visitor growth to 300,000
- Generate \$2.56 billion in direct SDF revenue contribution
- Increase private sector investment to exceed 50% through regulatory harmonization
- Elevate guest satisfaction scores from 4.1 to 4.5+
- Establish Bhutan as a global benchmark for regenerative tourism by 2035, with 75% of tourism experiences actively contributing to ecological restoration and community enhancement.

## 10. 5. Strategic Interventions and Action Plan

In view of addressing these strategic gaps, the strategic actions are drawn from the FUTURE PATH action plan in the Bhutan Integrated Tourism Master Plan 2025-2034.

### **A. Regulatory Framework and Investment Incentives**

A more stable and transparent policy environment is crucial for long- term sector development.

#### **a. Modernization of Sustainable Development Fee (SDF) Policy**

Stability of the destination tourism policy is crucial to build trust and confidence in the tourists and overseas travel agents (OTAs) and foreign travel agents (FTOs), especially with the COTI (countries other than India) market, who plan their tours in advance.

#### **b. Regional Development Incentivization**

The waiver of SDF in the border towns can encourage more tourists to stay overnight in the area, increasing the economic spending of tourists to these areas. Introduce SDF incentives to promote least visited destinations particularly the South, Central and Eastern part of the country. Infrastructure Investment and Regulatory Enhancement Accelerate Investment and Private Sector Participation, investment Incentives, Tax Benefits, Regional Diversification, Competition Framework.

### c. Regulatory Streamlining and Process

More liberal policies and fewer restrictions on investments in tourism attractions and activities such as ziplining, paragliding, golf resorts, sports tourism and MICE tourism to enable business development in the tourism industry and foster private sector involvement. Streamline Business Registration, Licensing System, Digital Solutions, Administrative Reform Establish one-stop-shop for business registration.

### d. Strengthen and Synchronize Linkages with Other Sectors

Tourism development policies synchronized with those of other sectors through review visa requirement procedure, aviation sector policies, banking regulations, investment policy, land use and urban policy, policies to maximize tourism value chain benefits and align with the tourism development strategy.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Strategic Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>SDF Policy Modernization</b>	Dynamic pricing Digital payments Communication channels Monitoring systems	SDF Policy stabilized by end of 2027	DoTr MoICE	RMA, FIs, Private Sector (ABTO, HRAB)
<b>Regional Development Incentivization</b>	Border town development Investment zones Infrastructure support Business development	24hrs free SDF extended till end of August 2027	DoTr	LGs, Development Partners
<b>Regulatory Streamlining</b>	Simplified approvals Sustainable guidelines Digital platforms Innovation support	Tourism Regulatory streamlined by 2026	DoTr	Relevant Government Agencies, Legal Teams
<b>Strengthen and synchronise linkages with other sectors</b>	Review and align following policies with tourism development strategy Entry visa requirements procedures Aviation sector policies Banking regulations Investment policy Land use and urban policy Develop policies to maximise tourism value chain benefits	Tourism Policies and Strategies synchronized with policies and strategies of other agencies by 2026	DoTr	Relevant government organisations and financial institutes

## B. Regional and Peripheral Development and Management

Unified Regional Growth Priority Action framework in the Bhutan Integrated Tourism Master Plan 2025-2034 emphasizes the importance of unified regional growth, ensuring that tourism benefits are equitably distributed across all regions. This approach fosters inclusivity and cohesion, allowing every part of Bhutan to thrive and contribute to the national tourism narrative.

### a. Development of Regional Tourism Action Plans for each Dzongkha

Development of tourism development plan for each distinct Dzongkha to mobilize investments, plan tourism products, develop infrastructure, and train workers

Marketing Strategy for Regional Promotion: Create targeted ‘iconic’ tourism sites in the regional parts of Bhutan. Identify “hero” or “star attractions” at each of the regional areas to be developed, managed, and promoted.

If star attractions could not be identified in some Dzongkhags, develop and promote circuit-based tourism as follows;

- Ecotourism and Community-based tourism in the East (Lhuentse, Mongar, Trashigang, Trashiyangtse, Pemagatshel, Samdrupjongkhar and Zhemgang)
- Cultural, Wellness and MICE Tourism in the West (Gasa, Haa, Paro, Punakha, Thimphu and Wangduephodrang)
- Royal Heritage and Palace Tour in the Center (Bumthang and Trongsa)
- Agri-Agro Tourism in South (Chukha, Dagana, Samtse and Tsirang)

### b. Regional Tourism Product Development and Marketing

To promote least visited areas and enhance visitors experience, there is a need for: Iconic Site Development; Development of Star Attractions in each Dzongkha through identification of hero attraction; Thematic Experiences; Regional Distinction; Ecotourism Product Development (Sustainable Infrastructure Development, Conservation-focused Activities, Interpretation and Education Program).

### c. Infrastructure and Capacity Development

To provide seamless service and enhance visitors’ experience, there should be enhancement of infrastructure; accessibility (air connectivity improvement, and transport development). Local Leadership capacity development; Training for Dzongkhag leadership for tourism development, Gup leadership and awareness programs, destination management skills development.

### d. Stakeholder Incentives and Process Streamlining

Marketing incentives; Stakeholder Support, Permit Processing; System Enhancement Implementing Support; Resource Provision.

### e. Regional Development Incentives

Network Development; Regional Tourism Organizations serve as cooperation forums for tourism actors in their regions. Coordinate and compile regional tourism offerings into marketable products and organize joint marketing initiatives and resource collaboration and sharing, recognition Programs and tour Development Support.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Dzongkhag Tourism Planning</b>	Strategy formulation, investment plans, infrastructure mapping	5 Dzongkhag Tourism Plan developed by 2026	LGs	Regional Tourism Offices (RTO)
<b>Hero Attraction Development</b>	Identify and plan star sites	1 per Dzongkhag by 2026	LGs, DoTR	RTO. Communities
<b>Thematic Experience Design</b>	Design and promote unique regional experiences	Thematic product innovation by 2026	DoTR, Dzongkhags	Communities. RTO
<b>Infrastructure Support</b>	Road, air, connectivity, signage	Accessibility improved in 5 regions by 2027	DoTR, MoIT	RTO, LGs
<b>Development Coordination and implementation of regional tourism development plans</b>	Inter-agency collaboration Resource allocation Timeline management Progress monitoring	15 strategic partnerships by 2027 with private sector, domestic LGs, industry partners and international agencies	DoTr, Regional Tourism Offices (RTO), Local Authorities	
<b>Local Leadership Development Capacity Building</b>	Training for Dzongkhag leadership for tourism development Gup leadership and awareness programs Destination management skills	5 Dzongkhag's Gup leadership training conducted by 2027	DoTr, Department of Local Government	Training Institutions, Regional Tourism Office (RoICE)

<b>Implementation Support</b>	Resource Allocation Budget planning Technical assistance Quality assurance	5 Dzongkha tourism activities implementation technical support provided		DoTr, Training Development Partners
<b>Marketing Incentives Stakeholder</b>	Tour operator incentives Guide promotion support Product package inclusion Marketing assistance	Marketing incentives initiated from FY2025-2026	MoF, DoTr	DoTr Marketing Teams, Tourism Stakeholders (ABTO, HRAB)
<b>Permit Processing System Enhancement</b>	Permit streamlining Access efficiency Process simplification Digital integration	Permit processing system enhanced by 2026	Department of Immigration	DoTr, Tourism Regional Offices, Local Authorities
<b>Implementation Support Resource Provision</b>	Financial incentives Technical support Training programs Monitoring system	Implementation support and resource provision for regional development initiated from FY2025-2026	DoTR	

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Network Development</b>	Resource collaboration and sharing: Joint marketing campaigns and promotional activities. Combined training programs. Shared infrastructure and facilities. Exchange of market intelligence and visitor data. Partnership building. Cross-regional tour package development. Best practice sharing	Regional development network established by 2030	DoTR	Regional Tourism Office (RoICE)  Stakeholder Groups

<b>Recognition Programs and Collaboration Framework:</b>	Resource collaboration and sharing: <ul style="list-style-type: none"> <li>• Joint marketing campaigns and promotion activities</li> <li>• Combined training programs</li> <li>• Shared infrastructure and facilities</li> <li>• Exchange of market intelligence and visitor data</li> </ul> Partnership building Cross-regional tour package development Best practice sharing	Regional recognition programs and collaboration framework established by 2030	DoTR	Regional Tourism Office (RoICE)  Stakeholder Groups
<b>Tour Development Support Operator Incentives</b>	Package development Training Guide incentive programs Regional tour promotion Capacity building of guides and tour operators	Tourism incentives implemented by 2030	Tour Operators and Guide Associations	DoTr, Local Authorities

## C. Product Innovation and Experience Design

To stay ahead in the competitive tourism market, one of the priority actions is to advocate for revolutionary product innovation. By diversifying and creating unique tourism products, Bhutan can cater to the evolving interests of global travelers, offering experiences that are both authentic and cutting-edge.

### a. Tourism Resource Re-validation and Private Sector

Conduct nationwide tourism resource audit or resource inventory (TRI), evaluate potential products (reservoir dams, hot springs, wellness facilities), document authentic arts and crafts opportunities. Private Sector Investment; streamline business registration, simplify investment procedures, develop digital permit platform, remove bureaucratic barriers, engage with potential investors, product development and marketing initiatives

### b. Product Development and Marketing Initiatives

Create themed experiences, develop regional partnerships and integrated circuits, implement seasonal activities.

Souvenir Development; Launch national design competition, support indigenous craftspeople, develop region-specific products, create marketing channels.

### c. Year -Round Tourism and Events

Product Development and Marketing Initiatives Strategy Develop off-season packages, implement seasonal pricing, create niche market campaigns, launch domestic tourism initiatives and design "Tourist at Home" program.

Create annual events calendar, train event managers, build event infrastructure establish coordination committee, design funding mechanisms

## Implementation Plan- Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Tourism Resource Re-validation (Resource inventory Assessment, Product ranking System, Evaluation framework)</b>	Conduct nationwide tourism resource audit Apply criteria: accessibility, market potential, security, economic viability Evaluate potential products (reservoir dams, hot springs, wellness facilities) Document authentic arts and crafts opportunities	TRI completed by June 2026	DoTr	LGs, Tourism Associations
<b>Private Sector Investment Regulatory reform Investment promotion Stakeholder engagement</b>	Streamline business registration Simplify investment procedures Develop digital permit platform Remove bureaucratic barriers Engage with potential investor	50%private investment in tourism amenities, infrastructure and product by 2027	DoI	DoTr, Financial Institutions
<b>Theme-based Development Seasonal programming Regional cooperation Tourism routes</b>	Create themed experiences Develop regional partnerships and integrated circuits Implement seasonal activities	8 new tourism events and festival conducted	DoTr, LGs	Tour Operators, Regional Tourism Offices
<b>Souvenir Development Product design Regional distinctiveness Community engagement</b>	Launch national design competition Support indigenous craftspeople Develop region-specific products Create marketing channels		DoMCIIP	DoTr, Handicraft Associations, Local Communities

<b>Competition framework</b>				
<b>Year-Round Tourism</b>	Develop off-season packages	Year-round tourism program developed by 2026	DoTr, Tour Operator, Hoteliers	ABTO/HRAB/GAB
<b>Product diversification</b>	Implement seasonal pricing			
<b>Pricing strategy</b>	Create niche market campaigns			
<b>Market development</b>	Launch domestic tourism Initiatives			
<b>Domestic tourism</b>	Design "Tourist at Home" program			
<b>Events &amp; Festivals</b>	Create annual events calendar	Annual events and festivals calendar initiated from FY 2025-2026	DoTr, Dzongkhags	Local Governments, Department of Culture and Dzongkha Development Event Managers
<b>Strategic planning</b>	Train event managers			
<b>Calendar management of</b>	Build event infrastructure			
<b>Events</b>	Establish coordination committee			
<b>Capacity development</b>	Design funding mechanisms			
<b>Infrastructure</b>				
<b>Coordination</b>				

## D. Marketing and Promotion Strategies /Adaptive Branding and Marketing

In a world where digital presence is paramount to focus on adaptive branding and marketing strategies. By enhancing Bhutan's tourism brand and employing innovative marketing techniques, aim to attract and engage the travelers of tomorrow.

### a. Brand Development and Strategic Positioning

Brand Audit and Strategy development, conduct comparative brand analysis develop unified brand strategy, monitor brand effectiveness assess global perceptions

Global Marketing Initiative; Campaign Development, Experience Promotion, Regional Alignment, Social Media Strategy

Priority Markets Development; Market Segmentation and, Needs Analysis, Detailed Assessment and understanding of priority markets, Customization of Product Packaging and Experience design.

### b. Content Development and Media Engagement

For adaptive branding and promotion it is important to have content therefore, it has to be created and Managed: Digital Content, Brand Center, Visual Assets, Promotional Materials



Storytelling and Media; and launch storytelling initiatives, organize storytellers’ festivals, coordinate and conduct FAM trips, and develop media partnerships both domestic and international.

**c. Brand Implementation and Stakeholder Engagement**

International Relations; Global Representation, Embassy Coordination, Sustainable Tourism, Industry Education  
 “Bhutan Believe” Campaign; Brand Training, Local Engagement, Campaign Integration, Value Communication

**d. Engaged Partnership and Collaborative Alignment**

One of the key issues in the tourism sector is lack of coordination and collaboration in the past. Collaboration is identified as one of the keys to the success of FUTURE PATH actions in the Bhutan Integrated Tourism Master Plan 2024-2035. The framework encourages engaged partnerships between the public and private sectors, fostering a collaborative environment that drives innovation and growth in the tourism industry.

Promotion of Private Investment (FDI, PPP) and provide Impact Investment Incentives Tax Benefits, create regional diversification, develop competition framework, simplify business registration, licensing system, digital Solutions and administrative reform.

**e. Quality Standards and Guest Experience**

Develop and Implement National Tourism Excellence Strategy Quality Standards, Research Framework, Service Benchmarking and Performance Metrics, Curriculum Development Training Programs Service Standards Cultural Integration Awards Program, Feedback Mechanisms, Performance Monitoring Communication Channels Information Hubs Enhanced Service Delivery at Visitor Centres Security Systems Emergency Response Personnel Training Safety Protocols.

