





"Transforming the Agrifood Sector for Economic Growth and Sustainable Development"

# THIRTEENTH FIVE-YEAR PLAN 2024-2029

Ministry of Agriculture and Livestock Royal Government of Bhutan



#### PREPARED BY:

POLICY AND PLANNING DIVISION

MINISTRY OF AGRICULTURE AND LIVESTOCK

TASHICHHODZONG

POST BOX: 1095, THIMPHU, BHUTAN

www.moal.gov.bt

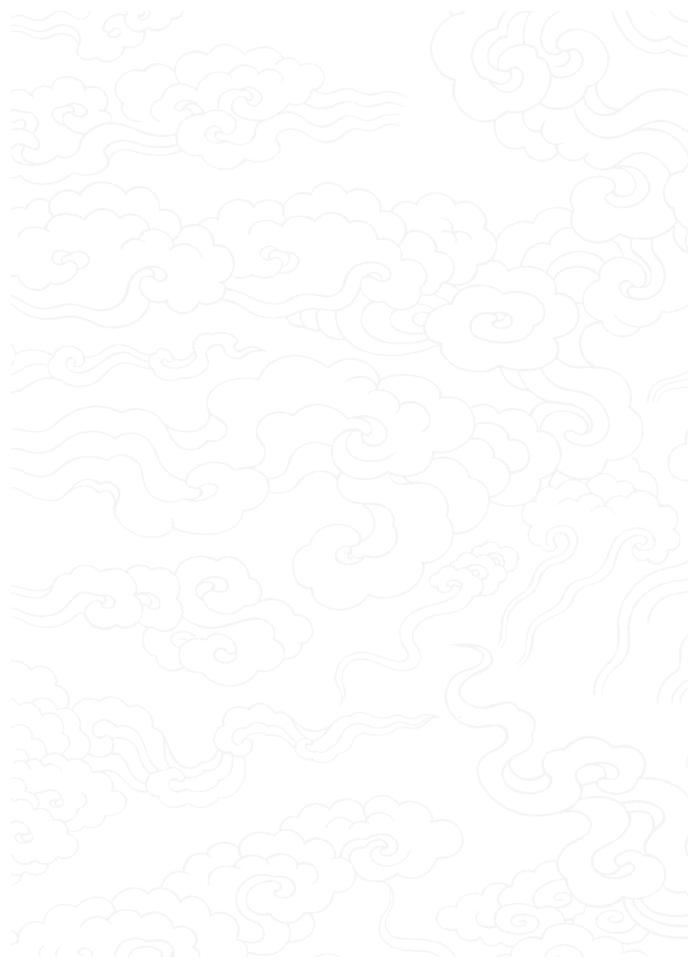




"Transforming the Agrifood Sector for Economic Growth and Sustainable Development"

# THIRTEENTH FIVE-YEAR PLAN 2024-2029

Ministry of Agriculture and Livestock Royal Government of Bhutan





"We must do everything to ensure that our limited land is of greatest benefit to the people and their children. Land must bring social, economic, and political strength to the people. I must give them a stake in the building of a strong nation and a vibrant democracy."

His Majesty the Druk Gyalpo, 11th March 2009



#### **EXECUTIVE SUMMARY**

As Bhutan embarks on the 13<sup>th</sup> Five Year Plan (FYP), the nation stands at a critical juncture, transitioning from a Least Developed Country (LDC) towards its ambitious goal of achieving high-income developed nation status within the next decade. With a projected GDP turnover of USD 5 billion by 2029 and USD 10 billion by 2034, the Ministry's 13<sup>th</sup> FYP is pivotal in accelerating this national aspiration. Under the theme "Transforming the Agrifood Sector for Economic Growth and Sustainable Development," the plan sets an ambitious target to drive annual growth rate to 7-8 percent, thereby increasing the sector's GDP contribution from Nu. 31 billion in 2023 to Nu. 50 billion by 2029.

In achieving this transformative objective, the plan embarks on bringing a paradigm shift in the sectoral approach by adopting two-pronged approach of upscaling large commercialization to enhance the economies of scale and building resilience of smallholder farmers to ensure sustainability. In order to maximize impacts the impact, the plan expounds the need to ensure focused, concentrated and targeted interventions.

Accordingly, the 13<sup>th</sup> FYP builds on converging programs and activities with the plan objectives through commodity prioritization which will be implemented through five projects, namely, promotion of large-scale commercialization, building the resilience of smallholder farmers, promote high-value agricultural products, and ensuring sustainable and resilient biodiversity management initiatives. The fifth project will gear towards creating conducive policy and legal environment to implement rest of the projects in realizing the ministry's plan objectives.

Specifically, the plan intends to increase agri-commodity export to Nu. 6 billion, achieve 30 percent self-sufficiency in rice, 80 percent in vegetables, 50 percent in chicken, 60 percent in pork, 62 percent in essential vegetables, and maintain 100 percent self-sufficiency in egg production by 2029.

Aligned with both national and global commitments, the 13<sup>th</sup> FYP integrates critical global agendas such as climate change, environmental sustainability, and gender equality, directly contributing to nine Sustainable Development Goals (SDGs), including the eradication of poverty and hunger. The plan promotes gainful employment, particularly empowering women, children, and marginalized groups.

The plan also acknowledges the existing challenges including sectoral fragility such as climate change, production constraints, human and institutional capacity. Over the last few decades, despite modest increase in production of key commodities and sustained support to smallholder farmers; imports, both of essential items as well as packaged goods have witnessed rapid exponential growth. Furthermore, incomes of smallholder farmers have not witnessed significant growth thereby leading to reduced farm labour through increased rural-urban migration and a gradual loss of vitality within rural farming land-scapes. Exports on the other hand has also stagnated.

Despite these challenges, the plan also recognizes the immense potential and aims to harness this for greater prosperity and economic growth for Bhutan. Therefore, investment will be made in strategic areas such as infrastructure development, value addition, marketing logistics and trade expansions.

The success of the 13<sup>th</sup> FYP hinges on strong partnerships and collaborations with various stakeholders, including government agencies, private sectors, civil society organizations (CSOs), and international partners. These collaborations are viewed crucial in leveraging missing gaps in the areas of expertise, resources, and innovative solutions to propel the agricultural sector's growth.

Looking forward, the 13<sup>th</sup> FYP of the ministry is our commitment in realizing the national objectives through enhanced performance, innovation and development. It calls for embracing greater responsibilities, fostering collaboration, and cultivating collective ownership to ensure the sustainable growth of Bhutan's agrifood sector and the broader economy.

#### **ACRONYMS**

ABS : Access and Benefit Sharing

ANIDERS : Animal Intrusion Detection and Repellent System

BFDA: Bhutan Food and Drug Authority

BRECSA : Building Resilient Commercial Smallholder Agriculture

CARLEP : Commercial Agriculture and Resilient Livelihood Enhancement Program

CSO : Civil Society Organizations

DAMC : Department of Agricultural Marketing and Cooperatives

DoA : Department of Agriculture
DoL : Department of Livestock
FDI : Foreign Direct Investment

FMCL : Farm Machinery Corporation Limited

FNS : Food and Nutrition Security

FYP : Five Year Plan

GDP : Gross Domestic Product
GVA : Gross Value Added

HWC : Human-wildlife conflict
ICS : Internal Control System

KPI : Key Performance Indicator LDC : Least Developed Country

MoAL : Ministry of Agriculture and Livestock

MoAL-GNHC : Ministry of Agriculture and Livestock Gross National Happiness Committee

MT : Metric Ton

NAS : National Accounts Statistics

NBC : National Biodiversity Center

NGO : Non-governmental Organizations

Nu : Ngultrum

ODA : Official Development Assistance
PPD : Policy and Planning Division
RNR : Renewable Natural Resource
RPCO : Royal Project Coordination Office
SAP : Special Agricultural Products
SDG : Sustainable Development Goals

ToC : Theory of Change
USD : United States Dollar

#### MESSAGE FROM THE MINISTER

The agrifood sector continues to be the cornerstone of Bhutan's economy and livelihoods. As we embark on the 13<sup>th</sup> Five Year Plan (FYP), the Ministry of Agriculture and Livestock is dedicated to driving transformative change in the agrifood sector to ensure food security, economic prosperity, and sustainability for our nation.

The plan aligns with the overarching national goals to transition to a high-income country by 2034 with the GDP growth projection from USD 2.5 billion to USD 5 billion by 2029. The agrifood sector is expected to contribute significantly towards meeting these goals with the increased



sectoral GDP contribution from Nu. 31 billion in 2023 to Nu. 50 billion by 2029. Furthermore, the plan aims to ensure that the agrifood sector contributes to meeting the Sustainable Development Goals (SDGs) and Bhutan's commitments to international obligations.

In realizing these objectives, we will refocus our interventions, leverage innovations and cutting-edge technologies, empower farmers including women and marginalized groups, the private sector, and strengthen existing foundations to build a high-performing sector. The plan also envisions provisions for abundance, spurs economic growth, creates jobs, and maximize Gross National Happiness (GNH). The plan intends to harness the unrealized potential, power, and possibilities of the sector.

One of the core pillars of this Plan is enhancing food security. We will achieve this by increasing productivity through modern farming techniques, expanding irrigation infrastructure, mitigating the impacts of climate change, human wildlife conflict and promoting high-value commodities.

Market access and value addition are crucial for the economic viability of our agricultural sector. By exploring new markets, particularly beyond the existing marketing destinations, we aim to open new avenues for Bhutanese agricultural products. These efforts will increase farmers' incomes and enhance the global competitiveness of our agrifood sector.

The 13<sup>th</sup> FYP is a collective effort, requiring the active participation and collaboration of all stakeholders, including government agencies, development partners, the private sector, and most importantly, our farmers. We are committed to working together to implement the strategies outlined in this Plan, ensuring that our agricultural sector continues to thrive and contribute to the well-being of our people and the prosperity of our nation.

I am confident that with collective effort and unwavering commitment, we will achieve the objectives set forth in this Plan and elevate Bhutan's agrifood sector to new heights.

Trashi Delek!

Younten Phuntsho

(MINISTER)

#### MESSAGE FROM THE SECRETARY

Historically, agriculture in Bhutan has been defined by traditional subsistence farming, with minimal focus on commercial activities. The challenging mountainous landscape, coupled with limited mechanization and digital advancement as well as fragmented small plots of land, has hindered the development of large-scale farms. Despite these obstacles, the agricultural sector has played a vital role in achieving national food security goals, economic growth, and environmental sustainability.