**Implementation Plan- Short Term (2026-2028)**

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
Brand Audit and Strategy	Conduct comparative brand Analysis. Develop unified brand Strategy. Monitor brand effectiveness Assess global perceptions	Brand strategy developed and implemented by 2027	DoTr	Brand Consultants

<b>Global Marketing Initiative</b>	Create diverse experience campaigns Align regional communications Implement social media plans Develop core messaging	Global marketing initiated from FY2025-2026	DoTr	Regional Partners, Marketing Agencies
<b>Priority Markets Development</b>	Conduct visitor segmentation research; create personas; analyze travel behavior; customize product packaging	Market research conducted and implemented by 2027	DoTr	ABTO, GAB, Regional Tourism Office (RoICE)
<b>Content Creation and Management</b>	Develop content bank Update brand resources Create promotional collateral Maintain visual archives	Content creation and management completed by 2026	DoTR, DoMCIIP	Bhutan Film Association and Institute ABTO, HRAB
<b>Storytelling and Media</b>	Launch storytelling initiatives Organize storytellers' festival Coordinate FAM trips Develop media partnerships	Storytelling and media initiated from FY2025-2026	DoTR, DoMCIIP	Private Media Partners, Content Creators
<b>Bhutan Believe" Campaign</b>	Conduct stakeholder workshops on brand values Train local partners on campaign messaging Develop themed campaigns (Spiritual Wonders, Sustainable Wonders) Ensure consistent brand representation across tourism ecosystem	Conduct Bhutan Believe campaign from FY2025-2026	DoTr	Training Partners, Industry Stakeholders (ABTO, HRAB, GAB)
<b>International Relations</b>	Participate in international tourism dialogues Collaborate with Bhutanese missions worldwide Promote commitment to SDG goals Conduct regular training for international partners	International relations strengthened and established by 2027	DoTr	DoT, MoFAET

<b>Accelerate Investment and Private Sector Participation</b>	Design tax incentive packages for impact investors Create favourable regulations for social and environmental investments Develop regional infrastructure development strategy Implement antitrust measures to prevent monopolies Establish fair competition guidelines	Promote private sector investment and participation from FY2026-2027	DoI, DoTr, MoF	Financial Institutions
<b>Streamline Regulatory Process</b>	Establish one-stop-shop for business registration Simplify permit acquisition process Implement digital submission platform Reduce paperwork requirements Create efficient approval workflows	Regulatory process streamlined by 2026	MoICE, MOF	Financial Institutions, Regional Tourism Offices
<b>Implement National Tourism Excellence Strategy</b>	Establish service excellence parameters Conduct gap analysis studies Develop national service index Monitor service quality indicators Create competitive positioning strategy	National tourism excellence strategy developed and implemented by 2027	DoTr	BSB, Industry Partners
<b>Develop Service Excellence Training</b>	Create standardized training modules Implement service delivery benchmarks Conduct skill development programs Foster service-oriented culture	Service excellence training initiated from FY2025-2026	MoESD/DoTr	Tourism Training Institutes, Industry Training Experts
<b>Establish Recognition Systems</b>	Design excellence awards framework Implement feedback collection systems Create digital response platforms	Recognition system established by 2026	DoTr	Industry Associations

	Establish feedback management process			
<b>Create Visitor Experience Centres</b>	Identify strategic locations Develop information materials Train center staff Implement visitor guidance systems	Visitor experience system created by 2026	Regional Tourism Office (RoICE) Local Government	DoTr, Local Authorities, Tourism Operators

## E. Capacity Building and Community Involvement

To address the issues and challenges of industry workforce, tourism needs a comprehensive approach focusing on education, training, and industry attractiveness. This includes strengthening tourism education programs, improving sector visibility, and creating clear career development pathways. Regular job fairs and specialized training programs for hospitality educators can help bridge the gap between industry needs and workforce availability.

### a. Establishment of Tourism Workforce Advisory Committee

Representations from various sectors in tourism and across other industries to develop an in-depth understanding of the skills lacking in the industry and the various sectors, to leverage on training offered in other sectors, and to collaborate and pool resources.

### b. Strengthen Targeted Provision of Training and Development Programs

Professional Development; Specialized Training Programs in Eco-tourism programs, Wellness tourism training, Bhutanese iconography courses.

Community Training; Skills Enhancement, Leadership Development; Local Authority Training, Business skills; Marketing and Sales

### c. Institutional Linkages and Partnership

Global Partnerships; International Collaboration, establish institutional linkages globally, partner with online platforms, strengthen tourism workforce capacity

Institutional Assessment; role evaluation of tourism institution, review industry partners (ABTO, GAB), identify higher-level skills training support and avoid program duplication

### d. Incentivization of Workforce Development

Provide financial support; funding program for training funding establish training grants and encourage program participation.

## Implementation Plan- Short Term (2026-2028)

Focus Area	Strategic Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Strategic Planning: Governance and Training Needs Assessment</b>	Develop understanding of industry skills gaps Leverage training from other sectors Collaborate and pool resources	Training Need Assessment conducted by June 2026	DoTr, DoEE	RITH, Private Training Institutes, Industry Representatives
<b>Industry Skills Framework Development</b>	Redesigning/strengthening professional frameworks Creation of Tourism Industry Skills Framework (TISF)	Professional framework developed by June 2026	BQPCA	Department of Tourism RITH Private Training Institutes Industry Representatives
<b>Training Needs Assessment</b>	key Focus Areas Technical and operational skills Service quality and standards Management and leadership Sustainability practices Cultural interpretation Digital competencies Success Factors Strong stakeholder engagement Evidence- based assessment Regular monitoring and evaluation Resource commitment	Training Need Assessment conducted by June 2026	DoTr	RITH, Private Training Institutes Associations, Academic Institutions
<b>Financial Support Funding Programs</b>	Provide training funding Establish training grants Encourage program participation	Funding support initiated from FY 2025-2026	MoF, MoESD and DoTr	
<b>Professional Development</b>	Eco-tourism programs Wellness tourism training Bhutanese iconography courses	Conduct professional development program from FY2025-2026	DoTr	Training Institutions
<b>Community Training</b>	Short-term skill-based training such as Guest Experience Management, Product Development,	Conduct community training program from FY2025-2026	LGs	DoTr, Local Communities, NGOs

	Entrepreneurial Skills. Hands-on targeted training for communities			
<b>Leadership Development Local Authority Training</b>	Capacity enhancement for Dzongdas, Thrompons, Gups Tourism development and management at Destination levels	Conduct leadership development program for local leaders from FY2025-2026	LGs	DoTr, NGOs
<b>Business Skills Marketing and Sales</b>	Marketing and sales training Tour Product Packaging		DoTr	Industry Experts

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Strategic Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Global Partnerships/ International Collaboration</b>	Establish institutional linkages globally Partner with online platforms Strengthen tourism workforce capacity	5 Global partnership and international collaboration established by 2030	DoTr	International Training Partners
<b>Institutional Assessment Role Evaluation of tourism institutions</b>	Reassess RITH role Review industry partners (ABTO, GAB) Identify higher-level skills training support Avoid program duplication	Assessment and Evaluation of tourism institutions conducted by 2029	MoESD, DoTr	RITH, ABTO, GAB, HRAB



## CHAPTER 5

# Fiscal Incentives for Industrial Development

Bhutan's Industrial Development Roadmap (IDR) identifies 10 high-potential sectors that can drive economic diversification, generate employment, increase exports, and reduce import dependency. However, many of these sectors are in early stages of development with high entry barriers and are not yet competitive compared to regional or global players. To overcome these challenges and catalyze growth, fiscal incentives are essential.

Fiscal incentives, such as tax holidays, investment allowances, and import duty exemptions, serve as tools to scale up, attract private investment, encourage innovation, and lower operational costs in priority sectors. They help level the playing field, reduce initial risks, and incentivize businesses to invest in industries that align with Bhutan's long-term development goals.

Moreover, Bhutan's geographical constraints, small domestic market, and infrastructure limitations often make local production less cost-effective. Carefully designed incentives can offset these disadvantages and improve the overall business environment, especially for sectors that promise high value addition, green growth, and sustainable job creation.

In this context, fiscal incentives are not merely financial reliefs but strategic enablers that promote industrial transformation, stimulate entrepreneurship, and foster inclusive growth in alignment with Bhutan's national priorities, including the vision of becoming a high-income, carbon-neutral, and knowledge-based economy.

To this end, the following fiscal incentives are recommended to accelerate industrial development and unlock the full potential of Bhutan's priority sectors.

## 1. Fiscal Incentives

Existing Incentive	Proposed Incentive	Objective	Sectors
<b>Tax Holidays (up to 10 years) for High Priority Sectors like RNR, Tourism, Energy (excluding hydro)</b>	Introduce tiered tax holidays (5, 7, 10 years) based on sector impact and performance.	Encourage gradual scale-up while maximizing fiscal control	-Renewable Energy -Data Centers, ICT and IT-Enabled Services -Medical Products (modern medicine, traditional/herbal medicine)
<b>Concessionary Tax Rates (5%/15%) for CSIs, ICT, etc.</b>	Concessionary tax rates of 5% for priority industries that demonstrate strong employment generation, adopt sustainable practices, or operate in Dzongkhags with high poverty levels, and 10% for businesses in the listed priority sectors under the Industrial Development Roadmap.	Promote job creation and equitable development	-Agro-Processing (organic products, high-value crops and vegetables, agro-value added industries, fruit-based industries) -Forestry-Based Industries (Engineered and Value-Added Wood Products)
<b>Investment Allowance on approved projects</b>	Investment Allowance on fixed capital goods, intangible assets (e.g., R&D, IP rights), green technologies, and digital systems	Foster innovation and green industrialization	-Tourism (eco-tourism, wellness centers) -Creative Industries (film, music, digital content, OTT)
<b>ST/CD exemptions on machinery and raw materials</b>	GST/CD exemptions on plants & machinery, raw materials, circular economy inputs, eco-label certified materials, and energy-efficient technology	Promote sustainable production and resource efficiency	-Mineral-Based Industries (Mineral beneficiation & processing beyond crushing and powdering) -Education Industries
<b>Tax Exemption for creative industries employing minimum 15 employees by 12-month period</b>	Tax Exemption for creative industries employing a minimum of 5 national employees	Foster the growth of creative industries which has huge potential for job creation as well as economic development	Creative Industries



## 2. Performance-Based Incentives

The following performance-based fiscal incentives are proposed to support and accelerate the growth of the ten priority sectors identified in the Industrial Development Roadmap.

Performance Metric	Incentive	Threshold	Explanation
<b>Employment of Bhutanese Nationals</b>	Additional 100% deduction on emoluments for up to 3 years	Hiring $\geq$ 20 Bhutanese with skill training  Hiring $\geq$ 5 Bhutanese with skill training for Creative Industries	Encourages hiring of trained Bhutanese nationals and reduces employer wage costs.
<b>Exports Growth</b>	Tax credit up to 5% of incremental export value for agricultural produce and value-added products	Minimum 15% YoY export growth	Rewards companies contributing to foreign exchange and export expansion investing in agricultural sector
<b>Local Sourcing of raw materials</b>	GST refund or 5% tax credit	Use $\geq$ 50% domestic raw materials	Encourage use of local raw materials by refunding GST paid or giving a 5% tax credit on the value of domestic inputs
<b>Innovation &amp; R&amp;D Spending</b>	A 5% tax credit on 10% of the eligible R&D expenditure	R&D spending $\geq$ 5% of total revenue	To encourage private sector investment in innovation and research, companies that spend at least 5% of their total revenue on eligible Research and Development (R&D) activities will receive a tax rebate equal to 5% of 10% of their total R&D expenditure. directly reducing their income tax and supporting long-term competitiveness

<b>Green Certification (ISO 14001, ecolabels) and Standard-Compliant Production</b>	2-year income tax holiday	Must obtain third-party certification	To promote sustainable production by meeting recognized green standards and to ensure products comply with other quality standards for access to international markets, supporting Bhutan's environmental goals and green growth.
<b>Import Substitution</b>	Additional 10% tax deduction on net sales	Replaces $\geq 30\%$ of value of a specific imported good	Businesses replacing at least 30% of the value of an imported final product with local production can deduct 10% of the net sales revenue of that product from their taxable income, encouraging domestic manufacturing and reducing import dependency.
<b>Capacity Building</b>	Additional 100% deduction on capacity building (upskilling/reskilling) expenditures.	Recognised industry-specific training	Encourages businesses to invest in employee development by allowing a full deduction of expenditures on recognized upskilling or reskilling programs, thereby strengthening industry-specific capabilities and workforce productivity.
<b>Patent Commercialization Incentive</b>	Tax waiver for first 3 years on income from commercialization of Bhutanese patents or traditional knowledge products	Approved by relevant authority	Encourage IP protection and high-value exports



## **CHAPTER 6**

### **Access to Affordable Financing**

Bhutan’s Industrial Development Roadmap (IDR) has identified ten high-potential sectors with the capacity to diversify the economy, generate employment, substitute imports, and drive exports. However, the growth of these sectors is often constrained by limited access to affordable, innovative, and flexible financing mechanisms.

Traditional lending models in Bhutan largely rely on asset-heavy collateral, limiting participation to established businesses with significant fixed assets. This excludes many startups, innovation-driven enterprises, and SMEs in the priority sectors—especially those in services, agro-processing, technology, and creative industries—which often lack conventional collateral but demonstrate strong business viability and growth potential.

To overcome these constraints and unlock the full potential of the priority sectors, targeted access-to-finance interventions are essential. This includes introducing diverse financing mechanisms such as concessionary loans, venture capital, performance-based lending, and revenue-linked repayment models that are tailored to the needs of emerging and dynamic enterprises.

Collectively, these measures can bridge Bhutan’s financing gaps, reduce investment risk, and stimulate entrepreneurship across all 10 identified sectors, including Cottage and Small Industries (CSI). They promote a more inclusive, dynamic, and resilient industrial ecosystem, aligned with Bhutan’s long-term goal of building a green, high-income economy.

Financing Mechanism	Incentive	Sector	Explanation
<b>Concessionary Loans and Sector-Specific Credit Quotas</b>	Revise and lower interest rates to 5–6%.	All 10 priority sectors and all CSI	Provides lower interest for strategic investments and growth sectors to improve access to affordable credit, especially for industries with potential but limited financing options.
	Sector-specific credit quotas at concessional rates, provided without collateral through financial institutions, to ensure targeted and affordable access to credit for priority sectors.		Ensures that banks and other financial institutions allocate a portion of their loan portfolio to priority sectors
<b>Diverse financing models</b>	Offer financing models other than the collateral model eg. venture capital, creative equity funding, etc.	All 10 priority sectors and all CSI	Encourages financial institutions to offer alternative financing options beyond traditional collateral-based loans, such as venture capital and equity financing. Helps startups, creative industries, and innovation-driven enterprises grow, who often lack physical collateral, access the capital they need to grow, while also fostering a more inclusive and dynamic financial ecosystem.
<b>Performance- Linked Financing</b>	Offer loan based on credit worthiness rather than collateral	All 10 priority sectors and all CSI	Instead of demanding fixed assets as security, lenders evaluate the financial health, revenue trends, market potential, and repayment capacity of the business. This model is especially useful for Startups or innovation-driven enterprises with strong business plans but limited physical assets, and service-based or digital businesses whose value lies more in intellectual property, customer base, or earnings than in tangible assets

<b>Asset-Based Lending (ABL)</b>	Facilitate loans secured against industrial assets (equipment, factory land, warehouse inventory) rather than traditional collateral.	All 10 priority sectors and all CSI	Allows industries to secure loans using productive assets such as machinery, factory land, or inventory as collateral, rather than relying solely on traditional land-based security. In Bhutan, where many emerging industries lack conventional collateral, ABL offers a practical solution by recognizing the value of industrial assets. Importantly, assets acquired through the loan itself, such as newly purchased machinery or equipment, can also be used as collateral, enabling access to finance even for new ventures.
<b>Revenue-Based Financing (RBF)</b>	Instead of fixed EMI loans, industries repay based on a percentage of monthly revenue.	All 10 priority sectors and all CSI	Decrease loan default risks and support businesses with seasonal/cyclic income
<b>Credit Guarantee Schemes</b>	Reintroduce and operationalize credit guarantee schemes tailored for startups, CSMIs, and new industrial ventures.	All 10 priority sectors and all CSI	Helps de-risk lending by partially covering potential losses of financial institutions, thereby encouraging them to lend to startups and emerging businesses with limited or no collateral.
<b>Blended and Soft Finance Options</b>	Introduce blended finance instruments on collateral-free/soft loan options through dedicated industrial development funds.	All 10 priority sectors and all CSI	Facilitates access to capital for new and impact-driven ventures by combining public and private funds, offering favorable loan terms or partial grants through industrial development funds tailored to Bhutan's strategic sectors.





## 1. Background

Foreign Direct Investment (FDI) plays a pivotal role in driving industrial growth by infusing capital, fostering market expansion, introducing advanced technologies and expertise and creating a broad array of employment prospects. For Bhutan, strategically leveraging FDI can unlock the full potential of the industrial landscape, facilitating progress across diverse sectors and shaping a resilient economic future.

Bhutan's focus is to attract foreign investment that promotes a green, sustainable economy, supports socially and ecologically responsible industries, aligns with cultural values, promotes Brand Bhutan, builds a knowledge-based society and enhances export growth while reducing import dependence (FDI Policy, 2019). As of May 2025, there are 126 FDIs in the country with the total investment size of Nu. 64.57 billion.

The Department of Industry is mandated to increase FDI to Nu. 100 billion by 2029, highlighting the critical role of the Industrial Development Roadmap in driving strategic investments to achieve this target. The Industrial Development Roadmap identifies ten key sectors as areas for growth and FDI is a critical enabler across all these sectors acting as a bridge between domestic capacities and global market. Each sector presents opportunities to attract responsible and impactful foreign investments that can address Bhutan's economic challenges while maximizing its inherent strengths.

## **2. Strategic Interventions**

This section will encompass strategic interventions focusing on the three enablers; Policy & Regulatory Framework, Investment Ecosystem, and Investment Attraction aligned with the ten sectors outlined in the Industrial Development Roadmap. These interventions will focus on attracting quality investments, promoting innovation and fostering partnerships that are essential for driving each sectoral development over the years.



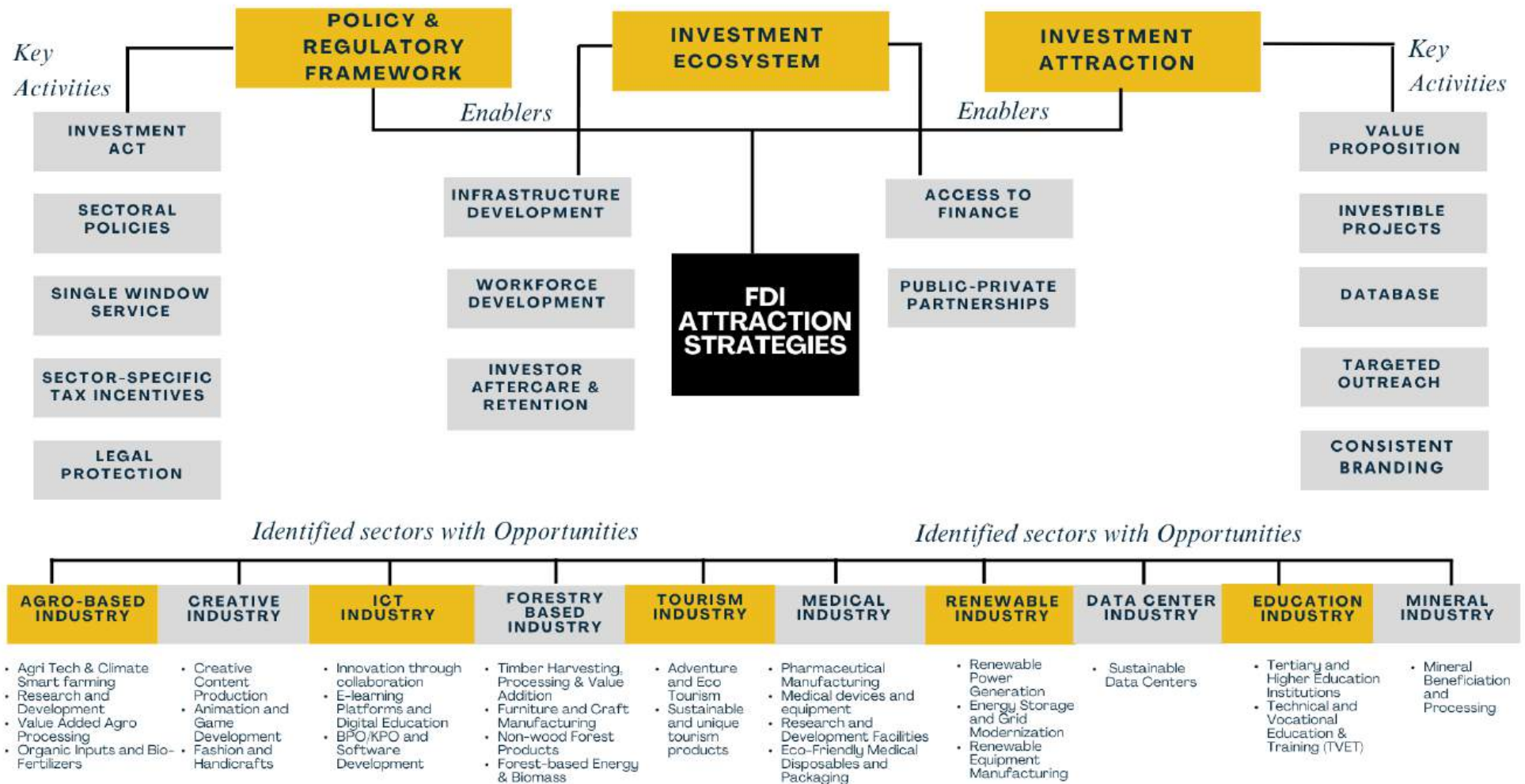


Figure: FDI Promotion Strategies



Enablers	Strategic Objectives	Key Activities
<b>Policy &amp; Regulatory Framework</b>	Create a transparent, consistent and investor-friendly policy and regulatory framework to enhance Bhutan's attractiveness as an investment destination.	<ul style="list-style-type: none"> <li>● <b>Investment Act:</b> Develop and adopt an Investment Act to enhance investor confidence by ensuring transparency, stability and fair treatment.</li> <li>● <b>Sectoral Policies:</b> Clear and well-defined sectoral policies for FDI in the identified sectors. Additionally, aligning sectoral and FDI policies to resolve inconsistencies is crucial for fostering a predictable investment environment.</li> <li>● <b>Single window service:</b> Streamline the FDI licensing process by enhancing the existing single-window service. This includes establishing a service charter in collaboration with sectoral agencies to minimize procedural hurdles.</li> <li>● <b>Sector-specific tax incentives:</b> Implement sector-specific, performance-based tax incentives to enhance Bhutan's appeal as an investment destination.</li> <li>● <b>Legal Protection for Investors:</b> Improve and strengthen the dispute resolution mechanism and enforcement of Intellectual Property rights. Moreover, explore the possibility of joining UNCITRAL to enhance foreign investor confidence.</li> </ul>
<b>Investment Ecosystem</b> (Business Environment such as Infrastructure Development, Workforce Development & Access to Finance)	Foster an enabling environment by improving infrastructure, workforce readiness and access to finance to support investment growth.	<ul style="list-style-type: none"> <li>● <b>Infrastructure Development:</b> Improve physical, digital and industrial infrastructure, including transportation (roads, railways, ports, airports), utilities (energy and water supply), and sector-specific hubs to support targeted industries. Develop industrial parks in strategic locations equipped with necessary amenities</li> <li>● <b>Workforce Development:</b> Maintain updated data on workforce availability, particularly skilled and literate personnel in fields crucial to sectoral operations. Prioritize strategies for developing local talent and ensuring the availability of relevant skills within the country.</li> <li>● <b>Access to Finance:</b> Improve access to finance by enabling borrowings from External sources and making External Commercial Borrowing Guidelines more conducive for borrowers.</li> <li>● <b>Public-Private Partnerships:</b> Encourage collaboration between the government and FDI companies to foster innovation and investment in key sectors.</li> <li>● <b>Investor Aftercare &amp; Retention:</b> Establish a feedback mechanism for the FDI companies to voice their concerns and suggestions, which can help improve the investment climate continuously. Additionally, offer comprehensive post-entry support services to address operational challenges and promote reinvestment.</li> </ul>

<b>Investment Attraction Strategies</b>	Actively attract high-quality investments by presenting Bhutan as an emerging and competitive investment destination	<ul style="list-style-type: none"> <li>● <b>FDI Promotion Strategy:</b> Move towards a sector-focused, targeted promotion strategy to efficiently attract high-quality investments by prioritizing resources towards sectors with the highest potential and strategic importance.</li> <li>● <b>Value proposition:</b> Develop sector specific value proposition and create promotional materials in the ten identified sectors to showcase Bhutan as an emerging destination for foreign investors.</li> <li>● <b>Investible projects:</b> Develop sector specific investible projects to attract foreign and diaspora investors leveraging on the identified opportunity niches.</li> <li>● <b>Database:</b> Maintain a comprehensive database showcasing Bhutan's value proposition, investible projects, and target investor profiles. Enhance services offered through Invest Bhutan Portal.</li> <li>● <b>Targeted Outreach and Promotion:</b> Conduct in-depth research to identify target companies based on their activities, preferences and past projects. Proactively reach out and engage with potential investors within the identified sectors through direct outreach, roadshows and forums.</li> <li>● <b>Consistent Branding:</b> Develop refreshed marketing/branding materials with consistent and focused messaging, visual identity and narrative for each sector.</li> </ul>
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### 3. Sector Wise FDI Opportunities

The table below outlines the FDI Opportunities in each sector. The proposed opportunities focus on fostering partnerships in high-potential sectors, enhancing value addition, and developing eco-friendly industries.

Industry	Focus Area	FDI Opportunities
<b>Agro Industry</b>	Sustainable Practices for Efficiency	<ul style="list-style-type: none"> <li>● Investments in Agri-Tech &amp; Climate smart farming</li> </ul>
	Research and Development	<ul style="list-style-type: none"> <li>● Investment in agro-processing research and development (R&amp;D) center to drive innovation in food safety, packaging, shelf-life enhancement, organic product development and climate-resilient processing techniques.</li> </ul>

	Value-Added Agro-Processing	<ul style="list-style-type: none"> <li>• Fruit processing (juices, dried fruits, jams) from apples, citrus, and pomegranates</li> <li>• Potato-based products (chips, flakes, starch)</li> <li>• Value addition of high-value crops such as mushroom, ginger, turmeric, asparagus and rainbow trout</li> </ul>
	Organic Inputs and Bio-Fertilizers	<ul style="list-style-type: none"> <li>• Growing of high value crops and organic products</li> <li>• Production of bio-fertilizers from agricultural waste</li> <li>• Introduction of organic seed treatments and bio-pesticides</li> </ul>
	<b>Creative Industry</b>	
	Creative Content Production (Film, music, Digital Media, OTT)	<ul style="list-style-type: none"> <li>• Co-production of films, music, documentaries, and series with international partners.</li> <li>• Establishment of production studios, music publishing companies, sound engineering, recording facilities and VFX services</li> </ul>
	Animation and Game Development	<ul style="list-style-type: none"> <li>• Development of culturally infused mobile and online games.</li> <li>• Creation of animated series based on Bhutanese folklore.</li> </ul>
	Fashion and Handicrafts	<ul style="list-style-type: none"> <li>• Partnership with international brands to co-create collections</li> </ul>
<b>Information &amp; Communication Technology Industry</b>	Innovation through Collaboration	<ul style="list-style-type: none"> <li>• Joint research projects focusing on artificial intelligence, blockchain, and IoT.</li> <li>• Establishment of innovation hubs and technology parks</li> </ul>
	E-Learning Platforms and Digital Education	<ul style="list-style-type: none"> <li>• Developing online learning platforms</li> <li>• EdTech startups focusing on blended and remote learning solutions</li> </ul>
	Global Demand for ICT Services	<ul style="list-style-type: none"> <li>• Business Process outsourcing (BPO), knowledge Process Outsourcing (KPO), software development and decentralized technologies</li> </ul>
<b>Forest Based Industry</b>	Timber Harvesting, Processing & Value Addition	<ul style="list-style-type: none"> <li>• Responsible and sustainable timber harvesting</li> <li>• Establishment of engineered wood industries (CLT, GLT, timber panels, doors, windows and structural frames)</li> <li>• Modern sawmilling &amp; wood drying technologies, engineered wood &amp; prefabricated furniture manufacturing and sustainable paper &amp; pulp processing technologies</li> </ul>

	Furniture and Craft Manufacturing	<ul style="list-style-type: none"> <li>● Setting up branded furniture and handicraft units</li> <li>● Development of niche artisan and bespoke woodcraft exports</li> </ul>
	Non-Wood Forest Products (NWFPs)	<ul style="list-style-type: none"> <li>● Extraction and export of essential oils (lemongrass, herbal oils)</li> <li>● Cosmetic and personal care products using natural and sustainably sourced ingredients</li> </ul>
	Forest-based Energy & Biomass	<ul style="list-style-type: none"> <li>● Bioenergy plant development</li> </ul>
<b>Tourism Industry</b>	Adventure & Eco-Tourism	<ul style="list-style-type: none"> <li>● Recreational and Adventure Sports Facilities</li> </ul>
	Sustainable & Unique Tourism Products	<ul style="list-style-type: none"> <li>● Development of capital intensive eco-friendly boutique lodges.</li> <li>● Curated cultural, spiritual, and adventure tourism.</li> <li>● Premium, fully equipped wellness center offering comprehensive facilities</li> </ul>
<b>Medical Products Industry</b>	Pharmaceutical Manufacturing	<ul style="list-style-type: none"> <li>● Contract manufacturing of essential medicines</li> <li>● Production of herbal medicines and high-altitude botanicals</li> </ul>
	Medical Devices and Equipment	<ul style="list-style-type: none"> <li>● Assembly and manufacturing of basic diagnostic tools, portable analyzers, and in vitro diagnostic.</li> </ul>
	Herbal and Traditional Medicine Products	<ul style="list-style-type: none"> <li>● Export-oriented herbal supplement manufacturing</li> <li>● Formulation of niche pharmaceuticals for regional export</li> </ul>
	Research and Development (R&D) Facilities	<ul style="list-style-type: none"> <li>● Establishing joint or foreign-invested R&amp;D centers focusing on herbal pharmacology, AI-based drug discovery, and biopharmaceutical innovation.</li> </ul>
	Eco-Friendly Medical Disposables and Packaging	<ul style="list-style-type: none"> <li>● Production of biodegradable disposables, sterilized packaging, and eco-friendly medical supplies aligning with sustainability policies.</li> </ul>
<b>Renewable Energy Industry</b>	Renewable Power Generation	<ul style="list-style-type: none"> <li>● Development of large-scale hydro, solar, and wind power projects (privatization)</li> <li>● Investment in hybrid renewable systems</li> <li>● Green Hydrogen, Green Ammonia and other derivatives</li> </ul>
	Energy Storage and Grid Modernization	<ul style="list-style-type: none"> <li>● Establishment of grid-scale batteries and energy storage facilities</li> </ul>
	Renewable Equipment Manufacturing	<ul style="list-style-type: none"> <li>● Manufacturing of solar panels, wind turbine blades, and components</li> <li>● Assembly and maintenance centers for renewable technology</li> </ul>

<b>Data Center Services</b>	Renewable Energy for Sustainable Data Centers	<ul style="list-style-type: none"> <li>● Establishment of eco-friendly data centers utilizing renewable energy and efficient cooling technologies</li> </ul>
<b>Education Industry</b>	Tertiary and Higher Education Institutions	<ul style="list-style-type: none"> <li>● Establishment of globally recognized universities (Affiliated or extension campuses aligned with international academic qualification frameworks, with a particular focus on STEM disciplines)</li> </ul>
	Technical and Vocational Education & Training (TVET)	<ul style="list-style-type: none"> <li>● Establishing vocational training hubs with international certifications</li> <li>● Establishing TVET institutions that offer structured career pathways with integrated reskilling and upskilling programs.</li> </ul>
<b>Mineral Industry</b>	Mineral Beneficiation and Processing	<ul style="list-style-type: none"> <li>● Mineral Beneficiation and Processing beyond crushing or powdering</li> </ul>

The opportunities outlined in each sector present significant potential for investment and development. To capitalize on these, the Department of Industry should collaborate with the respective sectors to design and promote viable investment projects aligned with the identified opportunities. This strategic approach ensures a targeted focus on enhancing sector-specific growth and attracting sustainable investments.