I am excited to introduce the 13<sup>th</sup> FYP of the Ministry, which marks a significant shift from prior plans by placing a strong emphasis on

commercialization and increasing high-value commodity exports. This aims to transform Bhutan's agrifood systems to an inclusive, resilient and sustainable sector. Consequently, the Ministry has appropriately adopted the theme "Transforming the agrifood sector for economic growth & sustainable development." The plan will be guided by a comprehensive approach that includes policies, legislation, strategies and programs.

The agricultural sector employs 43.50 percent of the workforce and accounts for 14.96 percent of the GDP in 2023. The 13<sup>th</sup> FYP establishes ambitious goals to boost productivity, expand market opportunities, and encourage innovation, with a target to increase the agrifood sector's GDP contribution from Nu. 31 billion in 2023 to Nu. 50 billion by 2029.

The plan seeks to enhance coordination through a multi-sectoral strategy while fostering collective ownership. Developed through consultations with local governments, it is inclusive and comprehensive. This proactive plan will provide a crucial foundation for the Ministry as Bhutan prepares to transition into a developed nation by 2034.

I want to commend my colleagues in the Ministry, especially the lead team and core working group for their dedication and commitment in finalizing this plan. I also wish to express gratitude to our development partners for their continued assistance and collaboration.

As we begin implementing the 13<sup>th</sup> FYP, I encourage all relevant departments, agencies, and stakeholders to unite in working towards achieving national goals and priorities.

Trashi Delek

Thinley Namgyel (SECRETARY)

EXECUT	TIVE SUMMARY	V
ACRON	YMS	vii
MESSA	GE FROM THE MINISTER	viii
MESSA	GE FROM THE SECRETARY	ix
CHAPTI	ER ONE: CONTEXT SETTING	1
1.	Background	2
2.	Vision	3
3.	Mission	3
4.	Objectives	3
5.	Mandates and Functions	3
6.	Evolution of RNR sector in FYPs and budget allocation	4
7.	Agricultural trade	
8.	Agrifood sector in the national economy	
9.	Alignment to 2030 Global Agenda (SDGs)	7
10.	Opportunities and motivations	
11.	Key lessons from the 12 <sup>th</sup> FYP	
11.1.	Strengthening Food Systems:	10
11.2.	Commercialization and Subsidies:	
11.3.	Labor and Technology:	10
11.4.	Prioritize High-Value Commodities and Enhance Value Chain Development:	11
11.5.	Coordination and Accountability:	1
12.	Theory of Change	1
CHAPTI	ER TWO: STRATEGIC FRAMEWORK FOR THE 13 <sup>TH</sup> FIVE-YEAR PLAN	15
1.	Strategic Result Framework	16
2.	Objective of the 13 <sup>th</sup> FYP	18
3.	Key Strategies	18
3.1.	Commercialization of potential commodities	18
3.2.	Support to smallholder farmers	18
4.	Mapping of sectoral and national programs	19
5.	Resource Allocation	20
5.1.	13 <sup>th</sup> FYP Capital Outlay	20
5.2.	Share of departmental outlay	20

5.3.	Share of MoAL plan outlay against the projects20
5.4.	Share of MoAL plan outlay (Projects to Departments)2
CHAPTE	R THREE: 13 <sup>TH</sup> FYP PROJECTS2
1.	Promotion of large-scale commercial farming24
1.1.	Department of Agriculture24
1.2.	Department of Livestock20
1.3.	Department of Agricultural Marketing and Cooperatives2
2.	Building resilience of smallholder farmers20
2.1.	Department of Agriculture30
2.2.	Department of Livestock
2.3.	Department of Agricultural Marketing and Cooperatives36
3.	Promotion of high-value agricultural products for export markets37
3.1.	Department of Agriculture3
3.2.	Department of Livestock
3.3.	Department of Agricultural Marketing and Cooperatives4
4.	Enhancing ecosystem services from sustainable and resilient biodiversity
	initiatives4
4.1.	National Biodiversity Centre4
5.	Improving business ecosystem4
5.1.	Secretariat4
CHAPTE	R FOUR: MONITORING, EVALUATION AND REPORTING4
	R FIVE: PARTNERSHIPS AND COLLABORATIONS59
Annex 1:	Results Matrix
Annex 2:	Implementation Plan
Annex 3:	Resource Mapping7
Annex 4	: Division of Responsibility Framework (DoRF) for the 13 <sup>th</sup> Five Year Plan8





# **CHAPTER ONE: CONTEXT SETTING**





Bhutan's agrifood sector plays a pivotal role in the country's economy providing employment to 43.5 percent of the workforce and contributing 14.96 percent to the country's GDP in 2023. The share of GDP from the sector has peaked during the fourth development plan constituting 55 percent of the national GDP. While the relative contribution to GDP has decreased over the succeeding plan periods with burgeoning secondary and the tertiary sectors, the agricultural sector has achieved a steady increase in GDP contribution in absolute terms. The primary sector's contribution has increased from Nu. 9.69 billion in 2010 to Nu. 37.31 billion in 2023.

Historically, Bhutanese agricultural system has been characterized by traditional subsistence farming with limited emphasis on commercialization. In hindsight, the mountainous terrain and small fragmented landholdings have made large-scale commercial farming difficult. Despite these realities, the sector stands crucial in realizing national food security and economic development objectives of the 13<sup>th</sup> FYP.

By 2034, the population of Bhutan is projected to reach approximately 837,288. Considering the current per capita consumption, the demand for cereals will rise from 162,931 metric tons (MT) in 2021 to 289,748 MT by 2034. Similarly, the need for vegetables, pulses, fruits, roots and tubers, mustard, and spices will increase from 124,116 MT to 140,160 MT. The demand for milk is projected to grow from 43,828 MT to 73,984 MT. Meat consumption will also see an increase, with requirements rising from 2,798 MT to 4,095 MT. Additionally, the demand for eggs will grow significantly, from 86 million eggs to 174 million eggs annually. This calls for a significant increase in the production of agricultural products to keep pace with the increasing demand of food besides enhancing incomes of our farmers.

Accordingly, the 13<sup>th</sup> FYP embarks on a substantial paradigm shift from the earlier FYPs, with a pronounced emphasis on revenue generation. The projects and activities are designed to commercialize farming practices, build resilience of smallholder farmers, prioritize high-value commodities for export, and enhance the business ecosystem while also ensuring conservation and sustainable use of

biodiversity resources. As the effort to support smallholder farmers continues, there is an increasing necessity to transition towards commercialization and expansion of high-value exports to contribute towards the economic objectives of the nation.

Therefore, the ministry will adopt a two-pronged approach of enhancing commercialization of potential commodities and supporting smallholder farmers for resilience and sustenance. The plan prioritizes enhancing the overall business ecosystem to create a conducive environment for implementing projects and activities crucial to achieving the plan's objectives.

#### 2. Vision

Sustainable food systems and natural resources for equitable social and economic well-being of the Bhutanese people and the nation state.

#### 3. Mission

To ensure sustainable social and economic well-being of the Bhutanese people through adequate access to food and natural resources.

## 4. Objectives

- Enhance food and nutrition security
- Enhance sustainable rural livelihood
- Promote sustainable utilization of arable agriculture and pasture land resources

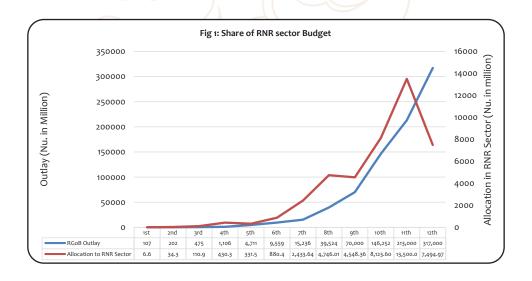
#### 5. Mandates and Functions

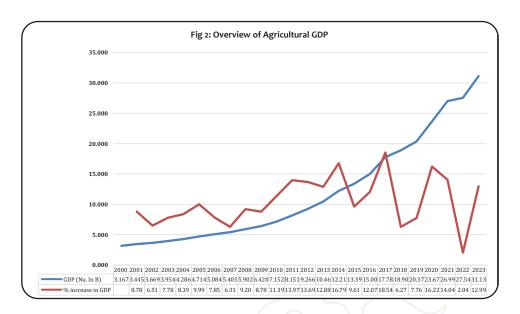
- Enhance food and nutrition security for the country including the promotion of quality and safety of foods.
- Improve rural economy and livelihood.
- Promote sustainable management and utilization of the natural resources.



The sector has witnessed significant changes in terms of budgetary allocation over the various FYP. During the first four FYPs, the sector received a substantial portion of the total plan outlay, reaching close to 40 percent by the fourth plan. This period coincided with major institutional development, with significant investments in establishing critical agricultural offices, departments, regional research centers, and extension offices across all districts. Substantial funds were also allocated for the construction of irrigation channels, land development, and farm sites.

However, starting the 5<sup>th</sup> FYP, the budget allocation for the agricultural sector decreased significantly reaching little over 2.4 percent of the total outlay in the 12<sup>th</sup> FYP. This relative decrease in budgetary allocation is associated with a shift in plan focus from major institutional development to improving service provision, production, productivity, and commercialization. Investments in irrigation, farm roads, and land development projects have received increasing priority in the later parts of the plan period. While the sectoral policy, approaches and strategies have undergone changes over the years, the sectoral interest has been largely guided towards increasing production for domestic consumption as well as for revenue generation. All along food self-sufficiency and food security through sustainable natural resource management has played a key role.



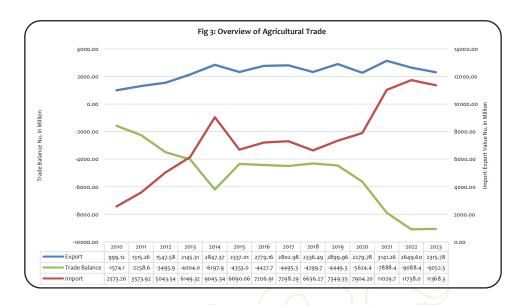


In absolute term, the total budget outlay for the RNR sector has increased significantly from Nu. 6.6 million in the 1st FYP to Nu. 7,494.97 million in the 12th FYP. In the 13th plan, an estimated outlay for agriculture and livestock development is Nu. 14.983 million.

In terms of agricultural (agriculture and livestock) share to the country's annual GDP, there has been a gradual and constant increase in the annual share of the GDP since 2000 till 2023. The constant increase in the sectoral GDP was in terms of the absolute value. However, regarding the percentage increase in agricultural GDP, it has witnessed fluctuation as shown in the figure above.

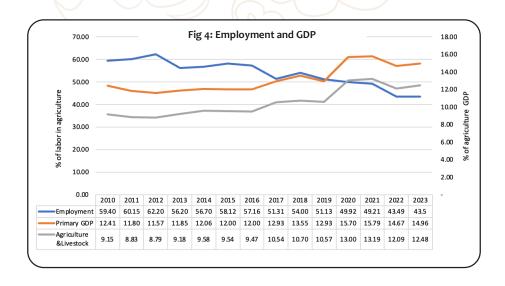
## 7. Agricultural trade

Bhutan was traditionally food self-sufficient, relying on domestic production except for commodities like salt, which were imported from Tibet or India. Historical records indicate Bhutan engaged in trade with Tibet, India, Nepal, and China, exporting silk, dyes, and brass utensils while importing salt, wool, and dried fish. Bhutan maintained a positive trade balance until modernization led to increased imports. The rise in non-farming population and low productivity necessitated cereal imports, further expanding to a wide range of food products. Although exports included cement, wood products, and fruits, Bhutan has faced a growing negative trade balance since the 1980s. As shown in the figure 3 below, the negative balance of trade in the agrifood sector has increased from Nu. – 157 million in 2010 to Nu. -905 million in 2023.



Despite the rising negative balance of trade, the agrifood sector has made nominal increase in the export of agricultural commodities both in terms of value and volume. In 2023, Bhutan exported twenty-seven agrifood commodities such as cereals, vegetables, fruits to India and other countries which earned Nu. 2,315 million.

## 8. Agrifood sector in the national economy



During the early plan periods, agriculture played a dominant role providing for the food requirement, employment as well as for national development. However, from 2010 to 2023, the percentage of labor in agriculture consistently declined from 59.4 pecent to 43.5 percent, indicating a significant shift away from agricultural employment. Despite this, the GDP contribution from agriculture and livestock increased from 9.15 percent to 12.48 percent, suggesting improvements in productivity or value addition within the sector, even as fewer workers are employed in the sector.

#### 9. Alignment to 2030 Global Agenda (SDGs)

The agrifood sector stands at the heart of addressing critical global development issues, including gender equality, environmental sustainability, climate change, food security, poverty, and hunger. As a central player in these areas, it holds an indispensable role in driving progress and making significant advancements in each of these domains. As such, the 13<sup>th</sup> FYP is positioned to bolster the nation's contribution towards realizing the global goals of 2030 by addressing several key SDGs.

By enhancing agricultural productivity and promoting sustainable farming practices, the sector ensures food security and alleviates poverty. The sector also contributes to better health through the production of nutritious, organic foods. Empowering women in agriculture through training and access to resources fosters gender equality. Investments in irrigation and infrastructure support clean water access and economic growth. Sustainable farming practices mitigate climate change impacts and protect biodiversity. Additionally, the sector's focus on value addition and market access drives industrial innovation and responsible consumption. Thus, the prioritized five broad projects of the 13<sup>th</sup> FYP of the sector is drawn in such a way that the inner sectoral plan paves towards national objectives which are ultimately aligned to eight 2030 global agendas.

Through international partnerships and inclusive policies, Bhutan's agrifood sector is aligned with global efforts to achieve a sustainable and equitable future. The end of Bhutan's 13<sup>th</sup> plan coincides with the ending period of the United Nation's SDGs.



Fig. 5: Alignment to SDGs 2030

## 10. Opportunities and motivations

Bhutan graduated from the list of Least Developed Countries (LDC) in December 2023. With LDC graduation, access to grant financing from international development partners is going to be challenging. Therefore, there is an urgency to strengthen our economy and sustain the socio-economic development, through our own internal resources. Accordingly, Bhutan has set an ambitious target to be a high income GNH economy with GDP of USD 10 billion by 2034 focusing on 3Ps – Prosperity, People and Progress.

The Agrifood sector in Bhutan faces constraints associated with the increasing labor shortages primarily driven by rural-urban migration, low levels of farm mechanization, and limited market access and value addition among others. Additionally, the sector's sustainability and productivity are threatened by the impacts of climate change, pests and diseases, the influx of cheap imports, and challenges posed by wildlife.

Despite these constraints, the agricultural sector holds potentials for growth and exhibits numerous strengths, such as strong policy support especially interventions outlined in the revised FNS Policy 2023, political stability, and a diverse agroecological zone conducive to cultivating a variety of crops. These strengths coupled with multiple opportunities, such as its drive for organic agriculture, the utilization of emerging technologies, entry into niche export markets, and private sector engagement.

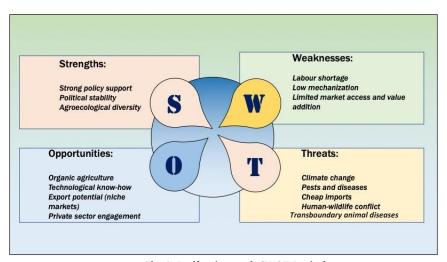


Fig. 6: Agrifood sector's SWOT Analysis

Therefore, by addressing the weaknesses and threats, and capitalizing on the strengths and opportunities, the 13<sup>th</sup> FYP is geared towards revamping the agrifood system which is not only resilient to shock and stressors, and delivers in the face of uncertainties, but also be able to maximize performance and contribution to the nation's economy. A critical aspect of this transformation is the integration of gender equality, empowering women and youth through training, resources, leadership roles, and ensuring their access to agricultural technologies and financial services. This inclusive approach will enhance productivity, foster innovation, and support the sustainable development of the agrifood sector.



The 12<sup>th</sup> FYP for the Renewable Natural Resources sector aimed to enhance food security and drive the transformation of the sector while upholding sustainable natural resource management. Despite its ambitions, the plan encountered various challenges, notably the COVID-19 pandemic, which exposed vulnerabilities in the agrifood systems, underscoring the imperative to fortify these systems against future disruptions. These lessons will be prioritized and integrated in the 13<sup>th</sup> FYP to enhance resilience and efficiency of Bhutan's agrifood systems, addressing challenges from the COVID-19 pandemic and steering towards a more sustainable and productive future for the country's agricultural sector. Some of the key lessons learned are:

#### 11.1 Strengthening Food Systems:

- There is an urgent need to develop a comprehensive sector strategy to serve as a key guiding framework to bring focus, guide and converge various interventions in the agrifood sector for greater synergy and sustained impacts.
- Enhance the productive capacity across agriculture and livestock value chains to optimize the utilization of limited arable land, curtail food imports, generate employment opportunities, and stimulate product diversification and expansion of agribusinesses.

#### 11.2 Commercialization and Subsidies:

- Prioritize commercial agriculture to boost productivity, improve public service delivery, and leverage economies of scale.
- Reorient agricultural subsidies from input-centric assistance to output-oriented support, with a particular focus on targeted and high-value agricultural commodities.

#### 11.3 Labor and Technology:

 Mitigate labor shortages by harnessing modern technologies and farming methodologies, and capitalize on digital potentials through targeted interventions and incentives, and explore possibilities of engaging foreign workers.

- Rejuvenate fallow lands, enhance labor efficiency, adapt to evolving farming demographics, and optimize seasonal production.
- Enhance the utilization of digital tools and technologies to augment the efficiency and efficacy of agricultural practices.

# 11.4 Prioritize High-Value Commodities and Enhance Value Chain Development:

- Concentrate efforts on high-value agricultural commodities to amplify the impact of subsidies and boost productivity.
- Intensify value chain development in agriculture and livestock to enhance productivity and mitigate post-harvest losses.

#### 11.5 Coordination and Accountability:

 There is a need to enhance the coordination and information sharing between the agencies and Local Government (LGs) towards fulfillment of plan objectives. Therefore, the division of responsibilities framework needs to ensure accountability and reinforce coordination.

#### 12. Theory of Change

The theory of change for the sector is built on the premise of being cognizant of the current constraints and the possibilities of the sector for significant impacts for the nation. Given Bhutan's varied agro-ecological zones which allow for a wide variety of produce to be grown, opportunities to substantially increase incomes and improve livelihoods of a majority of Bhutanese by transforming the RNR sector is real and imminently possible. Achievements thus far indicate opportunities for further growth and impact.

Bhutan's agrifood sector is yet to reap the full dividends of innovation, focused and renewed investments. Considerable scope remains for yield improvements, technology adoption, value chain building, employment generation, and improvement of smallholder livelihoods. Sustained and focused interventions will positively influence outcomes related to nutrition, incomes, trade balance and self-reliance goals. It will also ensure that Bhutan effectively adapts to climate change and remains on track to achieving the SDGs.

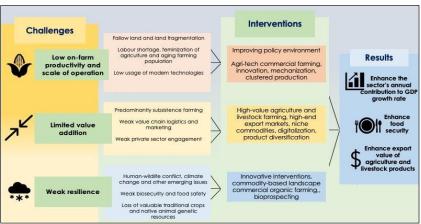


Fig. 7: Theory of Change (TOC)

While the 13<sup>th</sup> FYP is designed to bring about a paradigm shift from subsistence to commercial agriculture, building a high-performing sector that can cater to the present and future generations, the extent of its success remains strongly contingent on the following risks and assumptions. Proactively addressing these risks through targeted measures, enhancing current conditions, and ensuring these assumptions holds true will be critical for the plan's successful execution and the overall development of Bhutan's agricultural sector.

	SI. No	Risks		Assumptions
	1	Policy and Regulatory Challenges	Inconsistent policies and regulatory frameworks can create uncertainty and hinder sector growth.	Ease regulatory processes including equity threshold for FDI in the agrifood sector, and activate 'allow first, regulate later' policy.
Strategic	2	Financial Constraints	Limited access to credit and financial services, and government spending can restrict investments in modern farming practices and technologies.	Adequate funding and financial support from both national and international sources.
St	3	Climate Change and Natural Disasters Smallholding farmers	Bhutan's agriculture is highly susceptible to climate change impacts such as erratic weather patterns, droughts, floods, pest and diseases  Majority of the farmers are smallholders with limited abili-	Implement climate-resilient agricultural practices and early warning and surveillance systems.  Government is leasing state land for large scale
ural	ty for commercialization  5 Labor Short- ages The agricultural sector faces labor shortages due to rural-urban migration and an		commercialization.  Promote mechanization and provide incentives for youth engagement in agriculture.	
Structura	6	Human-Wild- life Conflicts	ageing farming population.  Crop losses due to wildlife intrusion can discourage farming and reduce productivity.	Develop and implement effective mitigation measures including insurance system.
ıral	ture hinder the distribution and		inadequate infrastructure can hinder the distribution and	Invest in improving rural infrastructure, including roads, storage facilities, and market linkages.
Sector	8	Emerging/ re-emerging livestock dis- eases	The livestock sector witnesses increasing cases of the emergence of notifiable diseases which impacts production and productivity	Institutionalization of robust surveillance system and adequate support in risk mitigation measures.