# CHAPTER 8

## Monitoring and Evaluation

### 1. Monitoring Framework

Focus Area	Monitoring Parameters	Data Source	Frequency
<b>Policy and Regulatory Review</b>	% of regulatory reforms completed	OCASC & Lead Agencies	Annual
	Avg. time reduction for clearances (land, environment, licenses)	PSDD (PMO)	Annual
<b>Establishment of Industry</b>	Number of licenses issued sector-wise	DoI MoICE	Biannual
<b>FDI</b>	FDI Inflow by sector	DoI & RMA	Annual
<b>Employment</b>	Job Created (sector-wise)	DoEE & DoL	Annual
<b>Implementation Progress</b>	Sector-wise data regarding: - Number of industrial projects started - Number of industries accessing fiscal incentives - Infrastructure projects completed (industrial parks, logistics)	DoI, DRC & Lead Agencies	Annual
<b>Capacity Building - Skills development</b>	No. of Training Programs conducted (sector-wise and skill type)	DoEE/Lead Agencies	Annual
<b>Access to finance</b>	Sector-wise data regarding: - Structural changes in financing - No. of industries accessing financial support from commercial banks	RMA	Annual
<b>Fiscal Incentives</b>	- Fiscal Incentives initiated. - Number of industries (sector-wise) accessing fiscal incentives	DRC	Annual
<b>Technology, Innovation &amp; R&amp;D</b>	Sector-wise tax rebate amount for innovation, R&D	DRC	Annual
<b>Standardization and Certification</b>	Number of Standards developed and implemented for each sector - No. of products certified for each sector	Lead Agencies	Annual
<b>Infrastructure development</b>	No. of infrastructure/logistic projects completed (progress report)	MoIT	Annual
<b>Green and sustainable economy</b>	No. of green incentives availed by industries - No. of green jobs created (in renewable energy sector, eco-tourism, etc)	DRC/DoEE	Annual
<b>Innovation</b>	No. of IP, GI, and copyrights filed (sector-wise)	DoMCIIP	Annual

## 2. Evaluation Framework

Evaluation Dimension	Parameters	Data Sources	Frequency	Responsible Agency
<b>Contribution to GDP</b>	- Industrial GDP share - Sectoral growth rates	NSB National Accounts, MoICE reports	Annual	NSB, MoICE
<b>Employment Generation</b> (Are jobs being created in priority sectors?)	- Jobs created - Employment rate	Labor Force Survey	Annual	MoICE, NSB
<b>Workforce skills</b>	-No. of enrollment in TVET -No. of Bhutaneses certified through a recognized learning programs and upskilling/reskilling initiatives	DoEE, DoL, and MoESD	Annual	MoICE, NSB, MoESD
<b>Export Promotion/diversification</b>	- No. of products exported (sector-wise) - Export value (sector-wise)	Trade Statistics Report, MoF	Annually	MoICE
<b>Import Substitution</b>	Import substitution ratio	Trade Statistics, MoF	Annually	MoICE
<b>Investment Mobilization</b>	FDI inflows (sector-wise)	MoICE report	Annually	MoICE
<b>Global Value Chain Integration</b> (Is Bhutan integrating into global value chains?)	GVC participation index - FDI in export-oriented sectors	UNCTAD	Annually	MoICE
<b>Market access</b>	No. of FTAs/MoUs signed	DoT, MoICE/ MoF	Annually	DoT, MoICE/ MoF

	No. of tariff and non-tariff barriers reduced			
<b>Private Sector participation</b>	Growth % of private and foreign investment in the priority sectors	MoICE, DRC	Annually	MoICE, DRC
<b>IDR implementation progress</b>	Sectoral implementation data/report (incentive usage, infrastructure developed, exports & import data, etc), outcomes	MoICE, MoF, Lead Agencies	Annually	MoICE, MoF, Lead Agencies



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# ANNEXURE 1: Prioritization Matrix for Secondary and Tertiary Sectors

## 1. Secondary Sector (Manufacturing, Quarry, and Construction)

Parameter	Checklist (Key Considerations for Prioritization) Rating 1 to 5 ( 1 being very poor, 2 being very good)
<b>Contribution to GDP</b>	<ul style="list-style-type: none"> <li>- Current % share in GDP</li> <li>- Projected future contribution to USD 5 billion in 2029 and USD 10 billion in 2034.</li> <li>- Growth potential in the next 5-10 years.</li> <li>- Role in economic diversification</li> </ul>
<b>Value Addition, Diversification, and Use of Local Resources</b>	<ul style="list-style-type: none"> <li>- Extent of value addition in the production process</li> <li>- Utilization of domestic raw materials</li> <li>- Potential for downstream and upstream linkages</li> <li>- Scope for technology-driven production</li> </ul>
<b>Comparative Advantage and Export Potential</b>	<ul style="list-style-type: none"> <li>- Bhutan's natural advantage in production</li> <li>- Competitiveness in regional/global markets</li> <li>- Trade agreements &amp; access to foreign markets</li> <li>- Existing infrastructure, skilled labour, and economy of scale</li> <li>- Integration into global markets</li> <li>- Demand in global markets</li> <li>- Resource endowments</li> </ul>
<b>Potential for Import Substitution</b>	<ul style="list-style-type: none"> <li>- Reduction of reliance on imported goods</li> <li>- Feasibility of replacing key imports with domestic production</li> <li>- Market demand for locally made alternatives</li> <li>- Additional points from Import Sub report</li> </ul>
<b>Employment Generation (Locals)</b>	<ul style="list-style-type: none"> <li>- Number of jobs created</li> <li>- Inclusion of local workforce</li> <li>- Capacity building, skilling, and re-skilling opportunities</li> <li>- Enhancement of employability (in terms of sustainability, and high-end jobs (pay, skills, training, education, etc.)</li> <li>- Transfer of knowledge and innovation</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>- Social and environmental impact</li> <li>- Adoption of green technologies &amp; renewable energy</li> <li>- Alignment with Bhutan's GNH principles</li> <li>- Market based sustainability</li> <li>- Resource availability</li> </ul>
<b>External and Internal Demand</b>	<ul style="list-style-type: none"> <li>- Domestic market demand</li> <li>- Regional/global demand trends</li> <li>- Scalability</li> </ul>
<b>Investment Attractiveness (Potential for FDI)</b>	<ul style="list-style-type: none"> <li>- Ease of doing business</li> <li>- Incentives &amp; policies supporting investments</li> <li>- Infrastructure, energy, logistics support&amp; digital ecosystem readiness</li> </ul>

<b>Resilience</b>	<ul style="list-style-type: none"> <li>- Adaptability to external and internal shocks</li> <li>- Integration with global trends</li> </ul>
<b>Quality and Certifications</b>	<ul style="list-style-type: none"> <li>- Meet national, regional, and international standards and certifications</li> </ul>

## 2. Tertiary Sector (Services, Trade, and ICT-Based Industries)

Parameter	Checklist (Key Considerations for Prioritization)
<b>Contribution to GDP</b>	<ul style="list-style-type: none"> <li>- Current % share in GDP</li> <li>- Projected future contribution to USD 5 billion in 2029 and USD 10 billion in 2034.</li> <li>- Projected sectoral growth</li> <li>- Role in economic diversification</li> </ul>
<b>Employment Generation</b>	<ul style="list-style-type: none"> <li>- Job creation potential</li> <li>- Skilled, semi-skilled, or unskilled employment</li> </ul>
<b>Export Potential</b>	<ul style="list-style-type: none"> <li>- Competitiveness in international markets</li> <li>- Potential to provide services beyond Bhutan (e.g., BPO, KPO, digital services)</li> <li>- Trade agreements &amp; cross-border opportunities</li> </ul>
<b>Investment Attractiveness (Potential for FDI)</b>	<ul style="list-style-type: none"> <li>- Availability of capital &amp; investor interest</li> <li>- Business-friendly policies</li> <li>- Infrastructure &amp; digital ecosystem readiness</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>- Green business models &amp; environmental impact</li> <li>- Market-driven sustainability practices</li> <li>- Alignment with Bhutan's GNH principles</li> </ul>
<b>Market Enhancement and Linkage</b>	<ul style="list-style-type: none"> <li>- Role in supporting other sectors (e.g., tourism, digital economy)</li> <li>- Integration with global markets</li> <li>- Opportunities for innovation &amp; technology adoption</li> </ul>
<b>External and Internal Demand</b>	<ul style="list-style-type: none"> <li>- Growth of domestic consumer base</li> <li>- Regional &amp; international demand</li> <li>- Scalability potential</li> </ul>

## 3. Parameters for priority sector identification

Parameter	Weight (%)	Checklist Criteria	Score 1 (Very Poor)	Score 2 (Poor)	Score 3 (Average)	Score 4 (Good)	Score 5 (Very Good)
Contribution to GDP	15	% Share in GDP	<1%	1.1 to 2%	2.1 to 3%	3.1 to 4%	>4.1 %
		Growth Potential	Very Low	Low	Moderate	High	Very High
		Role in Economic Diversification	Very Low	Low	Moderate	High	Very High

<b>Value Addition and Local Resources</b>	10	Use of Domestic Raw Materials	Very Minimal	Minimal	Partial	High	Very High
		Downstream/Upstream Linkages	Very low linkages	Low linkages	Moderate Linkages	Strong linkages	Very Strong linkages
		Scope for technology driven production/services	Very Low	Low	Moderate	High	Very High
		Use of Electricity	Very Low	Low	Moderate	High	Very High
<b>Comparative Advantage and Export Potential</b>	10	Natural Advantage in production	Very Low	Low	Moderate	High	Very High
		Competitiveness in regional/global markets	Very Low	Low	Moderate	High	Very High
		Trade Agreements & Market Access	Very Limited	Limited	Moderate	Strong	Very Strong
<b>Import Substitution Potential</b>	10	Reduction of reliance on imported goods	Very Low	Low	Moderate	High	Very High
<b>Employment Generation (Locals)</b>	15	Number of Job Creation	Very Low	Low	Moderate	High	Very High
		Inclusion of local workforce	Very Low	Low	Moderate	High	Very High
		Capacity Building of skills, training, and education	No focus	Low	Some focus	High	Strong focus
		Enhancement of employability - Sustainability	Very Low	Low	Moderate	High	Very High
		Transfer of knowledge and innovation	Very Low	Low	Moderate	High	Very High
<b>Sustainability</b>	10	Environmental Impact	High Negative Impact	Negative Impact	Neutral	Positive	High Positive Impact
		Social Impact	Very Low	Low	Moderate	High	Very High
		Adoption of green technologies	Very Low	Low	Moderate	High	Very High



		Use of renewable energy	Very Low	Low	Moderate	High	Very High
		Alignment with GNH	Very Low	Low	Moderate	High	Very High
		Market based sustainability	Very Low	Low	Moderate	High	Very High
		Resource availability	Very Low	Low	Moderate	High	Very High
<b>External &amp; Internal Demand</b>	10	Regional and Global Market Demand	Declining		Stable		Growing
		Domestic market demand	Declining		Stable		Growing
		Scalability	Very Low	Low	Moderate	High	Very High
<b>Investment Attractiveness (FDI)</b>	10	Ease of Doing Business	Very Poor	Poor	Moderate	Good	Very Good
		Incentives & policies supporting investments	Very Low	Low	Moderate	High	Very High
		Infrastructure	Very Low	Low	Moderate	High	Very High
		Logistics support	Very Low	Low	Moderate	High	Very High
		Digital ecosystem readiness	Not Ready		Moderate	Adequate Readiness	High Readiness
<b>Resilience</b>	5	Adaptability to economic shocks	Very Rigid	Rigid	Moderate	Adaptive	Highly Adaptive
		Integration with global trends	Very Low	Low	Moderate	High	Very High
<b>Quality &amp; Certifications</b>	5	Meets International Standards	No Certification		Partial Certification		Full Certification

## ANNEXURE 2: Potential Agro Industries and Products

Product	Location	Potential Industries	Domestic Market	International Market
Vegetables				
Chilli	Paro, Thimphu, Punakha, Samtse, Tsirang, TashiYangtse, Punakha, Trongsa	Pickle production Dried chilli Chilli powder	High-end organic hotels Restaurants and hotels	Dried chill export to Australia (Bhutanese community)
		Chilli sauce Soup production	Restaurants and hotels	Japan, India and Thailand
Tomato	Tsirang, Wangdue, Dagana, SJ, Samtse, Paro, Sarpang,	Tomato sauce Soup production	High-end organic hotels Restaurants and hotels	India and Thailand
Asparagus	Chukha, Paro, Thimphu, Tashigang	Canning Soup production	Restaurants and hotels	Singapore, Japan and Thailand
Broccoli	Chukha, Paro, Thimphu, Tashigang, Haa,	Soup production industry	Restaurants and hotels	Singapore, Japan and Thailand
Azuki Beans	Tashigang, Tashiyangtse, Mongar, Bumthang, Trongsa, Wangdue, Punakha	Canning Frozen products	Domestic consumption	Japan
Cash crops				
Cardamom	Samtse, Chukha, Sarpang, Tsirang, Dagana, Tashigang,	Cardamom candy Cardamom toothpaste	Domestic consumption	Bangladesh and India
Quinoa	Tsirang, Dagana, Tashigang, Samdrup Jongkhar, Tashiyangtse, Mongar,	Quinoa flour, bulgur, flax, grain	Domestic consumption	
		Ready-to-eat snacks, soup, porridge	Domestic consumption	Singapore, Thailand, Japan, and Middle East
Grains				
Rice	Paro, Sarpang, Samdrup Jongkhar, Punakha, Wangdue	Rice wine/ beer	Domestic Consumption	
		Packed rice export		USA, Australia, Canada
Wheat	Bumthang, Haa, Gasa, Tashiyangtse, Lhuntse, Wangdue, and Punakha	Flour, beer, wine, animal feed, bulgur for domestic consumption	Domestic Consumption	
		Biscuit/ snack, cookies		Japan

Maize	Tashigang, Mongar, Tashiyangtse, Lhuntse, Samdrup Jongkhar, Sarpang, Tsirang, Chukha	Feed millers; Maize grits, flakes, wine, Baby corn, Corn oil	Domestic Consumption	
Buckwheat	Bumthang, Tashi Yangtse, Samdrup Jongkar, Tashigang,	Feed millers; grits, flakes, wine, noodles	Domestic Consumption	
		Cookies, instant noodles, soup base;		Japan
Fruits				
Avocado	Samdrup Jonkhar, Tsirang, Zhemgang, Mongar, Pemagatshel	Fruit cocktail, tea, and oil extraction		India, Thailand, and Bangladesh.
Apple	Thimphu, Paro, Haa, Bumthang,	Fruit, candies, jam, juice, brandy, wine, fruit cocktail		India, Bangladesh, Thailand
Mandarin	Tsirang, Dagana, Samtse, Sarpang, SJ, PG, Zhemgang	Fruit, candies, jam, juice, fruit cocktail		Bangladesh, India, Thailand
Livestock products				
Dairy (Milk, cheese and butter)	All 20 Dzongkhags	Yogurt, paneer, Ice cream, cheese, butter, cream, milk, milk powder	Domestic Consumption	
Sturgeon	Wangdue, Haa	Caviar, meat	Gelephu Mindfulness City	
Trout	Haa, Paro, Dagana, Punakha, Wangdue	Caviar, meat		Singapore
Honey	All 20 Dzongkhags	Candies, juice.	Domestic consumption	EU+
Cage-free eggs		Egg powder, shampoo	Domestic consumption	Singapore
Pork		Ham, sausage, bacon, smoked pork, Pet food.	Domestic consumption	

In addition to the priority commodities mentioned above, several promising agro-based industries have been identified for their strong potential to contribute to import substitution, and export diversification, value addition by increasing economic value of agricultural products, food security through efficient utilization of local resources, and industrial diversification. These industries, outlined below, have been selected based on their commercial viability, scalability, and alignment with agricultural development priorities. Each is accompanied by targeted

strategic interventions aimed at unlocking their full economic potential and fostering sustainable growth.

## 1. Potato based Industries

Given its strategic importance as a major cash crop, potato holds significant economic potential in Bhutan. As highlighted in the *Agrifood Sector Strategy 2034*, the Ministry of Agriculture and Livestock (MoAL) aims to scale up potato production. To capitalize on this opportunity, Bhutan should promote the development of diverse potato-based industries to enhance value addition, reduce post-harvest losses, substitute imports, and unlock export potential.