# CHAPTER TWO: STRATEGIC FRAMEWORK FOR THE 13TH FIVE-YEAR PLAN



The agriculture and livestock sector's 13<sup>th</sup> FYP have been framed recognizing the nation's intent to increase the GDP to USD 5 billion by 2029 aligned with the overall national goals and vision to become a developed nation. The plan builds on the aspirations outlined in the FNS Policy of Bhutan 2023 and the Food Systems Pathways, which provides overarching visions for a sustainable and resilient food systems, agile to the needs and challenges of the agrifood sector presented below:

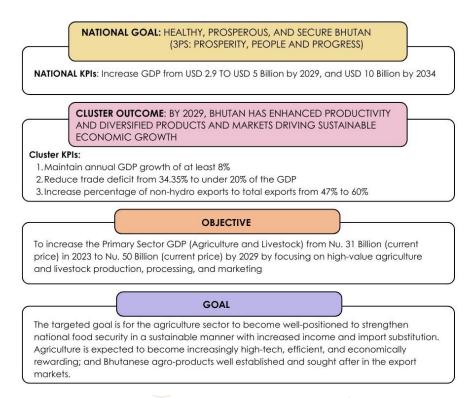


Fig 8: Linkage between the Economic Cluster and Agrifood Sector.

## 1. Strategic Result Framework

The strategic framework draws alignment to nation's objective of being a high-income nation driven by innovation and sustainability by 2034. The Economic Transformation Programme, to which the MoAL aligns, aims to foster sustainable and inclusive economic growth by employing three key strategies of facilitating private sector development and participation, investment in the strategic infrastructure development and investing in traditional growth drivers and new sources of growth.

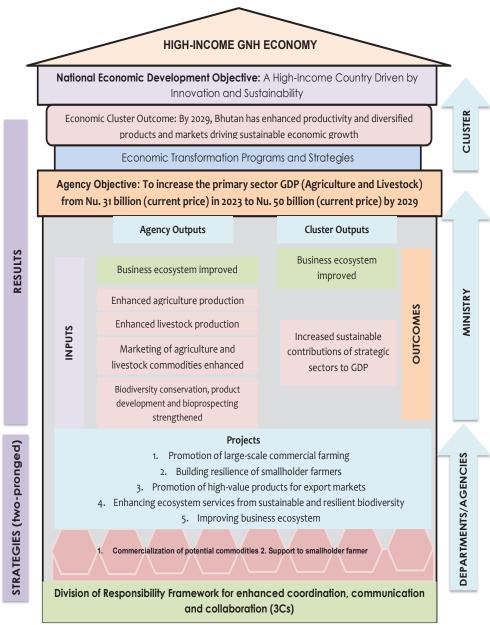


Fig 9: Strategic Framework of Agrifood Sector



To increase the primary sector GDP (Agriculture and Livestock) from Nu. 31 billion (current price) in 2023 to Nu. 50 billion (current price) by 2029.

#### **Key Strategies**

#### 3.1 Commercialization of potential commodities

One of the key strategies that would drive the implementation of the 13<sup>th</sup> FYP is to promote large-scale commercial farming with an allocation of more than 13 percent of the total plan outlay. The commercialization initiatives will prioritize commodities primarily imported to meet the domestic demand focusing on emerging markets, particularly institutions such as Gyalsung Academies, schools, hospitals and others. Additionally, particular emphasis will also be accorded in providing targeted support particularly in promotion of high value crops and high-end specialty livestock products for export earnings.

#### 3.2 Support to smallholder farmers

The other key strategy is to build resilience of smallholder farmers with an allocated outlay of more than 71 percent of the total plan outlay. The contribution of smallholder farmers will be crucial in ensuring household-level food security, even as initiatives to expand commercial large-scale farms gain momentum. Consequently, support measures such as protection against wildlife conflicts, irrigation, production input provision, pest and disease surveillance, and market linkages will be implemented to address the challenges faced by this sector.



# 4. Mapping of sectoral and national programs

SI. No	Name of Project	Cluster output	Cluster KPI
1	Promotion of Large- scale commercial farming	Contribution of strategic sectors to GDP increased	GDP output targets from agriculture increased from Nu. 31 b to Nu. 50 b  Number of trade and industrial facilitation infrastructures developed and operational (dry ports, industrial estates, business centers)
2	Building resilience of smallholder farmers	Contribution of strategic sectors to GDP increased	GDP output targets from agriculture increased from Nu. 31 b to Nu. 50 b  Number of trade and industrial facilitation infrastructures developed and operational (dry ports, industrial estates, business centers)
3	Promotion of high-value products for export markets	Contribution of strategic sectors to GDP increased	GDP output targets from agriculture increased from Nu. 31 b to Nu. 50 b
4	Enhancing ecosystem services from sustainable and resilient biodiversity initiatives	Contribution of strategic sectors to GDP increased	GDP output targets from agriculture increased from Nu. 31 b to Nu. 50 b
5	Improving Business Ecosystem	Business Ecosystem improved	New trade Agreements signed and new trade agreements with four countries initiated  Client satisfaction score increased on each business service (Scale: 1-5)



#### 5. Resource Allocation

#### 5.1 13th FYP Capital Outlay

The total capital outlay for the Ministry is Nu. 14.983 billion which is 6.11 percent of the Plan outlay of Nu. 245 billion. The 6.11 percent share excludes Nu. 2 billion provided to the sector through the economic stimulus package.

#### 5.2 Share of departmental outlay

SI. No	Department	Indicative Outlay (Nu. Million)	Percentage share
1	Department of Agriculture	9,143.18	61.0
2	Department of Livestock	3,028.40	20.20
3	Department of Agricultural Marketing and Cooperatives	910.50	6.10
4	National Biodiversity Centre	101.00	0.70
5	Secretariat	1,800	12.00
	Total Indicative Outlay	14,983.15	100.00

## 5.3 Share of MoAL plan outlay against the projects

SI. No	Name of Project	Indicative Outlay (Nu. Million)	Percentage share
1	Promotion of Large-scale commercial farming	2,024.10	13.51
2	Building resilience of smallholder farmers	10,745.80	71.72
3	Promotion of high-value products for export mar- kets	312.20	2.08
4	Enhancing ecosystem services from sustainable and resilient biodiversity initiatives	101.00	0.67
5	Improving Business Ecosystem	1800	12.01
	Total Indicative Outlay	14,983.15	100.00

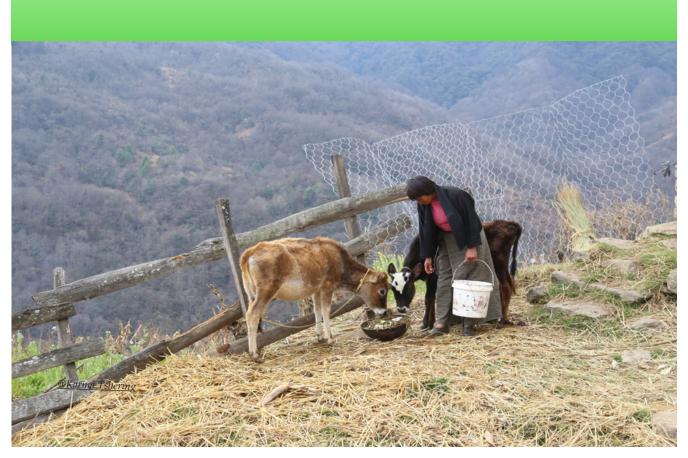


Projects	Departments	Outlay (Nu. In Million)	Percentage share
Dramation of Large	Department of Agriculture	974.12	48.13
Promotion of Large- scale commercial	Department of Livestock	526.00	24.01
1	Department of Agricultural Market-	564.00	27.86
farming	ing and Cooperatives		
	Sub-Total	2,064.12	100.00
	Department of Agriculture	8,081.36	75.20
Building resilience of	Department of Livestock	2,385.47	22.20
smallholder farmers	Department of Agricultural Market-	279.00	2.60
	ing and Cooperatives		9
	Sub-Total	10,745.83	100.00
Promotion of	Department of Agriculture	87.70	28.09
	Department of Livestock	157.00	50.29
high-value products	Department of Agricultural Market-	67.50	21.62
for export markets	ing and Cooperatives		
	Sub-Total	312.20	100.00
Enhancing ecosys-	National Biodiversity Center	101.00	100
tem services from			
sustainable and			
resilient biodiversity	$\neg$		
initiatives			
	101.00	100.00	
Improving Business	Secretariat	1,800.00	100.00
Ecosystem			
	Sub-Total	1,800	100
	14,983.15		





# **CHAPTER THREE: 13TH FYP PROJECTS**



The 13<sup>th</sup> FYP projects set to harness the power of large-scale commercial farming, leverage the potential of smallholder farmers, explore high-value commodities for exports including utilization of biodiversity resources by creating conducive agribusiness ecosystem. The cumulative outlay for all five projects is Nu. 14,983.15 million and the program objectives will be realized through implementation of five projects namely:

#### 1. Promotion of large-scale commercial farming

The promotion of large-scale commercial farming is a strategic initiative aimed at modernizing the agricultural landscape, enhancing productivity, and fostering economic growth.

#### 1.1 Department of Agriculture

#### **Project description**

Commercial farming will complement subsistence farming in filling the production gaps. The commercial farms will be operated by progressive individuals including women and youths, institutes and private entrepreneurs on a large scale, mostly in the identified alienable lands targeting supply to domestic and export markets. These commercial farms will operate on a vast area with focused crop production, utilizing modern farming techniques to achieve high productivity. Another salient feature of the farm is integration of recreational facilities within the farm for the farm workers. The farms would also be linked to domestic markets run by the government institutions to ensure its success and continuity. The peripheral communities would benefit from these farms as technology demonstration and diffusion center.

#### **Objectives**

- Demonstrate and disseminate modern agricultural technologies
- Enhance crop production and income generation



SL No	Activities	Outlay (Nu. In Million)
1	Promote innovative agriculture farms (2 Chirup farms)	324.12
2	Establish commercial farms (4 nos)	400.00
3	Promote large-scale commercial farms (Total area: 435 acres)	250.00
	Total Outlay	974.12

Under this project, the Department of Agriculture will undertake three major activities to enhance commercial agriculture production. The first activity involves establishing innovative Hi-Tech Chirup farms in two feasible sites. These farms will integrate advanced agricultural technologies such as smart irrigation, automation, vertical cropping, and integrated pest and nutrient management. Additionally, essential farm infrastructure including fencing, internal road networks, storage facilities, and recreational amenities will be established to encourage youth participation. These farms will cultivate chili, tomato, onion, and other vegetables needed by government institutions, thereby addressing local demand.

The second initiative involves establishing four commercial farms, each spanning 100 acres, through an Expression of Interest process, targetting at private individuals or parties interested in agricultural ventures. Access to land will be facilitated, including support for leasing identified alienable lands, whenever necessary. These commercial farms will receive initial investment covering chain-link fencing, irrigation infrastructure, and production costs for selected commodities. The farms will be encouraged to prioritize crops like quinoa and essential vegetables. Post-establishment, the farms will be responsible for bearing operational costs associated with annual crop production.

The third initiative involves establishing large-scale commercial farms spanning 435 acres at Yarjugang, Wangduephodrang. Modeled after the Chirup farm concept, this farm will feature protected mega structures, efficient irrigation facilities, land development, access roads, and chain-link fencing. The farm's production will encompass a variety of crops including paddy, wheat, maize, mustard, quinoa, chili, tomato, cole crops, strawberry, and potato.



#### **Project description**

Bhutan imported Nu. 3.8 billion worth of livestock products in 2022 mainly meat and dairy products. The domestic requirement of meat (chicken, pork & fish) during 2022 was 8,812 MT; of which 2,262 MT was produced internally and 6,550 MT was imported. In order to curtail the increasing imports, establishment and operation of large-scale commercial farms targeted towards increasing self-sufficiency in meat will be undertaken in the 13<sup>th</sup> FYP. For a faster turnover, acceleration of domestic production of meat through commercialization of poultry, piggery and fishery farming will be prioritized in potential dzongkhags with high social acceptance.

Beef holds a special place in Bhutanese cuisine, being one of the highest imported livestock products in the country. However, the prioritization of commodities to enhance meat production during the current plan period has been strategically based on the potential and feasibility of reaping immediate benefits, given the existing foundations and scale of investment in the poultry, piggery, and fishery sectors. The Ministry acknowledges the critical role of current market supplies in meeting the country's beef demand.

#### Objectives

- Accelerate domestic production of chicken, pork and fish
- Engage interested private sector, youth and SOEs in livestock commercialization
- Strengthen product supply value chain management including products value addition

#### Key Project activities and budget highlights

SI. No.	Activities	Outlay (Nu. in Million)
_	Enhance chicken production to achieve 50% self-sufficiency of	235
1	the total consumption (Baseline: 1,165 MT, Target: 2,000 MT)	
	Enhance pork production to achieve 60% self-sufficiency of the	251
2	total consumption (Baseline: 1,590 MT, Target: 1,845 MT)	
	Enhance fish production to achieve 15% self-sufficiency of the	40
3	total consumption (Baseline: 43 MT, Target: 250 MT	
	Total Outlay	526

In order to realize 50 percent chicken self-sufficiency target, three large-scale broiler farms in strategic locations (Tsirang, Samdrup Jongkhar, and Samtse) will be established. These farms housing 10,000 birds each will yield an annual production of 270 MT of chicken. Additionally, state-of-the-art clean chicken processing plants in Samtse and Dagana will be constructed and operationalized to ensure seamless processing and distribution to strengthen the chicken value chain.

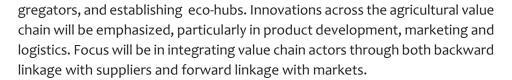
To achieve 60 percent self-sufficiency in pork production, large-scale fattening farms will be established in Dagana, Sarpang, Samtse, and Samdrup Jongkhar with each farm having capacity of 200 fattener levels to produce 53 MT of pork annually. Moreover, the establishment of a high-tech pig breeding farm either in Samtse or Samrang in Samdrupjongkhar with a capacity of 240 sow level, will ensure a sustainable supply of quality fattening piglets.

To achieve 15 percent self-sufficiency in fish consumption, Chirup commercial carp farms will be established in Samdrup Jongkhar and Dagana with each farm having the capacity to produce 15 MT annually.

#### 1.3 Department of Agricultural Marketing and Cooperatives

#### **Project description**

Agri-marketing in Bhutan is characterized by poor coordination, small farm sizes, high transaction costs, post-harvest losses, and a lack of market infrastructure such as aggregation centers, processing facilities, and market outlets. In order to address these issues, efforts will be focused on strengthening youth groups and upgrading of farmer groups and cooperatives to federations, forming ag-



#### **Objectives**

- Enhance economies of scale through operational youth groups, farmer groups and cooperatives
- Enhance market-led production and strengthen agricultural marketing systems
- Reduce drudgeries of agri-marketing and logistics

#### **Key Project activities and budget highlights**

Sl.No	Activities	Outlay (Nu. in Million)
1	Strengthen Farmer Groups and Cooperatives	110
2	Strengthen agrifood Enterprises	85
3	Agrifood marketing and value chain enhanced	82
4	Agrifood economic hub established in Paro for high value export commodities (asparagus, strawberry, mushroom, trout, broccoli)	140
5	Agrifood economic hub established in Sarpang for domestic/export marketing of bulk commodities (ginger, areca nut, turmeric, mandarin, potato, cardamom)	147
	Total Outlay	564

In order to strengthen farmer groups and cooperatives, upgrading groups and cooperatives will be fast tracked for dairy, poultry, and cardamom. Interventions such as institutionalization of Internal Control System (ICS), capacity building, and provision of value addition equipment will be implemented. Additionally, market linkage to the Gyalsung academies, schools, hospitals, other institutions, and Gelephu Mindfulness City (GMC) will be prioritized.

Recognizing the potential for income generation, job creation, and reducing imports, agrifood based enterprise development will be supported and existing

enterprises upgraded. Targeted interventions in the areas of value addition, product development, packaging, labeling and branding will be undertaken besides logistics, transportation and distribution. Innovative digital solution will be leveraged.

A well-structured value chain network across the Dzongkhags will be established in order to address the challenges of post-harvest losses, logistic issues, and lack of market infrastructures. Key interventions include forming aggregator networks, establishing main outlets for products from all 20 Dzongkhags, capacity building for value chain actors, and improving digital platforms for enhanced marketing, such as commodity exchanges, Agricultural Marketing Information System (AMIS), e-commerce platforms, and Al-based agricultural marketing systems.

Two agrifood economic hubs will be established in Paro and Sarpang. These hubs will act as a centralized point in the value chain, coordinating backward integration with farmers/producers and forward integration with domestic, regional, and international export markets. Both hubs will feature advanced post-harvest facilities, support private sector participation, and aim to create comprehensive, efficient value chains from production to market. The hub at Paro will focus on high-value export commodities that are fresh and perishable in nature such as asparagus, strawberries, mushroom, trout, broccoli, etc. While the hub at Sarpang will handle bulk commodities like ginger, turmeric, areca nut, mandarin, potato, cardamom, and livestock products for both domestic and export markets. Private sectors and FDIs will be encouraged to invest and operationalize the agrifood eco-hubs.

#### 2. Building resilience of smallholder farmers

Like in other South Asian countries, Bhutanese farmers are predominantly small holders with the average land holding size of 3.7 acres (NSB, 2019). Smallholder farms will remain the mainstay for Bhutanese agriculture into the coming decade, and beyond, while initiatives to upscale commercial large-scale farms pick up pace and scale. Despite facing considerable production constraints and being at increased risks from climate change, smallholders remain an important part of the Bhutanese economy, socio-cultural landscape and continue to

grow and provide a major share of crop and livestock produce, for a majority of the Bhutanese population. Contribution from the smallholders to national food security is significant, therefore, continued support for these categories of farmers will have a greater impact on the domestic food self-sufficiency than a small number of large farms. Tailored interventions in improving productivity and building resilience against the environmental and economic shocks will be prioritized.

#### 2.1 Department of Agriculture

#### **Project description**

This project will support production of essential crops including cereals, vegetables and fruits to enhance and sustain nutrition security. These essential crops are integral to the daily diet of the Bhutanese population. Despite their significant cultural and economic importance, domestic production of these vital commodities is hindered by challenges such as labor shortages, water scarcity, and low adoption of modern farming techniques. Emphasis will be placed on land development, mechanization, and research to improve productivity and resilience. The project is designed to support the primary food producers in rural areas to ensure local food and nutrition security, ultimately contributing towards national food supplies.

#### **Objectives**

- 1. Increase the production of essential commodities
- Support small holder farmers to enhance their livelihood and household income
- 3. Generate and promote agriculture technologies to enhance crop production and productivity



SL No	Activities	Outlay (Nu. In Million)
	Implement Million Fruit Tree Project (MFTP) to enhance the	625.50
1	production of high-value fruits and nuts for food and nutrition	
	security and income generation	
	Enhance self-sufficiency of rice through irrigation, land develop-	1,279.99
2	ment, mechanization, input subsidy, research, and production	
	support services (25% to 30% Self Sufficiency Ratio) (SSR)	
	Self-sufficiency of maize enhanced through research and pro-	15.00
3	duction input supports	
	Self-sufficiency of wheat crop enhanced through improved seed	26.00
4	and research	
	Self-sufficiency of essential vegetable enhanced (Chili, onion,	689.14
5	tomato, cauliflower, and beans) enhanced through protected	
	cultivation and other production input services (41% to 62%)	)
6	Production of potatoes through the support of strategic produc-	88.00
	tion inputs, research, and development	
7	Production of mushrooms by supporting private entrepreneurs	27.80
	with necessary equipment, skill development and research.	
8	Generate and promote innovative agriculture technologies	140.20
	through R&D and support services	
9	Establish fencing technology in all 20 Dzongkhags to mitigate	5,100.00
9	crop loss due to wildlife depredation	
10	Strengthen agro-meteorology services and institute index-based	59.00
	crop insurance to enhance adaptation to climate change impacts	
11	Production of nutri-cereals (quinoa & buckwheat) through the	30.73
	support of strategic production inputs, research and certification.	
	Total Outlay	8,081.36

The department aims to enhance and maintain a manageable level of food self-sufficiency for cereals. Among the cereals, rice, maize, wheat, buckwheat and quinoa have been prioritized given their significant dependency and essential role in the diet and nutrition security of the population. The support will be provided through a combination of improved agricultural practices,

research and targeted support services. The investment cost for rice is much higher compared to other cereals given its importance as the staple crop for the Bhutanese populace.

Vegetables such as chili, onion, tomato, cauliflower, and beans are considered essential and identified based on the consumption pattern and nutritional properties for a balanced diet. These interventions will contribute to enhance gross self-sufficiency level, increasing from 41 percent to 62 percent through initiatives like protected cultivation and improved production methods. Potato production will receive support through strategic inputs, research, and development, while mushroom cultivation will be promoted among private entrepreneurs with the necessary equipment, skills development, and research support. Innovative agricultural technologies, including climate smart technologies will be developed and disseminated through research and support services. Innovative fencing will be established across all 20 Dzongkhags to mitigate crop losses due to wildlife. The agrometeorology services will be strengthened and index-based crop insurance will be institutionalized to enhance the adaptive capacity of smallholder farmers. MFTP from the last plan period will be continued with plantation of millions of high value fruits and nuts across the country which is expected to enhance the nutritional security and income generation. The unemployed youth interested in farming will be supported with investment in high value priority crops in urban and peri-urban areas.