The following potato-based processing industries are particularly promising:

- **Potato Chips and Crisps Industry:** Production of packaged chips, crisps, and other potato-based snacks for domestic and regional markets.
- **French Fries and Frozen Potato Products Industry:** Manufacturing of frozen fries, wedges, hash browns, tater tots, and similar products, catering to growing demand in the fast-food and hospitality sectors.
- **Dehydrated Potato Products Industry:** Production of potato flakes, granules, powders, and starch, which are key ingredients for instant noodles, soups, snacks, and ready-to-eat meals.
- **Potato Starch, Flour, and Baking Industry:** Extraction of potato starch for use in food processing, adhesives, paper, textiles, and pharmaceuticals. Production of potato flour supports the baking of bread, pastries, and gluten-free goods. This industry presents significant import substitution opportunities, especially for noodles and bakery items, while offering export potential.
- **Alcohol and Beverage Industry:** Development of potato-based alcoholic beverages such as vodka, gin, and other spirits, leveraging niche markets and Bhutan's branding potential.

Promoting these industries aligns with Bhutan's broader economic objectives by fostering agro-industrial growth, increasing rural incomes, creating employment, and boosting self-reliance and sustainability in the food processing sector.

Samdrup Jongkhar and Phuentsholing serve as key auction yards and export gateways for potatoes produced in the eastern and western regions, respectively. These locations play a crucial role in aggregating regional potato produce. With the development of an additional industrial park in Samdrup Jongkhar (Bokajuli), there is a strong opportunity to promote potato-based value addition industries in the area.

Similarly, support the establishment of value addition industries in Phuentsholing to cater to the western region and in Phobjikha for the central region. In Chastokha, Phuentsholing, a 38.23-acre forestland—already connected by a farm road—has strategic potential for industrial use. Explore to leverage this location to establish value addition industries and cold storage facilities.

## Implementation Plan - Medium Term - Long Term (2029-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Promotion of Potato-Based Industries</b>	Assess the feasibility of establishing potato-based industries in industrial parks at Bukajoli (Samdrup Jongkhar), Chastokha (Phuentsholing), and Phobjikha (Wangdue Phodrang). Promote and support the development of potato processing industries such as chips, frozen products, starch, and beverages.	Feasibility studies for three industrial parks completed by 2027, followed by the establishment or expansion of at least three potato-based processing units with product lines such as chips, frozen products, or starch by 2033.	DAMC, DoI	DoA, DFPS, NLC
<b>Post-Harvest Management</b>	Initiate establishment of cold storage facilities in identified industrial areas to reduce post-harvest losses and support the potato value chain. Provide subsidised electricity rates for operating cold storage units.	At least three cold storage facilities established and functional in key potato-producing industrial areas by 2032, with a policy framework enabling subsidised electricity rates in place and accessible to facility operators.	DAMC	DoA, DoI
<b>Infrastructure Development</b>	Conduct a detailed assessment for cold storage infrastructure needs in Samdrup Jongkhar Thromde's LAP-4 area (3 km from main city), where state-owned land is available.	Detailed infrastructure needs assessment for the LAP-4 area completed by 2027, serving as the basis for subsequent investment and development of cold storage and related logistics infrastructure in the region.	DAMC	DoA, DoI

## 2. Mushroom-Based Industry

The promotion of mushroom-based industries has been identified as a high-potential area. Bhutan's unique climate, biodiversity, and organic production potential provide an ideal environment for developing high-value and export-oriented mushroom products.

## **2.1. Mushroom Spawn and Raw Materials Production**

A robust mushroom industry in Bhutan must be anchored in the reliable production of high-quality spawn, which directly influences the yield, quality, and consistency of mushroom cultivation. Currently, Bhutan faces a limited domestic capacity for spawn production, with continued reliance on imports—particularly for high-value and exotic mushroom varieties. This dependency not only affects the scalability of the industry but also its sustainability and cost-effectiveness.

In addition to spawn, the availability of suitable raw materials for mushroom cultivation, such as oak wood for certain species, is becoming increasingly scarce and unsustainable. This calls for research and innovation to identify and develop alternative substrates and raw materials that are locally available, cost-effective, and environmentally sustainable.

To address these challenges, it is essential to strengthen the Mushroom Centre and other relevant institutions to:

- Lead research and development (R&D) initiatives focused on alternative raw materials and optimized spawn production techniques;
- Develop and disseminate low-cost, eco-friendly substrates to reduce dependence on traditional resources like oak wood; and
- Establish decentralized spawn production units to improve access for rural farmers and entrepreneurs.

Furthermore, specialized training and capacity-building programs should be conducted regularly by the Mushroom Centre and in collaboration with other technical institutions. These programs should focus on:

- Hands-on training in sterile laboratory techniques,
- Culture maintenance and propagation methods,
- Spawn multiplication and storage, and
- Quality control to ensure disease-free and productive spawn.

Building this foundational capacity in spawn and substrate production is crucial to making Bhutan's mushroom industry self-reliant, resilient, and scalable, while opening up new avenues for rural employment, entrepreneurship, and export opportunities.

## Implementation Plan- Short-Term (2026–2028)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Strengthen Mushroom Centre &amp; R&amp;D Capacity</b>	Enhance Mushroom Centre with funding, skilled manpower, and lab equipment.	Mushroom Centre upgraded with new lab equipment, at least 5 additional technical staff, and increased operational budget by 2027.	DoA	MoF, DoI, MoAL,
<b>Establish Decentralized Spawn Units</b>	Identify strategic locations for spawn units. Provide technical support and starter kits to trained youth/farmers.	By 2028, establish spawn units in at least 5 Dzongkhags and support 100 trained individuals with starter kits and follow-up technical assistance.	DoA	LGs, FMCL, DoI, DoEE
<b>Sustainable Substrate Alternatives</b>	Conduct research to identify alternative substrates (e.g., agri-waste, bamboo).	Research completed by 2027 identifying at least 3 viable alternative substrates for mushroom cultivation, with pilot trials conducted.	DoA	Mushroom Centre, Private Sectors, Cooperatives
<b>Capacity Building &amp; Skill Development</b>	Organize training on lab techniques, spawn methods, contamination control. Develop training materials.	A minimum of 10 hands-on training programs conducted nationwide by 2028, with standardized training materials produced and distributed to mushroom stakeholders.	DoA	Training Institutes, DoEE, Cooperatives
<b>Seed Funding and Equipment Support</b>	Provide seed funding, incubator grants, or subsidized equipment to new mushroom farmers and entrepreneurs.	At least 50 new mushroom farmers or startups supported with seed funding or subsidized equipment packages by 2028.	DoA	MoF, DoI, DAMC,
<b>Market Development &amp; Branding</b>	Conduct market assessments for high-value/export mushrooms. Launch “Bhutan Organic Mushrooms” branding.	Market assessment completed by 2027 and "Bhutan Organic Mushrooms" brand launched and promoted in at least 3 domestic and 1 international market by 2028.	DAMC	DoT, DoI, Private Sector, DoMCIIP
<b>Value Chain Development</b>	Support development of small mushroom processing units (drying, packaging).	At least 5 mushroom processing units (drying/packaging) supported and operational by 2028 across different production zones.	DAMC	FMCL, Private Sector,

<b>Access to Finance &amp; Investment</b>	Link mushroom entrepreneurs with banks and credit schemes.	By 2028, facilitate access to credit for at least 30 mushroom entrepreneurs through partnerships with financial institutions and promotion of tailored loan schemes.	DAMC	DoA, DoI, RMA
<b>Cooperative Engagement</b>	Support formation of mushroom producer cooperatives and train on business management.	A minimum of 5 mushroom cooperatives formed and trained in cooperative governance and agribusiness management by 2028.	DAMC	DoA, DoEE, DoI

## Implementation Plan-Medium-Term (2029–2031)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Strengthen Mushroom Centre &amp; R&amp;D Capacity</b>	Expand R&D program to optimize substrates and develop high-yield/exotic mushroom species.	At least 3 high-yield or exotic mushroom strains developed and made available to farmers by 2031, with 2 optimized substrate formulas tested under local conditions.	DoA	Mushroom Centre
<b>Sustainable Substrate Alternatives</b>	Disseminate validated substrate formulas via manuals, trainings, and demonstration farms.	Validated substrate manuals published and distributed in 10 Dzongkhags; a minimum of 20 farmer groups trained and 5 demo farms established by 2030.	DoA	LGs, Cooperatives
<b>Capacity Building &amp; Skill Development</b>	Scale up skill training programs and expand outreach through digital content.	Over 500 farmers and youth trained through in-person and digital platforms by 2031; training content digitized and made accessible on at least two government or partner platforms.	DoA	CNR, Mushroom Centre, DoEE
<b>Market Development &amp; Branding</b>	Promote Bhutan's mushroom brand in domestic and regional markets.	Bhutan's mushroom brand promoted in at least 3 domestic and 2 regional markets through coordinated campaigns and participation in key trade or food events by 2031.	DAMC	DoTr, Private Sector
<b>Value Chain Development</b>	Facilitate value addition (e.g., powders, extracts) and scale up processing infrastructure.	A minimum of 5 mushroom processing facilities upgraded or established with capacity for producing powders or extracts by 2031.	DAMC	FMCL, Private Sector,



<b>Market Linkages &amp; Export Promotion</b>	Build market linkages with buyers (hotels, supermarkets); support trade fair participation.	Market agreements or MOUs signed with at least 10 institutional buyers (hotels, retailers) and participation in 3 regional/international trade fairs facilitated by 2031.	DAMC	Private Sectors, DoI
<b>Cooperative Engagement</b>	Provide advanced training for cooperatives on supply chain and business planning.	Advanced training delivered to at least 10 mushroom cooperatives by 2030, focusing on supply chain efficiency, financial literacy, and enterprise planning.	DAMC	DoEE, Training Centres, DoI

## Implementation Plan- Long-Term (2032-2035)

Focus Area	Key Activities/Actions	KPI	Lead Agency	Collaborating Agency
<b>Strengthen Mushroom Centre &amp; R&amp;D Capacity</b>	Sustain a national mushroom R&D and innovation program.	A long-term national R&D program institutionalized with secured annual budget and active collaboration with at least 3 domestic or international research partners by 2035.	DoA	MoF, Private Sector
<b>Establish Decentralized Spawn Units</b>	Scale and maintain decentralized spawn production units in all agro-ecological zones.	Decentralized spawn units established and operational in all 5 major agro-ecological zones, meeting at least 70% of national spawn demand by 2035.	DoA	LGs, FMCL, Farmers' Cooperatives
<b>Market Linkages &amp; Export Promotion</b>	Establish sustained export channels with India, Southeast Asia, and other regions.	Long-term export agreements signed with buyers in at least 3 countries, and annual export volumes of Bhutanese mushrooms reach 200 MT by 2035	DAMC	Private Sector, DoI, DoTr, MoFAET
<b>Access to Finance &amp; Investment</b>	Mobilize large-scale investment in export-grade infrastructure (e.g., cold chains, advanced packaging units).	A minimum of 3 large-scale export-grade infrastructure projects (e.g., cold chain hubs, packaging units) established through FDI or PPP models by 2035.	DAMC	MoF, Private Sector, FDI Investors, DoI

## 2.2. Promotion of High-Value Mushroom Industry

Bhutan has significant potential to develop a high-value mushroom industry that contributes to economic diversification, rural income generation, and export development. Several mushroom

varieties—including Nameko, Ganoderma (Reishi), Truffle (Tuffel), King Oyster, Shiitake, Jew’s Ear, Straw Mushrooms, and Volvariella—offer high commercial and export potential.

In particular, Volvariella is well-suited for rapid cultivation, with a harvest cycle of just 9–10 days, making it ideal for short-term production and turnover. Ganoderma mushrooms, valued for their medicinal properties, and Nameko, popular in Japanese cuisine, are niche products with strong demand in international wellness and gourmet markets.

To unlock this potential, there is a need to:

- Promote commercial-scale production of these high-value mushroom species;
- Encourage vertical farming and explore diverse production methods suited for limited land availability and controlled environments; and
- Support the establishment of cluster-based mushroom farms, especially among youth and rural entrepreneurs.

Fresh mushroom produce has emerging markets in countries such as Thailand, Japan, Singapore, and Bangladesh. To reduce post-harvest losses and ensure year-round market access, excess production can be processed into value-added products such as:

- Dried mushrooms,
- Mushroom tea,
- Mushroom soup mixes, and other shelf-stable items.

These processed products have strong appeal in both domestic and export markets, especially within health-conscious and urban consumer segments.

With strategic support, technology adoption, and market facilitation, the mushroom industry can become a flagship agro-based sector that enhances Bhutan’s food security, boosts rural livelihoods, and strengthens export revenues.

### Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Species Selection and R&amp;D</b>	Conduct feasibility studies to identify region-specific mushroom suitability (e.g., Volvariella in warmer areas, Shiitake in temperate zones).	Cultivation protocols developed and tested for at least 5 high-value species; partnerships established with 3 international research institutes;	DoA	CNR, Research Institutes, Mushroom Centre, LG

	Develop cultivation protocols for high-value species (Ganoderma, Truffle, Nameko).	region-specific species adopted in 8+ Dzongkhags by 2032.	DoA	CNR, MoAL
	Partner with international research institutes for technical expertise and R&D.		DoA	DoI,
<b>Capacity Building and Technology Transfer</b>	Organize training for farmers, youth, and entrepreneurs on mushroom cultivation and post-harvest practices.	At least 2,000 individuals trained on mushroom production and post-harvest practices; 15 model/demo units established in key production zones by 2030.	DoA	DoEE, DoI, LG
	Establish demonstration farms and model units showcasing vertical farming and commercial production.		DoA	LG, Private Sector
<b>Vertical Farming and Controlled Environment Production Cluster Development and Enterprise Support</b>	Develop and disseminate low-cost vertical farming guidelines; support peri-urban infrastructure.	Low-cost vertical farming guidelines adopted nationally by 2027; 10 climate-controlled farms operational with support from public-private incentives by 2031.	DoA	DoI, LG
	Incentivize controlled environment farming for year-round production.		DoA	MoF, RMA
	Identify and develop mushroom clusters in dzongkhags as production hubs.		DoA	DAMC, LG, Cooperatives
	Support farmer groups or cooperatives for input sharing, production, and marketing.		DAMC	DoA, Private Sectors,
<b>Input Supply and Infrastructure</b>	Ensure timely and affordable access to quality spawn, substrates, and tools.	90% of mushroom farmers report timely access to inputs; 10 cold storage/drying units established in major clusters by 2030	DoA	BAFDA, Private Input Suppliers
	Promote establishment of cold storage and drying units to reduce post-harvest losses.		DoA	DoI, LG, FCBL, DAMC
<b>Domestic and Export Market Facilitation</b>	Map and explore domestic/export markets (e.g., Japan, Singapore, Bangladesh).	Export agreements/pilots initiated with 5 international markets; Bhutanese mushrooms featured in at least 6 trade expos/platforms abroad by 2033.	DAMC	MoFAET, DoT, DoI, Private Sector
	Facilitate export pilots and agreements for fresh/processed mushrooms.		DAMC	DoT, BSB
	Collaborate with embassies and trade attachés to promote Bhutanese mushrooms.		DAMC	MoFAET
<b>Value Addition and Processing</b>	Facilitate community-level processing units for drying, powdering, and packaging.	10 community-level processing units operational; at least 5 value-added mushroom products developed and commercialized; 2 FDI-backed processing tech partnerships established by 2034.	DAMC	DoI, DoA
	Promote mushroom-based product development (soups, teas, nutraceuticals).		DAMC	FDI Partners, DoI
	Support technology transfer for processing through FDI.		DAMC	DoA, DoI

<b>Branding, Promotion, and Certification</b>	Develop a national “Bhutan Mushrooms” brand linked to organic and wellness values.	“Bhutan Mushrooms” brand developed and certified; Mushroom GAP and organic certification standards adopted and applied by 30% of producers; 3 marketing campaigns conducted in key domestic/export markets.	DAMC, DoA	BSB, DoI, Mushroom Centre
	Develop Mushroom Good Agricultural Practices Standards.		DAMC	BAFDA, BSB
	Support organic certification, labeling, and packaging for export.		DAMC	MoFAET
<b>Digital Market Platforms and Linkages</b>	Conduct targeted marketing campaigns in urban and export markets.	A digital mushroom marketing and pricing platform launched; 1,000+ farmers and buyers actively using the platform for transactions and market info by 2030.	DAMC	DoI, GovTech
	Create or integrate digital platforms for marketing mushrooms and derivatives.		DAMC	DoA, FCBL, Private Sector
<b>Access to Finance and Incentives</b>	Facilitate farmer-market connections through demand data and price forecasts.	At least 300 mushroom enterprises benefit from subsidized loans, grants, or incentives; mushroom business financing integrated into 2 national credit schemes by 2031.	DAMC	MoF, RMA
	Coordinate with banks to offer subsidized loans and grants for mushroom businesses.		DAMC	DoA, DoI
	Offer incentives to startups, cooperatives, and CSIs in production, processing, and marketing.			