Overall, these integrated efforts underscore the department's commitment to supporting agricultural development, improving food and nutrition security, and fostering sustainable livelihoods in Bhutan. By investing in technology, infrastructure, and supportive policies, the aim is to empower farmers, enhance productivity, and mitigate the adverse effects of environmental and economic uncertainties in the agricultural sector.

#### 2.2 Department of Livestock

#### **Project description**

Livestock plays an integral role in the lives of Bhutanese farmers and it forms an indispensable component of the agricultural production system in Bhutan. Livestock are raised in Bhutan for various reasons including milk, egg, meat,

and manure production, draught power, as a source of income and as assets. Livestock is vital to improve rural livelihood, secure household food and nutrition security and boost income. The share of GDP of the livestock sector is 6.57 percent in 2023 which in terms of monetary value is Nu. 14.74 billion (based on current price).

The rural economy of Bhutan is traditionally based on smallholder farming, primarily subsistence-oriented, mixed farming systems and migratory yak herding systems at high altitudes. Subsistence farming involves rearing both improved and native breeds of livestock and use of traditional technologies that needs to be improved to address the growing demand for animal-based food in Bhutan. In order to scale-up production and enhance income of subsistence farmers, the livestock sector has outlined strategic interventions in the 13<sup>th</sup> FYP for each livestock commodity. In terms of dairy, the targeted interventions focus on improving milk quality and enhancing quantity. In terms of meat products such as pork, chicken and fish, the focus is on 'clean meat' production. In terms of animal health, the primary focus is on reduction and freedom from targeted livestock diseases of public health significance and economic importance in the country. In terms of highland communities, the focus is on strengthening research and development with focus on high value livestock products. All these targeted interventions will progressively revolutionize the livestock management practices to produce quality surplus livestock products for the market with a long-term interest to transform from traditional to market oriented production systems. Interventions in the areas of breed improvement, animal health services, feed and fodder development, highland development and providing technical backstopping and extension services will be continued in the 13<sup>th</sup> FYP.

#### Objectives

- Boost domestic production of quality livestock products
- Enhance income and livelihoods of rural communities
- Support resilient and climate smart livestock farming practices



SI.No	Activities	Outlay (Nu. in Million)
	Intensify dairy breed improvement program for enhanced milk	164.00
1	production to achieve 85% of the total milk consumption through	
	domestic production (Baseline: 43,829 MT, Target: 73,984 MT)	
2	Strengthen dairy value chains for new and improved products	179.00
3	Support resilient and climate smart dairy farming practices	201.00
4	Enhance animal nutrition services for enhanced productivity	179.00
5	Enhance input support for increased egg and chicken production (Chicken: 1,165 MT baseline, Target: 2,000 MT) (Egg: 86 million baseline, Target: 174 million)	302.00
6	Adoption of climate resilient farming technologies through energy efficient and integrated farming	29.00
7	Enhance input support for increased pork production (Baseline: 1,590 MT, Target: 1,845 MT)	14.97
8	Adoption of climate resilient farming technologies through energy efficient and integrated farming	54.00
9	Heighten farm biosecurity standards in all pig farms to protect resilience of the farms	53.00
10	Enhance input support for fish production (Baseline: 43 MT, Target: 250 MT)	81.00
11	Strengthen fishery value chain to upscale fish production	20.00
12	Disseminate climate resilient farming technologies for improved fish productivity	73.00
13	Enhance highland livestock productivity (yak, sheep, horse, mastiff)	35.00
14	Strengthen highland farm infrastructure	39.00
15	Enhance rangeland management for yak nutrition	33.00
16	Ongoing Trial and Research for Development of High Value Live- stock Products	250.50
17	Eliminate PPR (Peste des petits) through application of strategies outlined in the National official control program for PPR and gain official recognition of PPR free status of Bhutan	10.00
18	Eliminate dog-mediated rabies in Bhutan through application of strategies outlined in the National official control programme for dog-mediated rabies, and gain official recognition for dog-mediated Rabies free status of Bhutan	53.00

	interventions  Total Outlay	2,345.47
22	alleviate the financial burden on the government through targeted	
	Strengthen veterinary services to optimize resource allocation and	5.00
21	productivity and ensure animal welfare	
	Strengthen veterinary clinical service delivery to enhance livestock	498.00
	productivity	
20	ology services to enhance service efficiency and increase livestock	
	Strengthen laboratory diagnostic facilities and veterinary epidemi-	102.00
	and self-declaration of freedom from infection with Brucella abortus	
19	tional Bovine Brucellosis Prevention, Control and Elimination Plan,	
	Eliminate Bovine Brucellosis through strategies outlined in the Na-	10.00

Dairy cattle breed improvement will be intensified through strengthening and expansion of Artificial Insemination services in feasible areas; and application of sexed semen technology to accelerate dairy heifer production under Elite Heifer Breeders Scheme expanded in 30 potential dairy cluster villages across the country. Value chain of dairy products will be strengthened through the institution of a quality-based milk pricing system and developing dairy products standards and support in establishment of essential dairy processing units and equipment. Animal nutrition services will be enhanced through supply of quality inputs, promotion of emerging feed and fodder technologies to ensure availability, quality, safety, affordability and utilization of diverse feeding resources to enhance livestock productivity.

To enhance egg and clean meat production (chicken, pork & fish), the production and distribution of quality inputs along with appropriate technical backstopping, strengthened farm biosecurity measures, post-production and value chain development will be implemented. This will be further strengthened with the initiation of mobile Artificial Insemination services for pig breeding in Tsirang, Chukha, Dagana and Samtse. Fish production will be enhanced through revival of 200 numbers of defunct fish ponds along with establishment of new fish ponds in feasible areas. In order to achieve 13<sup>th</sup> FYP fish production target, the support for existing trout farms and opportunities for establishment of small scale trout farms shall be provided.

To enhance productivity of highland livestock, AI services, supply of breeding

bulls and semen processing facilities will be strengthened. Besides for Gid disease control, required medicines and vaccines will be supplied. Yak nutrition will be improved through rangeland restoration, resources mapping and promotion of highland fodder enterprises.

Efforts will be also taken to promote climate resilient livestock farming practices such as establishment of biogas plants, adoption of climate resilient feed and fodder system, installation of solar radiant energy efficient heating system for poultry and piggery farms, development of resilient breeds, climate friendly dairy sheds and application of Effective Microorganism Technology.

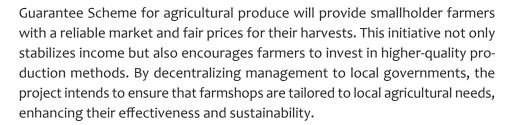
Further, ongoing trials will be continued to enhance production of high value livestock products such as red caviar, caviar, niche yak cheese (Tomme, Gomdel, Gouda and Caciocavallo), yak fiber, sheep wool, yagyu beef and royal jelly aiming for export markets.

The animal health sector will focus on safeguarding animal health to protect public health and strengthen food security through improving the efficiency and sustainability of veterinary services employing a multifaceted strategy. This will be achieved through targeting freedom from diseases of public health significance and economic importance like dog-mediated rabies, Peste des Petits Ruminants (PPR), and bovine brucellosis, so as to improve livestock health and productivity, reduce zoonotic disease transmission, and contribute towards ensuring a reliable food supply chain. Additionally, strategies such as strengthening veterinary clinical services, disease surveillance, upgrading laboratory diagnostics, promoting community education, advancing veterinary workforce skills, and targeted interventions will be undertaken. These initiatives are designed to improve animal welfare, support sustainable animal husbandry, foster resilient livestock production, and improve livelihoods.

#### 2.3 Department of Agricultural Marketing and Cooperatives

#### **Project description**

Given the scattered farm locations, access to inputs and marketing has been a challenge for both the farmers and the government. To that end, farmshop (Sanam Tshongkhag) as an innovative socio-business model will be implemented to enhance access to essential grocery items, farm inputs, and most importantly for buyback of agricultural produce from rural communities. Minimum Price



#### **Objectives**

- Enhance access and hiring of essential farm inputs
- Enhance access to basic food and essential grocery items
- Facilitate Minimum Price Guarantee Scheme of selected agrifood commodities

#### Key Project activities and budget highlights

SI. No	Activities	Outlay (Nu. in Million)
1.	Enhance accessibility and affordability of essential food items	279
	Total Outlay	279

The farmshops will be established at viable locations based on the feasibility. The operation and management of farmshops, including their necessity, location, and day-to-day operations, will be decentralized and entrusted to the local governments to enable sustainable management of the farmshops.

# 3. Promotion of high-value agricultural products for Export markets

The promotion of high-value agricultural products for export markets is a strategic initiative aimed at enhancing economic growth and increasing foreign exchange earnings. The promotion of high-value agricultural products will help to achieve economic growth, enhance farmers' income and enhance global presence. By leveraging its strengths in organic and sustainable agriculture, Bhutan can successfully position its unique and high-quality products in the lucrative international markets.

In the 13<sup>th</sup> FYP, export promotion and market reach for high value agricultural commodities shall be promoted through the "Brand Bhutan" approach putting

to advantage Bhutan's unique selling proposition in particular the development guiding philosophy of GNH, pristine environment, sustainable agricultural practices, rich cultural diversity and political stability amongst others. Besides the domestic markets including the Gelephu Mindfulness City, these high value commodities will be promoted in niche export markets in the region and beyond through effective advertisment and story-telling by social media influencers.

#### 3.1 Department of Agriculture

#### **Project description**

Under this project, the primary focus will be on high value commodities such as mushroom, betel leaves, black pepper, strawberry and organically produced broccoli and asparagus. Climate smart production technologies, irrigation methods coupled with improved seeds will be promoted.

#### **Objectives**

- Increase the production of the targeted high-value agricultural crops
- Enhance economic growth by fostering commercial ventures

#### Key Project activities and budget highlights

SL No	Activities	Outlay (Nu. In Million)
	Production of high-value Organic Asparagus & Organic Broccoli	48.00
1	through improved management practices	
	Establish commercial strawberry farm (Greenhouse -100mx24m	19.70
2	and supply of runners)	
	Upscale mushroom enterprises by empowering mushroom entre-	20.00
3	preneurs	
	Total Outlay	87.70

With a pristine environment and longstanding commitment to organic farming, Bhutan holds significant potential for natural production. Organic asparagus and broccoli are identified as high value export potential vegetables based on the existing international market opportunities. The production areas will

be focused in dzongkhags that have easy access to transportation routes for shipping to international markets.