### 3. Groundnut Production and Value Addition in Eastern Bhutan

The eastern districts of Trashigang, Mongar, and Trashiyangtse have favorable agro-climatic conditions for the cultivation of groundnuts (peanuts). These areas have a long-standing tradition of small-scale groundnut farming, which presents a strong opportunity for commercial expansion and value chain development.

To harness this potential, the following strategic interventions are proposed:

- Promote large-scale groundnut cultivation through improved seed varieties, farmer training, and access to irrigation and farm mechanization;
- Facilitate the establishment of community-based processing units for value-added products such as roasted groundnuts, peanut butter, groundnut oil, and groundnut-based snacks;
- Support cooperatives and youth-led enterprises to take up groundnut processing and marketing;
- Link producers to domestic and regional markets, including school feeding programs, local retailers, and potential export channels.

Developing a robust groundnut value chain in eastern Bhutan will not only improve household income and nutrition but also create rural employment opportunities and contribute to import substitution for edible oil and snack products.

## Implementation Plan - Short Term to Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Groundnut Production Expansion</b>	Promote large-scale cultivation using improved seed varieties.	At least 1,000 acres of groundnut cultivated using improved seeds; 2,000 farmers trained; irrigation or mechanization support extended to 50% of groundnut-growing households by 2031	DoA	Dzongkhag Agriculture Offices, ResearchCenters
	Train farmers in agronomic practices and farm management.		DoA	LGs, Youth Groups
	Improve access to irrigation and promote farm mechanization for groundnut farming.		DoA	LGs
<b>Value Addition and Processing</b>	Establish community-based processing units (roasting, oil extraction, peanut butter, snacks).	10 community-based processing units operational; 5 product types commercialized; 200 individuals trained in groundnut processing by 2032	DAMC	DoA, DoI
	Provide technical and financial support for processing equipment and capacity building.		DAMC	MoF, RMA, DoI
<b>Enterprise and Cooperative Development</b>	Support cooperatives and youth-led enterprises in processing and marketing.	15 cooperatives/youth enterprises engaged in groundnut business; 100 youth trained and at least 30% accessing seed funding or startup grants by 2031	DAMC	DoA, DoEE
	Facilitate entrepreneurship training and seed funding for youth-led initiatives.		DoEE	DAMC, DoI, RMA, Financial Institutions
<b>Market Linkages</b>	Link groundnut producers to school feeding programs, local retailers, and regional export markets.	Supply agreements established with school feeding programs and retailers in at least 10 Dzongkhags; groundnut products featured in 5 national trade fairs and digital platforms by 2030	DAMC	MoESD, MoFA, Private Sector
	Promote groundnut products in domestic markets through fairs and digital platforms.		DAMC	Private Sector
<b>Nutrition and Import Substitution Impact</b>	Highlight groundnut's nutritional benefits and role in reducing imports of edible oil and snacks.	National campaigns conducted in 10 Dzongkhags; 20% reduction in groundnut-based product imports by 2035, aligned with increased domestic availability and consumption	MoH	DoA, DAMC,

#### 4. Ginger and Turmeric Production and Value Addition

Samdrup Jongkhar, particularly areas like Orong and Dewathang, holds significant potential for the cultivation, processing, and export of ginger and turmeric, making it a strong candidate for becoming a hub for high-value spice production in Bhutan. As the country's largest ginger-producing dzongkhag, the region benefits from favorable agro-climatic conditions ideal for cultivating premium varieties such as NADIA ginger and LAKADONG turmeric, known for its high curcumin content. Established farming practices already support local livelihoods, and the presence of farmer groups and cooperatives offers opportunities for scaling and cooperative-based value addition. Its proximity to Indian markets, especially Assam, allows easy access for export and raw sales. With proper investment in value addition, Samdrup Jongkhar could position Bhutan as a supplier of premium organic spices to international markets in Europe, North America, and Asia. The sector holds strong economic value and demand, particularly in health-conscious and organic segments, and has the capacity to generate employment in farming, processing, and marketing, thereby supporting rural livelihoods and boosting regional development.

Despite its significant potential, the ginger and turmeric sector in Samdrup Jongkhar faces multiple constraints that hinder its growth and competitiveness.

1. *Supply chain issues* are a major challenge. The inconsistent supply and low quality of raw materials stem from a lack of proper varietal identification and inadequate post-harvest handling practices. Farmers often grow unspecified ginger varieties, many of which are fibrous and low in essential oils, reducing their market value. Additionally, the absence of a cold storage facility in Samdrup Jongkhar—Bhutan's largest ginger-producing region—leads to significant post-harvest losses, estimated at 40% during peak seasons. Currently, farmers and processors must rely on a distant cold storage facility in Khaling, Trashigang, which is primarily designed for potatoes and not suited for spices, further exacerbating storage challenges.
2. *Limited infrastructure* further restricts the sector's development. The lack of lab testing facilities in Bhutan makes it difficult for processors to certify the nutritional and quality standards of their products, which is essential for international trade. Without proper testing, businesses cannot accurately label their products with key specifications, limiting their appeal in premium markets.
3. *Market access barriers* also pose a significant hurdle. Due to financial and logistical constraints, local producers struggle to participate in global trade fairs such as BIOFACH (Germany, USA, Japan) and Natural Products Asia (Hong Kong, Singapore), which are

critical for connecting with international buyers. Moreover, the absence of internationally recognized certifications—such as organic, Fair Trade, or ISO—prevents Bhutanese spices from accessing high-value export markets, despite their potential for premium positioning.

4. *Financial and technical constraints* further compound these challenges. Small and medium enterprises (SMEs) in the sector face difficulties in securing working capital, as banks often require collateral that many businesses cannot provide. Even when purchase orders are secured, the lack of accessible financing makes it difficult to scale production. Additionally, there is a shortage of technical expertise in product development, packaging, and marketing, which limits the ability of local businesses to meet international standards and consumer expectations.
5. *Strengthening Production and Supply Chain:* The introduction of high-yield varieties like NADIA ginger and LAKADONG turmeric from Meghalaya, India, would improve crop quality and productivity. Establishing organic farmer cooperatives with training, seed subsidies, and certification support would enhance production standards. Building a dedicated cold storage facility in Samdrup Jongkhar through public-private partnership would significantly reduce post-harvest losses.
6. *Enhancing Quality and Certification:* Setting up local testing labs would enable proper quality control and nutritional profiling of products. Government assistance in obtaining international certifications such as organic and Fair Trade would improve market access and product value.
7. *Improving Market Linkages:* Facilitate support for SMEs to participate in global trade fairs like BIOFACH and Natural Products Asia would help establish international buyer connections. Developing dedicated buyer-seller platforms in collaboration with DAMC would facilitate stronger market networks.
8. *Financial and Capacity-Building Support:* Implementing government-backed working capital guarantees would ease SMEs' access to financing. Targeted training programs in processing, packaging, branding, and digital marketing would build essential technical skills across the value chain.

## Implementation Plan - Short-Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Immediate Infrastructure Support</b>	Conduct feasibility study for cold storage facility in Samdrup Jongkhar (LAP-4 land).	Feasibility study completed by 2026; cost-sharing model proposed and endorsed by relevant stakeholders by 2027	DAMC	Samdrup Jongkhar Thromde
	Initiate govt-private sector discussion on cost-sharing model for facility.		DAMC	DoI, Private Sector
<b>Promotion of Commercial Farming</b>	Form farmer groups and cooperatives for collective farming and efficiency.	15 farmer groups/cooperatives formed; at least 300 acres of fallow land leased; 10 groups adopting organic practices by 2028	DoA	DAMC, LG, MoAL
	Facilitate lease of govt and private fallow land for commercial farming.		DoA	NLCS, LG
	Promote organic farming practices in groups/cooperatives.		DoA	BFDA
<b>Seed &amp; Cultivation Improvement</b>	Source and distribute NADIA ginger and LAKADONG turmeric planting materials.	200 farmers receiving planting materials; 5 training programs conducted with at least 150 farmers trained in advanced cultivation by 2028	DoA	BFDA
	Organize farmer training on improved cultivation techniques.		DoA	DAMC
<b>Market Access Initiatives</b>	Apply for participation in a regional trade fair (e.g., Natural Products Asia).	Application submitted and participation secured in at least one regional fair by 2028; at least 5 products under certification process with BFDA by 2028	DAMC	DoT, DoI, Private Sector
	Begin organic certification process with Bhutan Food & Drug Authority.		DAMC	BFDA
<b>Financial Support</b>	Facilitate working capital guarantee scheme	At least 3 commercial farming groups linked to working capital support or loan guarantees through RMA/banking sector by end of 2028	DAMC	RMA, Banks

## Implementation Plan - Medium Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Infrastructure Development</b>	Construct and operationalize cold storage facilities.	At least 2 cold storage facilities constructed and fully operational; 1 quality testing lab established and certified by 2031	DAMC	DoI, Private Sector
	Establish basic quality testing lab in Samdrup Jongkhar.		DAMC	BFDA
<b>Production Enhancement</b>	Form and train organic farmer cooperatives.	10 organic cooperatives formed and functioning; at least 300 farmers trained on post-harvest handling by 2031	DoA	DAMC
	Conduct post-harvest handling training programs.		DoA	FCBL, Cooperatives



<b>Market Expansion</b>	Participate in international trade fairs annually.	Bhutan represented in at least 3 international trade fairs; fully functional buyer-seller digital platform launched; 5 products with international organic certifications by 2031	DAMC	DoT, DoI, Bhutan Exporters Association, Private Sector
	Develop an online buyer-seller platform.		DAMC	DoI, GovTech
	Obtain international certifications (e.g., Organic).		DAMC	BFDA, Private Sector, International Certifiers
<b>Capacity Building</b>	Conduct SME training on packaging and branding.	200 SMEs trained on branding and packaging; 3 oil extraction units operational with trained personnel by 2031	DoA	DoI, Private Sector
	Provide access to oil extraction technology and training.		DoA	DoI, DAMC

## Implementation Plan - Long Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Sector Modernization</b>	Fully operationalize cold chain infrastructure.	Cold chain infrastructure fully functional across major production hubs; 1 testing lab internationally accredited by 2035	DAMC	MoICE, Private Sector
	Upgrade testing lab to international standards.		BFDA	DAMC, DoI
<b>Market Establishment</b>	Develop Bhutanese spice brand in international markets.	National spice brand launched and promoted; permanent export networks established in at least 3 international markets by 2035	DAMC	DoT, DoI, MoFAET, Bhutan Exporter Associations
	Establish permanent buyer networks in 3+ countries.		DAMC	MoFAET,
<b>Position Bhutan as Exporter</b>	Establish Samdrup Jongkhar as a national spice export hub.	Samdrup Jongkhar recognized as national export hub with minimum 10 export-oriented spice firms operating by 2035	DoI	DAMC, Private Sector
<b>Industrial Ecosystem</b>	Attract private investment in spice processing (e.g., oil extraction, turmeric capsules).	At least 5 private spice processing enterprises established with modern technology by 2035	DoI	Private Sector
<b>Sustainable Export Growth</b>	Secure international contracts for Bhutanese ginger and turmeric in health/organic markets.	Minimum of 3 long-term international contracts secured for ginger/turmeric; 5 new processed wellness products launched in markets	DAMC	MoFAET, Private Sector, Bhutan Exporters Associations
	Expand into processed wellness products (e.g., organic tea blends, turmeric powder capsules).		DAMC	DoI, CSI Market Operator

## 5. Promotion of Fruit-Based Industries

Bhutan's diverse agro-climatic conditions present strong potential for developing a vibrant fruit-based industry. This sector can play a key role in supporting rural livelihoods, promoting agro-processing, and enhancing export earnings. By leveraging region-specific strengths and emerging cultivation trends, Bhutan can strategically develop value chains for both traditional and high-value fruits. The following are key areas of opportunity, among others:

**Passion Fruit (Eastern Bhutan):** The eastern region of Bhutan is particularly suitable for the cultivation of passion fruits, which have proven market potential for juice processing. There is an opportunity to establish processing units to produce ready-to-drink juices and concentrates for both domestic consumption and export markets.

**Emerging Fruits – Dragon Fruit and Kiwi:** Recent agricultural surveys indicate a growing interest in the cultivation of dragon fruit and kiwi across various dzongkhags. These high-value exotic fruits offer excellent prospects for diversifying Bhutan's fruit basket. With increasing demand in health-conscious urban markets, both locally and abroad, these fruits present significant opportunities for fresh market sales and value addition.

**Pomegranates:** Several dzongkhags—including Chukha, Dagana, and Mongar—have initiated pomegranate cultivation. Although still in early stages, the sector has strong growth potential, especially with the development of appropriate production techniques and market linkages. Pomegranates can also be processed into juice, syrups, and dried arils, offering additional income streams for farmers.

Strategic investment in infrastructure, capacity-building, and market development is essential to unlock the full potential of these fruit-based industries in Bhutan.

### Implementation Plan - Short Term - Long Term (2026-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Crop Zoning &amp; Planning</b>	Identify and map agro-ecological zones suitable for passion fruit, dragon fruit, kiwi, pomegranate, and other potential fruits.	Agro-ecological zones mapped and documented for ≥5 exotic fruits by 2028.	DoA	LGs
<b>Nursery &amp; Input Support</b>	Establish certified nurseries for disease-free planting materials.	≥3 certified nurseries established by 2029; 90% of growers receive high-quality saplings by 2030.	DoA	Research centre, LGs
	Distribute high-quality saplings and inputs to identified growers.		DoA	LGs

<b>Farmer Capacity Building</b>	Conduct training on orchard establishment, pruning, and crop management for all fruits.	1,000+ farmers trained annually on fruit orchard management by 2031.	DoA	Cooperatives
<b>R&amp;D</b>	Conduct agronomic trials and varietal selection for dragon fruit and kiwi and others in diverse regions.	At least 5 successful varietal trials completed and documented by 2030.	MoAL	DoA
<b>Production Expansion</b>	Expand cultivation area based on successful pilots and zonation outcomes.	Cultivation area increased by 50% for targeted fruits by 2032.	DoA	LGs, Cooperatives
<b>Post-Harvest Handling</b>	Develop cold storage and grading facilities for exotic fruits.	≥2 cold storage/grading facilities operational by 2031.	DAMC	Dol, Private Sector, FCBL
<b>Processing Infrastructure</b>	Establish juice/concentrate processing units for passion fruit and pomegranate.	≥2 fruit processing units established and functional by 2032.	DAMC	Dol, CSIs, Cooperatives
<b>Value Addition</b>	Promote development of dried arils (pomegranate), syrups, and exotic fruit snacks.	≥3 value-added products commercially available by 2033.	DAMC	Private Sector, Dol, CSI Market Operators
<b>Certification &amp; Standards</b>	Facilitate organic and fair-trade certification for fruit clusters.	≥2 fruit clusters certified organic and/or fair-trade by 2033.	DAMC	BFDA, BSB
<b>Marketing &amp; Promotion</b>	Launch domestic campaigns to promote Bhutanese exotic fruits.	≥5 major marketing campaigns annually from 2027.	DAMC	Private Sector, Dol, CSI Markets, Local Retailers
<b>Export Market Development</b>	Explore export potential and initiate trade partnerships for juice, fresh, and dried fruits.	Trade partnerships established with ≥3 countries; export volume increased by 40% by 2034.	DAMC	DoT, MoFAET
<b>Branding &amp; Packaging</b>	Develop premium Bhutanese fruit-based brand and packaging for global markets.	National fruit brand launched by 2030; premium packaging designs used by 70% of exporters by 2033.	DAMC	Dol, DoT
<b>Digital Platform</b>	Create an online platform for connecting fruit producers, processors, and buyers.	Functional fruit market digital platform launched and used by 2028.	DAMC	GovTech
<b>Capacity Building</b>	Organize training in fruit processing, packaging, and quality management.	≥500 processors trained in value addition and quality control by 2031.	DAMC	Dol, Vocational Institutes
<b>Sector Hub Development</b>	Designate regional hubs for fruit aggregation, processing, and export (e.g., passion fruit in eastern Bhutan).	≥3 regional fruit hubs designated and operational by 2032.	DAMC	LGs, Dol
<b>Private Investment</b>	Encourage PPPs and private sector participation in large-scale fruit processing industries.	≥5 PPP projects or private sector fruit processing enterprises operational by 2035.	DAMC	Dol
<b>Innovation &amp; Diversification</b>	Promote wellness-focused products like fruit-infused teas, probiotic juices, etc.	≥3 new wellness product lines launched commercially by 2034.	DAMC	Dol

## 6. Organic-Based Industries

### 6.1. Bio-Fertilizer Production Industries

To support and promote organic farming and enhance the export potential of Bhutanese organic products in niche international markets, it is essential to invest in bio-fertilizer production. In particular, Gelephu Mindfulness City has a growing demand for bio-fertilizers to uphold its vision of sustainability and organic development.

It is recommended to:

1. Promote the establishment of bio-fertilizer production units in Gelephu and neighboring dzongkhags like Tsirang and Dagana.
2. Provide targeted capacity-building programs to develop local expertise in bio-fertilizer production and application.
3. Facilitate access to appropriate technologies and equipment.
4. Introduce government subsidies and incentives to make bio-fertilizer production viable and attractive.
5. Encourage the use of bio-inputs in other government-identified commercial farming initiatives.
6. Promote the role of state-owned enterprises such as FMCL and BLDCL in producing bio-inputs at commercial scale using agricultural and organic waste by-products.
7. Develop awareness programs for end-users to stimulate demand and application of bio-fertilizers.

### Implementation Plan - Short Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Industrial Establishment</b>	Identify sites and initiate discussions with potential investors to set up bio-fertilizer units in Gelephu, Tsirang, and Dagana.	Feasibility studies conducted for ≥3 locations by 2026; At least 2 investment proposals secured by 2028	DoI, MoICE	FMCL, BLDCL, LGs
<b>Local Capacity Building</b>	Conduct training programs on bio-fertilizer production and application techniques.	≥300 farmers, extension staff, and entrepreneurs trained by 2028; Training modules developed and institutionalized	DoA	DoI, CNR, LGs
<b>Incentives &amp; Policy Support</b>	Design and implement startup incentives and subsidies to promote early adoption.	Incentive/subsidy scheme rolled out by 2027; ≥5 startups or farmer groups availing support by 2028	DoI	DoA, DAMC, MoF

<b>Awareness &amp; Demand Creation</b>	Launch awareness campaigns and field demonstrations to promote adoption by farmers.	≥10 awareness and demo events conducted in key dzongkhags by 2028.	DoA	DAMC, LGs, Private Sector, CSIs
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## Implementation Plan - Medium Term to Long Term (2029-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Technology Access</b>	Facilitate access to advanced composting and fermentation technologies for production units.	At least three regional production units upgraded with advanced technologies; all operators trained in the new systems.	DoA	DoI, DAMC
<b>Public Sector Participation</b>	Scale up FMCL and BLDCL operations to produce bio-inputs from organic and agricultural waste at commercial scale.	FMCL and BLDCL each producing a minimum of 500 metric tons of bio-inputs annually by 2031; bio-waste sourced from at least ten dzongkhags annually.	FMCL, BLDCL	MoAL, MoICE, DoECC
<b>Integration with Farming</b>	Mainstream the use of bio-fertilizers in government-supported commercial farming programs.	Bio-fertilizers adopted by at least 70 percent of government-supported commercial farms; annual demand increased by 50 percent.	DoA	DAMC, Cooperatives, FMCL, BLDCL
<b>Quality Assurance &amp; Certification</b>	Develop and enforce standards and certification mechanisms for bio-fertilizer products.	National standard and certification framework developed and enforced by 2030; a minimum of five products certified under the scheme.	DAMC	DoA, DoI, BSB
<b>Expansion of Production Units</b>	Support expansion of regional units into large-scale production and national distribution.	At least five regional units upgraded for national-level distribution; distribution network established across all 20 dzongkhags.	DOA	Private Sector, FMCL, LGs, DOI
<b>Export Readiness &amp; Standards</b>	Upgrade certification to meet international standards for potential exports.	International certification obtained by a minimum of two production units by 2031; export trials initiated in at least two countries	DAMC	DoI, BSB, DoECC, DoT

## 6.2. Organic Seed Production and Organic Processing Units

Promote the establishment of organic processing units to add value to organically grown produce. This includes processing facilities for drying, packaging, grading, and certification, which are crucial to meet domestic and international organic standards and improve marketability.

Support the development of organic seed production systems to ensure a reliable supply of high-quality organic seeds suited to local agro-climatic conditions. This will enhance self-reliance and improve yields in organic farming practices.

## Implementation Plan - Short-Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Bio-Fertilizer Production</b>	Identify and allocate industrial land in Gelephu, Tsirang, and Dagana. Conduct feasibility assessments and attract private/cooperative interest. Organize certified training programs for farmers and local entrepreneurs. Initiate public awareness campaigns on the benefits of bio-fertilizers. Develop implementation plans with FMCL and BLDCL to pilot production using organic waste.	Land identified and approved in all three target dzongkhags by 2027. At least three feasibility studies completed. Minimum of five certified trainings conducted with over 100 participants. Awareness campaigns conducted in at least ten gewogs. Pilot implementation plans finalized and initiated with FMCL and BLDCL.	DoA	DoI, FMCL, BLDCL, LGs, DoECC, DAMC, Private Sectors
<b>Organic Seed Production</b>	Begin initial mapping of agro-climatic zones for organic seed suitability. Identify and support early adopter farmers for seed production training. Draft national certification and policy guidelines in collaboration with stakeholders.	Agro-climatic mapping completed for at least five crop varieties. Fifty early adopter farmers trained and supported. Draft policy and certification guidelines developed and submitted for review by 2028.	DoA	BFDA, MoICE, Research Centres, LGs, BFDA, BSB
<b>Organic Processing Units</b>	Identify potential sites and gaps in existing infrastructure. Organize workshops on post-harvest handling and market readiness. Begin consultation on incentives and certification requirements for processors.	Gap assessment report completed covering at least three dzongkhags. Minimum of three workshops conducted with over 75 processors and entrepreneurs trained. Consultation process initiated and draft recommendations prepared for incentives and certification by 2028.	DOI	DAMC, BFDA, CSIs, DoECC, Cooperatives, LGs, Private Sectors

## Implementation Plan - Medium Term - Long-Term (2029-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Bio-Fertilizer Production</b>	Establish pilot bio-fertilizer units in strategic locations. Provide subsidies for start-up costs and tax holidays. Facilitate access to fermentation tanks and composting equipment. Expand capacity-building efforts through collaboration with stakeholders.	Minimum of five pilot units operational by 2031. Subsidy and tax holiday schemes implemented by 2030. At least 70 percent of target beneficiaries access required equipment. Ten capacity-building programs conducted with multi-stakeholder participation.	DoA	DAMC, DoI, FMCL, BLDCL, MoF, RMA
<b>Organic Seed Production</b>	Establish seed banks in priority regions. Launch farmer field schools on organic seed production. Begin pilot distribution of certified organic seeds suited to local conditions.	Three regional seed banks functional by 2031. At least ten farmer field schools established. 50 metric tons of certified organic seeds distributed in target dzongkhags.	DoA	BFDA, DoI, DAMC, LGs, Research Centres
<b>Organic Processing Units</b>	Set up model organic processing units with drying, packaging, and grading. Provide financial and technical assistance for certification. Facilitate participation in regional organic trade fairs.	At least five model units established by 2032. 30 processors supported with certification aid. Participation in at least three international or regional trade fairs.	DoA	DAMC, DoI, MoAFET, Private Sector, CSIs, DoT
<b>Bio-Fertilizer Production</b>	Scale production to meet national demand and export requirements. Integrate bio-input supply chain with commercial farming initiatives. Institutionalize production standards and quality assurance frameworks.	National demand met through domestic production by 2035. Integration strategy adopted in at least five commercial farming programs. National quality standards enforced.	DoA	BFDA, DoI, FMCL, BLDCL, DoECC
<b>Organic Seed Production</b>	Achieve self-sufficiency in locally adapted organic seeds. Expand production to diverse crops including high-value horticulture. Institutionalize training and certification systems through formal education programs.	At least 80 percent of organic seed demand met locally. Five new high-value horticulture crops covered. Training curricula integrated into two formal education institutes.	DoA	RUB, BFDA, Vocational Institutes
<b>Organic Processing Units</b>	Establish fully integrated organic clusters with end-to-end processing. Promote international branding and labeling of Bhutanese organic products. Strengthen linkages with international buyers and certification agencies.	Two fully integrated clusters operational. At least three Bhutanese organic brands registered internationally. Ten international buyer partnerships established.	DAMC	DoI, MoFAET, DoTr, DoA, Private Sector, Bhutan Exporter Associations

## 7. Promote Seed Oil-based Industries

Promote seed oil-based industries to reduce Bhutan's heavy reliance on imported edible oils. By encouraging oilseed cultivation in eastern and southern Bhutan—backed by farmer incentives, training, and capacity building—the country can move toward self-sufficiency. To strengthen this sector, facilitate the growth of domestic oil processing industries through policy support, improved infrastructure, and better access to financing, ensuring a sustainable and locally driven edible oil market.

To boost Bhutan's seed oil industry and achieve edible oil self-sufficiency, strategic interventions should include farmer empowerment through subsidies (seeds, fertilizers, equipment) in eastern/southern Bhutan, contract farming with guaranteed buy-back agreements, and training on organic best practices. For processing, establish small-scale oil mills with energy-efficient technology, encourage private sector investment, and develop agro-processing zones with reliable infrastructure. Market creation should involve branding 'Bhutan Organic Oil' for domestic and export markets (India/Bangladesh), implementing import substitution policies, and mandating institutional procurement (schools, hospitals). Policy support requires a National Oilseed Mission for coordination, R&D for high-yield varieties, and financial access via low-cost credit. Sustainability measures include utilizing oilseed byproducts as animal feed/fertilizer.

### Implementation Plan - Short-Term (2026-2028)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Seed Oil Cultivation</b>	Promote oilseed cultivation in eastern and southern Bhutan with subsidies for seeds, fertilizers, and equipment. Identify lead farmers and establish pilot production clusters. Develop contract farming with buy-back guarantees. Deliver extension support, technical training, and distribute inputs. Facilitate contract farming agreements, initiate market linkage pilots.	300 acres of oilseed cultivation initiated with input subsidies. At least ten lead farmers and three production clusters established. Three contract farming agreements signed with buy-back provision. Five training programs and extension services delivered. Market linkage pilots initiated in two dzongkhags.	DoA	DAMC, LGs



<b>Seed Oil Processing</b>	Assess feasibility of small-scale oil mills and identify viable locations. Train rural entrepreneurs on energy-efficient oil extraction technologies. Identify and prepare agro-processing zones. Lead technical evaluations and deliver processing technology training. Map local demand, plan infrastructure development, and promote private sector engagement.	Three feasibility studies completed for oil mill locations. At least 30 rural entrepreneurs trained in energy-efficient oil extraction. Two agro-processing zones identified and approved. Two technology training programs delivered. Local demand mapped and two investment dialogues conducted with private sector.	DoA	DAMC, DoI, CSIs, Private Sector
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## Implementation Plan - Medium-Term (2029-2031)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Seed Oil Cultivation</b>	Expand oilseed production clusters and introduce high-yield varieties. Scale contract farming with structured support. Deliver advanced training in oilseed farming. Expand seed distribution, conduct varietal trials, and lead capacity building. Strengthen aggregation models, streamline supply chain coordination.	At least 600 acres under high-yield oilseed cultivation. Five new production clusters established. 100+ farmers engaged in structured contract farming. Three advanced training programs conducted. Two new aggregation centers established and supply chain coordination frameworks implemented.	DoA	DAMC, LGs, Research Centers
<b>Seed Oil Processing</b>	Establish model oil processing units in major production zones. Provide access to credit and modern equipment for entrepreneurs. Develop national branding for "Bhutan Organic Oil." Introduce procurement frameworks for public institutions. Ensure quality assurance and technical oversight of processing. Lead branding efforts, organize trade promotion, and coordinate institutional procurement.	Three model oil processing units operational. Ten entrepreneurs supported with credit and equipment. "Bhutan Organic Oil" brand registered and launched. Procurement policy adopted in two public institutions. Two quality assurance protocols implemented. Participation in at least two regional trade fairs.	DAMC	DoA, DoI, MoF, RMA, Private Sectors

## Implementation Plan - Long-Term (2032-2035)

Focus Area	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Seed Oil Cultivation</b>	<p>Institutionalize large-scale cooperative oilseed farming with mechanization.</p> <p>Launch and implement a National Oilseed Mission for strategic oversight.</p> <p>Continue R&amp;D for climate-resilient and high-yield varieties.</p> <p>Monitor environmental and economic outcomes.</p> <p>Lead the national mission, scale mechanization programs, and advance R&amp;D.</p> <p>Monitor market development, support nationwide coordination, and assess economic impact.</p>	<p>At least 1,000 acres under cooperative mechanized oilseed farming. National Oilseed Mission launched and functional. Three new climate-resilient varieties developed. Annual environmental impact assessments conducted.</p> <p>National oilseed market data system established and monitored.</p>	DoA	DAMC, DoI, DoECC
<b>Seed Oil Processing</b>	<p>Develop full-scale agro-processing hubs with public-private investment support.</p> <p>Achieve national self-sufficiency in edible oils and initiate exports to India, Bangladesh, and beyond.</p> <p>Utilize byproducts for animal feed and fertilizers to complete the value chain.</p> <p>Build export readiness, create regional trade linkages, and support full value chain development.</p>	<p>Three agro-processing hubs operational. 80% national self-sufficiency in edible oil achieved.</p> <p>Export to at least two countries initiated.</p> <p>Byproduct utilization system in place in all hubs. Participation in two international trade fairs.</p> <p>Export documentation and certification systems established.</p>	DAMC	DoA, DoI, MoFAET, Private Sector

## ANNEXURE 3: Potential Forestry-Based Industries and Products

Given the availability of natural resources Bhutan has potential to capitalize on the value addition industries in the forestry based sector. Following are the potential areas for value added industries:

### 1. Wood-based Industries

#### Implementation Plan- Short - Medium Term (2026-2031)

Industry/Products	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agencies
<b>Engineered wood industries</b> Cross Laminated Timber (CLT), Glue Laminated Timber (GLT), Timber panels, doors, windows, and structural frames	Update building codes and construction guidelines to formally allow the use of engineered wood in construction (e.g., CLT, GLT)	Building codes and construction guidelines updated by 2027	MoIT	DoFPS
	Integrate engineered wood products in public infrastructure projects (schools, housing, health facilities, etc) as demonstration models.		MoIT	DoFPS
	Prioritize location for such industry near the timber sources (Eastern/southern)		DoI	DoFPS
	Introduce TVET (modular course ) training programs in engineered wood manufacturing	TVET training modules in engineered wood manufacturing introduced	DoWPS D/ MoESD	Private Sectors
	Develop national standards for engineered wood		BSB	DoFPS
	Conduct awareness campaigns targeting architects, builders, and government agencies on the benefits of engineered wood.	Number of stakeholders reached through awareness campaigns on engineered wood	MoIT	DoFPS
<b>Woodcraft and handicraft</b> toys, carvings, and wood turning	Support design innovation through collaborations with designers and Zorig Chusum institutes to modernize the traditional designs	Number of new product prototypes developed annually through collaborations with designers and Zorig Zhusum institutes	MoICE	DoMCIIIP
	Explore GI registration for unique Bhutanese handicraft products.	Number of Bhutanese handicraft products submitted for GI registration	DoMCII P	MoESD, Zorig Chusum Institutes
	Establish artisan cooperatives and producer groups to ease access to finance.	Number of artisan cooperatives and producer groups formed and linked to financial institutions annually	MoICE	MoF