The second initiative under this project is commercialization of strawberries. Among many fruits that have been introduced and promoted in the country, strawberry cultivation has not been cultivated at commercial scale. Farmers grow strawberries mainly for self-consumption and the negligible quantity of domestic produce sold in the local market are often of inferior quality. The market for strawberries is expected to increase with the establishment of Gelephu Mindfulness City and Gyalsung Academies. Investment in organic third-party certification will enhance its marketing prospects. However, strawberry cultivation faces challenges, including the scarcity of quality propagation materials, the perishable nature of the fruits, and susceptibility to pests and diseases. Implementing protected structures would enable farmers to mitigate these challenges, reducing pest incidence, improving yield, and enhancing fruit quality.

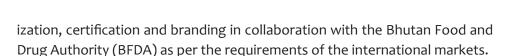
Mushrooms are highly nutritious and environment friendly crops that contain numerous nutritional and medicinal benefits. It is also a good source of cash income for mushroom growers. In Bhutan, mushrooms are made available either from wild collection or from small scale household production. Support will be provided for mushroom enterprises to sustain raw materials for mushroom cultivation. Additionally, quality mushroom spawn which are technically difficult to be produced by the private sector, would be taken up by the National Mushroom Centre for distribution to the farmers.

#### 3.2 Department of Livestock

#### **Project description**

In order to increase income for farmers and contribute to the economic growth of the country, the Ministry will focus on enhancing production of high value products to meet the emerging demands from diverse markets. The main priority during the 13<sup>th</sup> FYP will be on three high value products namely honey, cage free eggs and trout production for the export markets.

The strategic interventions will support and enhance the production and value chain development of prioritized high value livestock products for export to international markets. Furthermore, emphasis will be given to product standard-



#### **Objectives**

- Increase income for farmers
- Earn higher revenue through export to international markets
- Enhance livestock sector contribution to GDP

#### Key Project activities and budget highlights

Sl. No.	Activities	Outlay (Nu. in Million)
1.	Enhance honey production and marketing (blossom honey & cream honey (72 MT); comb honey (8.5 MT), pot honey (Putka) (2.5MT)): Total 83 MT	36.00
2.	Enhance fish production (Trout - 30 MT by 2029)	116.00
3.	Enhance production of cage free eggs for export market (10 million)	5.00
	Total Outlay	157.00

In order to enhance honey production, beehive sets and equipment will be supplied to potential dzongkhags such as Samtse, Haa and Bumthang. A honeybee laboratory with basic facilities will be established and standardization, processing, packaging, labeling and branding of honey as high value products will be done in collaboration with relevant agencies.

To enhance trout production, six trout enterprises will be supported in Punakha, Wangdue, Sarpang, Samtse, Dagana and Chukha with the capacity to produce 5 MT each annually. Further, small scale processing facilities will be established at six strategic locations for clean fish production.

To certify eggs as "cage free eggs" for export to the international market, standardization and certification of potential large-scale poultry farms will be initiated to meet the standards required for export markets.



#### **Project description**

Promoting agricultural exports is a key strategy to boost production, generate income, alleviate poverty, enhance food security, and drive economic growth. Currently, exports are limited and mainly focused on India and Bangladesh. However, there is significant potential in these markets as well as in new markets like Singapore, Australia, Thailand, the Middle East, Japan, and South Korea, especially for high-value, low-volume products such as asparagus, broccoli, ginger and turmeric powder, chili, fresh fruits, and rainbow trout.

Challenges in export promotion include meeting the regulatory requirements of importing countries. To address these constraints and promote exports, several interventions are planned. These include developing grand challenge products through Geographical Indication tagging, branding, certification, standardization, packaging, labeling, exploring and establishing new markets, and promoting products effectively.

#### **Objectives**

- Diversify and expand export market for agricultural commodities
- Double value of agricultural commodities export by 2029

#### Key Project activities and budget highlights

Sl. No.	Activities	Outlay (Nu. in Million)
1	Premium quality product development for high-end market	17.5
2	New market exploration and establishment	50
	Total Outlay	67.5

In achieving the project objectives, premium quality products based on the grand challenge concept having international recognition will be implemented. It will involve identifying key commodities for Geographical Indication certification and protection.

Market outlets in potential countries like India, Bangladesh, the Middle East, and Singapore will be established.

# 4. Enhancing ecosystem services from sustainable and resilient biodiversity initiatives

#### 4.1 National Biodiversity Centre

#### **Project description**

Bhutan is a biodiversity-rich country with more than 11,000 species recorded thus far despite being a small landlocked country. Realizing the economic potential of these resources, efforts will be placed towards sustainable utilization generating tangible economic benefits while improving the livelihood of the rural communities.

Additionally, continued effort in building a biodiversity repository and information centers will be continued for informed decision-making and effective conservation strategies. This will include strengthening ex-situ conservation to safeguard Bhutan's rare and unique biodiversity.

Access to these diverse genetic resources conserved in a biorepository serves as a genetic security as well as enables the development of resilient crop varieties and animal breeds that can withstand climate change, pests, and diseases, thereby enhancing agricultural productivity and ensuring food security for local communities.

#### Objectives

Strengthen biodiversity conservation and sustainable utilization initiatives
while ensuring generation of economic benefits through germplasm
conservation and product diversification.

#### Key Project activities and budget highlights

Sl. No.	Activities	Outlay (Nu. in Million)
4	Utilization of native animal and plant genetic resources through	53.0
1	product diversification and valuation	
2	Revenue generation through biodiversity initiatives	24.0
	Strengthening biorepository and ex-situ conservation facilities	24.0
3	to prevent species extinction in the country	
	Total Outlay	101.0

One of the activities under this project will include strengthening the sustainable utilization of native neglected and under-utilized biological resources such as *Yuebja* poultry, *Nublang* cattle and *Saphag* pig and finger millet through product diversification and value addition.

The other activity will delve into enhancing revenue generation from nature-based product development through bio-prospecting, access and benefit sharing initiatives, and the micropropagation and sale of economically potential biological resources, and collection of fees.

The final activity will focus on strengthening biorepository and ex-situ conservation facilities to prevent species extinction in the country. Other activities are biodiversity repository and information centre for biodiversity-related data in the country; strengthening living and herbarium collections of native plant diversity and genebanks to prevent species from extinction; and development of National Biodiversity Strategies and Action Plans aligning to the Global Biodiversity Framework.

#### 5. Improving business ecosystem

#### 5.1 Secretariat

#### **Project description**

Improving the business ecosystem in the agricultural sector is essential for enhancing productivity, sustainability, and profitability. A well-functioning ecosystem supports farmers, agribusinesses, and related stakeholders by providing the necessary infrastructure, policies, and services that facilitate growth and

innovation. In particular, this project intends to create conducive and enabling environment for the implementation of other projects to maximize impacts. It emphasizes improving two parameters of improving policy and regulatory frameworks, governance mechanisms and expanding access to finance and de-risking the sectors from shocks and calamities.

#### Objectives

Improve the business ecosystem of the agricultural sector for better service delivery, enhanced sectoral growth and sustainability.

#### Key project activities and budget highlights

The Secretariat of the Ministry would lead the 13<sup>th</sup> FYP project on "Improving Business Ecosystem" through the implementation of the following activities:

SI. No.	Activities	Outlay (Nu. in Million)
1	Regulatory reforms and policy enhancement	0.00
2	Strengthen governance infrastructure	300.00
3	Access to finance and incentive mechanisms	1,500.00
	Total Outlay	1,800.00

The first activity involves revising and improving existing regulations and policies to create a more conducive environment for business operations. The activity does not require a direct financial outlay, because it involves administrative changes and policy adjustments that do not incur significant costs and shall be met from the Ministry's regular annual budget. The second activity focuses on enhancing the governance structures and systems that support the agricultural business ecosystem. This includes building or upgrading the physical infrastructure of the Secretariat Office. The third activity aims to improve access to financial services and create incentives to support businesses in the agricultural sector through provision of loans, subsidies, grants, or tax incentives. Additionally, Nu. 1,500 million is earmarked for the establishment of crop and livestock insurance schemes.



# CHAPTER FOUR: MONITORING, EVALUATION AND REPORTING



The Ministry will employ the framework below which provides monitoring and evaluation guidance as the cornerstone in assessing the progress, achievement and impacts of the projects and activities. The Policy and Planning Division will spearhead the implementation of this monitoring framework as detailed below.

# Monitoring and Evaluation Framework

The PPD will review and evaluate the progress of each key performance indicator using the following matrix.

	Means of Reporting Verification Frequency	Once in five NAS, NSB years	Trade Statistics Annually	Means of Reporting Verification Frequency	Census report Annually published by NSB	Census report Annually published by NSB	Census report Annually published by NSB	Census report Annually
	Target (2029)	50,000	000'9	Target (2029)	54,040	31,966	250	299'2
ork	Baseline (2023)	31,126	3,000	Baseline (2023)	40,804	25,118	12.88	4,848
ion Framewo	Unit	Nu. In million	Nu. In million	Unit	TM	MT	TW	TM
13 <sup>th</sup> FYP Monitoring and Evaluation Framework	Indicator description	This indicator will measure agricultural sector's contribution to an annual GDP on current price	This indicator will measure the annual value (in Nu.) from the export of various agricultural commodities	Indicator description	This indicator measures the total quantity (MT) of paddy produced annually	This indicator measures the total quantity (MT) of maize produced annually	This indicator measures the total quantity (MT) of quinoa produced annually	This indicator measures the total quantity
	Outcome Indicator	Increased sector's contribution to annual GDP	Increased value of agricultural commodity export	Output Indicators	Increase in paddy production	Increase in maize production	Increase in quinoa production	Increase in chili
	Outcome	GDP	or strategic sectors increased	Output		1. Agriculture	Enhanced	

Increase in tomato production	This indicator measures the total quantity (MT) of tomato produced annually	MT	206	1,045	Census report published by NSB	Annually
Increase in onion production	This indicator measures the total quantity (MT) of onion produced annually	MT	185	1,089	Census report published by NSB	Annually
Increase in bean production	This indicator measures the total quantity (MT) of bean produced annually	MT	1,533	2,312	Census report published by NSB	Annually
Increase in cauliflower production	This indicator measures the total quantity (MT) of cauliflower produced annually	MT	1,063	1,815	Census report published by NSB	Annually
Increase in organic asparagus production	This indicator measures the total quantity (MT) of organic asparagus produced annually	MT	1.136	10	Census report published by NSB	Annually
Increase in organic broccoli production	This indicator measures the total quantity (MT) of organic broccoli produced annually	MT	14.2	25	Census report published by NSB	Annually
Increase in fruit production	This indicator measures the total quantity (MT) of fruits and nuts produced annually	MT	41,744	104,024	Census report published by NSB	Annually
Increase in mushroom production	This indicator measures the total quantity (MT) of mushroom produced annually	MT	350	364	Annual report	Annually
Increase in potato production	This indicator measures the total quantity (MT) of potato produced annually	MT	37,749	43,774.5	Census report published by NSB	Annually
Input Indicators	Indicator description	Unit	Baseline (2023)	Cumulative Target (2029)	Means of Verification	Reporting Frequency
Number of climate smart irrigation schemes	This indicator measures the total number of climate smart irrigation system constructed or renovated (absolute target: 26 schemes)	Number	1,200	1,226	Annual highlight report	Annually