	Organize short-term mobile trainings in rural areas for unemployed youth and women.	Number of unemployed youth and women trained in woodcraft and handicraft skills through mobile training programs	MoESD	MoICE
	Establish regional woodcraft cluster in Trashiyangtse with shared workshops and drying facilities, design and packaging units and display and sales counter	Regional woodcraft cluster in Trashiyangtse operationalized	MoICE	
	Develop tourism-craft linkages through homestay demonstrations, handicraft shops.	Number of tourism sites or homestays linked to the artisan cooperatives and producer groups	DoTr	Craft clusters
	Introduce eco-labeling and certification for sustainably sourced products	Number of products certified with eco-label or sustainable sourcing certification	CCAA	DoFPS, Private sector
<b>Wood Energy Industries</b> Charcoal, Wood pellet, Briquette	Establish systems to collect sawmill waste, forest thinning, and wood offcuts	Volume (in metric tons) of biomass waste collected annually from sawmills, forest thinning, and offcuts.	NRDCL	Private sector
	Strengthen partnerships with community forests, NRDCL, and sawmills for regular supply chains	Formal supply agreements/MoUs established with community forests, NRDCL, and sawmills.	DoFPS	MoICE, NRDCL, Private sectors, Community Forest
	Subsidize installation of modern charcoal kilns, pelletizers, and briquette production units in strategic locations		DoI/ MoF	

## 2. Non - Wood-based Industries

### Implementation Plan- Short - Medium Term (2026-2031)

Industry/ Products	Key Activities/ Actions	KPI	Lead Agency	Collaborating Agency
<b>Cane and bamboo manufacturing industry</b>	Develop and implement harvest guidelines and management plans for Community Forests (CFs)	Harvest guidelines and management plan for community forest adopted by target CFs.	DoFPS	Community Forest groups
	Establish nurseries and demonstration plots for fast-growing bamboo species	Number of bamboo nurseries and demonstration plots established and operational	DoFPS	CF
	Provide training on improved weaving, treatment and finishing techniques	Number of artisans trained annually in improved weaving, treatment, and finishing.	CSOs	MoESD

	Establish treatment centres for increasing durability of bamboo products	Treatment centres are utilized by local producers and meet basic operational standards.	DoFPS	
<b>Essential oil industry</b>	Conduct a national inventory of aromatic and medicinal plants suitable for essential oil extraction (e.g. Lemon grass, juniper)	National inventory of aromatic and medicinal plants completed	DoFPS	
<b>Incense manufacturing industry</b>	Encourage cultivation of high-value incense plants in Community Forests		DoFPS	Community Forests
	Train workers in the existing incense manufacturing industries to in traditional incense making with modern technologies		MoESD	MoICE
	Organize exposure visits to successful incense industries (India, Nepal, Japan)		MoICE	
	Collaborate with religious institutions, and designers for unique products designs and packaging		DoI	
	Leverage Bhutan's image as a spiritual hub to market products to global wellness market		MoICE	
	Develop national standards for incense		BSB	
	Innovate with new product lines such as traditional religious incense, aromatherapy and meditation sticks and natural air fresheners		Private Sectors	

## ANNEXURE 4: Mineral Types in Bhutan by Dzongkhag

Dzongkhag	Coal	Dolomite	Granite	Gypsum	Limestone	Marble	Iron Ore	Quartzite	Talc	Total No.
Bumthang	0	0	0	0	0	0	0	0	0	0
Chhukha	0	0	0	0	0	0	0	5	1	6
Dagana	0	0	0	0	0	0	1	1	0	2
Gasa	0	0	0	0	0	0	0	0	0	0
Haa	0	0	0	0	0	0	0	0	0	0
Lhuentse	0	0	0	0	0	0	0	0	0	0
Monggar	0	0	0	0	0	0	0	0	0	0
Paro	0	0	0	0	0	0	0	0	0	0
Pemagatshel	0	0	0	3	2	0	0	0	0	5
Punakha	0	0	0	0	0	0	0	0	0	0
Samdrup Jongkhar	5	0	0	0	0	0	0	0	0	5
Samtse	0	1	0	0	3	0	0	4	0	8
Sarpang	0	0	0	0	0	0	0	0	0	0
Thimphu	0	0	0	0	0	3	0	0	0	3
Trashigang	0	0	0	0	0	0	0	0	0	0
Trashi Yangtse	0	0	0	0	0	0	0	0	0	0
Trongsa	0	0	0	0	0	0	0	1	0	1
Tsirang	0	0	0	0	0	0	0	0	0	0
Wangdue Phodrang	0	0	1	0	0	0	0	0	0	1
Zhemgang	0	0	0	0	0	0	0	0	0	0
Total	5	1	1	3	5	3	1	11	1	30

(Source: GeoScience and Mining Journal, Series 04, DGM 2024)

## ANNEXURE 5: Matrix of the Industrial Ecosystem and 10 Sectors

Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
<b>Policy, Regulatory, and Institutional Reforms</b>	IDR Adoption and Implementation IDC/ EDB Empowerment IBLS Launch AI-Enabled Compliance Checks Fast-Track Approvals Predictability Framework Improvement E-Payment and Cross-Border Digital Transactions Modernization Lease Tenure Extension for Strategic Investments Double Taxation Avoidance Agreements Mutual Recognition Agreements	Agri related legal frameworks Agro-Processing Standards FDI reform Review Labor Policies for labour import for farming	Start First, Regulate Later Strengthen IP Laws Collective Management Organizations (CMOs) Review National Filming Rules FDI in Film, Music, Animation, OTT, Game development, Fashion, Handicrafts Film Tourism Strategy Global Platforms Linkage	National Data Center Strategy Data Protection Law Licensing and Permits Sandbox Regulations FDI Policy Prioritization and Clarity. Increasing the allowable Land Lease Period	IBLS Private and Foreign Regulations Education Conservation Policy HRD Masterplan	Policy and Regulatory Framework Review Silvicultural Management Practices	Unified Data Governance Framework Qualification Competence/ Certification Criteria Revision Double Taxation on Dividends Removal	Traditional/ Herbal Green Corridor Pre-approved License Template Pre-defined EC for Park and Hubs Innovation Sandbox Tiered Product Classification System National Digital Repository Bioprospecting Legal Framework National Medicinal Plant Conservation Policy	Clearance and permit System harmonized and Integrated Feasibility of Privatizing State-Owned Mines Review of Electricity Tariffs and subsidies Improve Trade Facilitation System	National Energy Policy Digital Investment Platforms and Guidelines Multi-Agency Clearances Grid and Tariff Structures Public-Private Dialogue Project Development Procedures and Guidelines Solar Rooftop Adoption Harmonize Legal Agreements	Modernize the SDF policy Targeted SDF Incentives Liberalize Regulations for Adventure and Niche Tourism Policy Coordination and Tourism Land Use

Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
Financing, Investment, and Private Sector Enablement	Industrial Development Finance Facility (IDFF) Affordable Financing Access Expansion Strategic Investment Promotion Program Implementation Targeted Fiscal Incentives Introduction Collateral - Free Credit Guarantee Scheme SoE Reform for Private Sector Participation	Climate-Smart Finance Land Leasing	Fiscal Incentives Review Targeted Tax Exemptions Low-Interest Loans Creative Industry Development Fund Annual Government-Backed Creative Awards	Targeted Tax Incentives Renewable Energy-Linked Subsidies Subsidies to implementation of efficient cooling technologies Import Duty Exemptions	PPP for Edu-Facilities Pooled Funding Mechanism	Timber Pricing Royalty Adjustments	ICT Startup Incentives FDI Forex Revision	GMP-Linked Incentives	Subsidized Lending Rate Review Creditworthiness-Based Lending PPP cost sharing initiatives for mine Exploration and feasibility studies. Support and Strengthen Industry and Exporter Associations to maximise private sector participation	Green Climate Fund Concessional Loans Tax Credits/Rebates Customs Duties Exemption on Public-Private Partnerships (PPPs) for Large Developments	Destination-Based Funding Incentive Zones



Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
<b>Infrastructure, Energy, and Logistics</b>	Integrated Industrial Parks Upgrade and Expand Logistics Corridors Energy Grid and Reliability Green Industrial Standards	Cold Storage and Warehousing Agrifood Eco-Hubs Agro - Industrial Zones Simplify Land Leasing Agro- Logistics Climate-Resilient Irrigation System	Creative Hubs Creative Schools Creative Industry Associations E-Payment Gateways CI Database CI data collection	Data Center Zones or Areas Robust domestic Fiber Links (OPGW) with Ring Network Dual Power Grid IPLC Bandwidth Increase Third International Gateway Access to Direct Submarine Cable Availability of Power Energy	Shared Infrastructure EdTech Infrastructure National Education Portal	Wood Cluster Infra Cable Logging Systems Upgrade Processing Capacity Timber Production	ICT Serviced Hubs 3rd Internet Gateway Mobile and Fiber Network Expansion Reduced Internet Costs Cross Border Digital Payments	BFDA Capacity Expansion Specialized Pharma Industrial Parks Smart Cold Chain Logistics MPUs (HAMPs, LAMPs) Herbal Collection Hubs Cluster Based Herbal Industry	Dedicated Mineral Processing Zones Dry Ports Operationalization Road & Transport Network Upgrades Enhance Standards & Certification Infrastructure Identify new Trade Routes & corridors for long term economic connectivity	Grid Expansion and Connectivity RE Land Banks Advanced Energy Storage Solutions Transmission & Cross-Border Links: Solar Site Inventory	Local Access Infra Regional Product Circuits

Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
Value Chain Dev., Diversification, and Industry Promotion	High-Potential Industrial Sector Promotion Tourism and CSI Integration Import Substitution and Domestic Value Addition Strategy Implementation CSIMs Productivity and Scalability Support Industry - Academia Collabotation for Innovation and Product Development	Vertical/Cooperative Farming Agrofood Eco-Hubs Commercial Farming Vertical Farming Agro Based Industries Organic Based Industries	Film Tourism Digital Content Market Co-production Creative Industries festivals Global partnerships	ICT Ecosystem Services	Globalized Niche Education Sector Specific Institutions National Prestige Award Programs Co- Branded Program Support Global Partnership	Engineered Wood Woodcraft and Handicraft Wood Energy Industries Non Wood Based Industries Waste and Byproducts Value Chains	Green ICT Global Partnerships AI, and Blockchain-Based Services	HAMP and LAMP Zones Standardize Herbal Formulations Export-Oriented Product Portfolio Legal Cannabis Derivatives Certification Hubs Bhutan - Designed Medical Device Prototypes CSIPD Capacity Enhancement Digital Trade Platform Local Procurement Mandate	Promote Green Mineral Products Identify and explore potential Minerals Create Mineral Royalty Investment Fund Support downstream industries Identify Strategic Industrial Zones	Local Manufacturing Local Service Providers Ancillary Industry Growth and Linkages	Experience Tourism Craft-Tourism Integration

Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
Technology and Innovation	Industrial Tech Upgrade and Innovation Support Program National Awareness Campaign for Industry 4.0 Tech Digital Tools Access for CSIs Digital Skills Training Integration in TVET Global Tech Firm Partnerships FDI in Clean/Digital Manufacturing	Mechanization Climate-Resilient Tech Agro-R&D and Tech Transfer	Digital Infrastructure AI Tools Digital Marketing	Liquid Cooling AI Optimization Robust Data Processing Technology	EdTech Virtual Campuses	Advanced Wood Processing Sustainable Pulp Technologies Automation CNC Prefab Sawmill Tech	AI, IoT, Automation, Blockchain Integration Decentralized Technology Tech Adoption Ecosystem	Blockchain for End-to-End Traceability Portable Field-Tech for Herbal Zones AI-Driven Biopharma Innovation Lab Industry 4.0 Tools 3D Printing	Adopt Green & Energy-Efficient Technology Promote Industrial IoT (IoT) solutions Trade Facilitation System improved (Non TBTs, Digitalization procedures. Improved infrastructures ) Integrate e-CMS with India's ICEGATE, Bangladesh's ASYCUDA, and Nepal's CAS for real-time data exchange , Custom to Custom (C2C) Integration.	Smart Grid Green Hydrogen and Derivatives Battery Storage Solutions	XR/VR Content Digital Storytelling

Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
Human Capital, Skills, Capacity Building, and Community Participation	National Industry - Skills Alignment Program Skills Mapping and Curricula Alignment Apprenticeship Scheme Diaspora Engagement and Return Migration Programs	Training on modern farming technique, Modern Processing technology. Reskilling, and Upskilling	Entrepreneurship trainings Skillings and upskilling Youth Mentoring TVET Reform Social Media Marketing	Certifications Global Expert Partnerships Internship Programs Continuous Capacity Building Programs Industry-Academia Linkages Research & Innovation Labs	Talent Localization Scholarships	Forestry TVET Tool Handling Foreign Worker Policies with Industry Needs Alignment.	Digital Literacy and Coding in Curricula Specialized ICT Training Industry-Recognized Certification Programs Global Tech Partnerships. Impact Sourcing Service Providers (ISSPs) Industry-led Internships and Fellowships R&D Collaboration AI, ML, and Blockchain Skills	Modular Bootcamps & Certifications National Pharmaceutical Workforce Development Program Scholarships, Internships, & International Exposure Community-Based Certification Institutionalize GMP and QA Training	Customized TVET training/skills programme Private Sector Skilling (campus recruitment, long term internship) Support development of institutional and human capacity of Industry and Exporter Associations (BEA, ABI) Accelerate Government-Industry Collaboration	Solar, Wind Tech Upskilling O&M Capacity Institutional capabilities Training Programs Curricula Reform	Community Guides Cross-Sector TVET

Strategic Pillars	Industrial Development Ecosystem	Agro Industries	Creative Industries	Data Centers	Education	Forestry-Based	ICT and ICTES	MedTech Wellness	Mineral-Based	Renewable Energy	Tourism
Market Linkages, Trade, and Branding	Export strategies Digital portals GI/IP promotion	Bhutan Organic Brand Farmer-Market Linkages High-Value Organic Agroproduct Export Global Branding Strategies Modern Marketing Tools High-Value, Low-Volume Products GI & Branding Awareness GI/IP Assets Premium & Ethical Product Markets	CI Export Campaigns National Creative Brand Hand-holding Approach National Events and Festivals International Festivals, Conferences, and Roadshows.	Bhutan Tech Brand Becoming a Data Center Hub especially in Asian Region	Annual Education Fairs Education Export Strategy Virtual Tours and Program Listings Education-Tourism Packages Regional Education Hub	GI branding for Potential Products Grown in Bhutan and Made in Bhutan Sustainable Forestry Certification	Export-Ready Outsourcing Firms Strengthen Digital Trade Frameworks International Outsourcing Network Participation Bhutan Tech Brand	Dual Export Accelerator Portals Bhutan Herbal & Pharma Industry Forum Bilateral & Regional Trade Facilitation Market Intelligence & Trade Analytics Unit International Branding Campaign GI Tagging Unified National Branding Architecture Wellness Tourism Clusters Third-Party Global Certifications	Enhance Brand Bhutan for Minerals products Support participation in International Trade Fairs Policy guidelines to promote E-Commerce platform for robust Market Access Enhanced market accessibility through Trade Agreements Market Intelligence Systems adopted Onboarding Bhutanese Embassies for Market Access B2B Trade Platforms promoted	RE Market Platforms PPAs Market Competition Medium and Long-Term Power Transactions	Bhutan Believe Regional Tourism Branding



# **Industrial Development Roadmap**

**Ministry of Industry, Commerce and Employment**