Length of innovative fencing installed to mitigate crop loss due to wildlife depredation	This indicator measures the total length fenced by chain-link or other innovative fencing (absolute target: 3400 km)	Ж	87	3,487	Annual highlight report	Annually
Number of commercial agriculture farms established	It measures the number of commercial farms established through injection of initial investment cost on a cost sharing basis	Number	0	9	Annual highlight report	Annually
Area brought under sustainable land development	This indicator measures the total farmland area brought under land development/terrace consolidation (absolute target: 3,600 arces)	Acre	11,620	15,220	Annual highlight report	Annually
 Area brought under farm mechanization	This indicator measures the total area under some sort of farm mechanization (absolute target: 3600 acres). Baseline: 39,367 acres under some sort of mechanization inclusive of land development, thus 11,620 acres is subtracted from farm machanization)	Acre	27,747	31,347	Annual highlight report	Annually
Total subsidy provided on transporation and commission on sale of fertilizers and Butachlor 5G weedicides	This indicator measures the total subsidy provided on transporation and commission on sale of fertilizers and Butachlor 5G weedicides (Nu. 10 million per year)	Nu. in million	۸A	50	Annual highlight report	Annually
Number of protected cultivation structures established	This indicator measures the total Greenhouse installed in the dzongkhags for crop cultivation (absolute target: 6962)	Numbers	5,672	12,634	Annual highlight report	Annually

Annually	Annually	Annually	Annually	Annually	Annually	Annually	Annually
Advisories generated through Agromet Decision Support System website	Annual highlight report	Means of Verification	Census report published by NSB	Census report published by NSB	Census report published by NSB	Census report published by NSB	Census report published by NSB
Weekly during crop critical stage	169	Target (2029)	73,984	174	2,000	1,845	250
NA	119	Baseline (2023)	43,828	98	1,165	1,590	43
Timeline	Number	Unit	MT	Number in million	TM	MT	MT
This indicator measures the weather based crop advisory services generated weekly only during critical growing stages of the crops	It measures the released/notified agricultural technologies including climate smart technologies (technology and crop varieties) by Variety Release Committe and Technology Release Committee (absolute target: 50 numbers)	Indicator description	This indicator measures the total quantity (MT) of milk produced annually	This indicator measures the total quantity (million) of eggs produced annually	This indicator measures the total quantity (MT) of chicken produced annually	This indicator measures the total quantity (MT) of pork produced annually	This indicator measures the total quantity (MT) of fish produced annually
Number of weather based crop advisory services generated and disseminated	Number of technologies generated including CSA technologies	Output Indicators	Increase in milk production	Increase in egg production	Increase in chicken production	Increase in pork production	Increase in fish production
				2. Livestock	Enhanced		

Obtain official recognition of freedom from PPR, dog-mediated rabies and bovine brucellosis in Bhutan	This indicator measures the timeline by which Bhutan gets official recognition of freedom from PPR, rabies and brucellosis from World Organization for Animal Health (WOAH)	Timeline	ď Z	2029	Official correspondence from WOAH	Annually
Input Indicators	Indicator description	Unit	Baseline (2023)	Target (2029)	Means of Verification	Reporting Frequency
Total number of bovine semen doses produced	This indicator measures the total doses of bovine semen produced and procured for dairy breed improvement program	Dose	17,487	28,000	Administrative data/Annual report, DoL	Annually
Total quantity of liquid nitrogen produced and supplied to AI Centres	This indicator measures the total liters of liquid Nitrogen produced and distributed to Al centre dairy breed intensification program	Liter	71,653	115,225	Administrative data/Annual report, DoL	Annually
Acreage of improved pasture developed	This indicator measures the cumulative total of improved pasture developed in the country	Acre	25,565	30,565	Administrative data/Annual report, DoL	Annually
Total number of layer Day Old Chiks (DOCs) produced and distributed	This indicator measures the total number of Layer DOCs produced and distributed in the country	Number	533,495	807,857	Administrative data/Annual report, DoL	Annually
Total number of piglets produced and distributed	This indicator measures the total number of piglets produced and distributed in the country	Number	12,813	21,000	Administrative data/Annual report, DoL	Annually
Total number of fingerlings produced and distributed	This indicator measures the total number of fingerlings produced and distributed in the country	Number	1,654,527	3,240,000	Administrative data/Annual report, DoL	Annual

Number of large- scale livestock farms established		This indicator measures the number of large scale livestock farms established (chicken, pork, fish etc) either by SOEs/private entrepreneur/groups in potential dzongkhags (Samtse,Tsirang, Sarpang, Samdrupjongkhar, Dagana, Wangdue, Chukha)	Number	A N	6 (Chicken: 270 MT, Pork: 53 MT, Fish: 15 MT)	Annual Report/ Administrative data	Annual
Output Indicators Indicator	Indicato	Indicator description	Unit	Baseline (2023)	Target (2029)	Means of Verification	Reporting Frequency
Number of Grand Challenge/Premium Quality Product of the grand ch	This indicator mea premium quality proc of the grand ch	This indicator measures the number of premium quality products developed as part of the grand challenge initiative.	Number	0	2	Annual Report	Annually
Number of new export markets established for income g	This indicator measure market established for income g	This indicator measures the number of export market established for increased exports and income generation	Number	2	5	Annual Report	Annually
Input Indicators Indicator	Indicator	Indicator description	Unit	Baseline (2023)	Target (2029)	Means of Verification	Reporting Frequency
Number of Farmer Groups and Cooperatives strengthened through instituting effective and operational Internal Control System	This indicator measure: Groups and Cooperat effective Interna	This indicator measures the number of Farmer Groups and Cooperatives that implements effective Internal Control System	Number	∞	50	Annual Monitoring and Evaluation Report	Annually

Numb. food ecc esta	Number of Agri- food economic hubs established	This indicator measures the number of agrifood economic hubs established	Number	0	7	Annual Report	Annually
Nur Farme and Co consi and up	Number of Farmer Groups and Cooperatives consolidated and upgraded to Federations	This indicator measures the number of Federations formed	Number	-	3	Annual Report/ Registration Certificate	Annually
Numbe Groups/C linked wi Academi	Number of Farmer Groups/Cooperatives linked with Gyalsung Academies, GMC and export market	This indicator measures the number of linkages created	Number	0	50	Annual Report	Annually
Number institu betwee Group/C. and : institution hos	Number of linkages institutionalized between Farmers Group/Cooperatives and schools, institutions (Monastic and Education), and hospitals	This indicator measures the number of schools, hospitals and various institutions linked to Farmer Groups and Cooperatives	Number	368	481	Annual Report	Annually

	This indicator measures the number					
	of agrifood enterprise established or					
	strengthened through support of value	Number	43	75	Annual Report	Annually
	addition equipments, packaging, logistics,					
	branding and certification					
<u></u>	This indicator measures the number of digital platforms developed and enhanced (existing ones).	Number	m	5	Annual Report	Annually
	Indicator description	Unit	Baseline (2023)	Target (2029)	Means of Verification	Reporting Frequency
	This indicator measures the increase in value of bioprospecting initiatives increased through value added products of Chirata, Primula, Symplocus and other species, Sapha pork, Yuebja egg, Nublang cow milk & finger millet nutricereal and finger millet RTE after profiling.	Number	41	21	Physical product verification	Annually
l ds )	This indicator measures the number of new species of plants and other biodiversity groups (either new to science and a new record for	Number	0	50	Publication of new discovery	Annually
- 1	Dilatail) discovered:					
	Indicator description	:iui:	Baseline	Target	Means of	Reporting
_			(2023)	(6202)	Verification	Frequency

	This indicator measures the total number					
Number of value-added products developed (Quantity)	of value-added products developed with particular focus on five products namely Sapha pork, Yuebja egg, Nublang cow milk after selective breeding, charaterization and profiling, & finger millet nutricereal and finger millet RTE after profiling.	Number	0	5	Physical product verification	Annually
Number of ABS products developed (Value)	This indicator measures the development of nature-based products under Access and Benefit Sharing (ABS) regime focusing on Chirata, Primula, Symplocus and other species	Number	14	16	Physical product	Annually
Number of key native ornamental plants propagated	This indicator measures the total number ornamental propagated and sold focusing on Paphiopedilum fairrieanum, P. venustum and others species.	Number	0	5,000	Annual Report/ Sales Record	Annually
Number of new registered users acquired for the Bhutan Biodiversity Portal (BBP) with increased observations record	This indicator measures the increase in number of users registered with BBP and active member of BBP	Number	2,400	2,900	Bhutan Biodiversity Portal	Annually
Number of germplasm accessions conserved	This indicator measures the increase in number of germplasm accession, such as native animal doses, native varieties of seeds, herbariums, and living collections of plants	Number	77,562	94,062	Genebank Data base/Annual Report/Herbarium Database	Annually
Output Indicator	Indicator description	Unit	Baseline (2023)	Target (2029)	Means of Verification	Reporting Frequency

	Client satisfaction score increased on each business service (scale 1-5)	This indicator will measure the satisfaction level of the clients for availing the services	Score	4.1	>4.5	Client satisfaction survey	Annually
	Input Indicators	Indicator description	Unit	Baseline (2023)	Target (2029)	Means of Verification	Reporting Frequency
	Number of additional services available online	This indicator will measure additional digital and online services made available	Number		5	Administrative Report	Annually
s. business ecosystem improved	Number of policies and legislations developed and revised	This indicator measures the number of policies and legislations formulated, revised or amended to improve business ecosystem	Number		5	Administrative report	Annually
	Timeline by which the credit access facilities is instituted	This indicator measures the timeline by which the credit access facilities for agri-businesses is instituted	Timeline	NA	June 2025	Administrative report	Annually
	Timeline by which the national crop and livestock insurance scheme is introduced	This indicator will measure the timeline by which the national crop and livestock insurance scheme is introduced to encourage farmers for enhanced agricultural farming	Timeline	0	July 2025	Administrative report	Annually



The Policy and Planning Division (PPD), MoAL will establish a comprehensive system for the biannual review of the annual work plans and budgets of all departments and agencies under its purview. This system aims to ensure consistent monitoring, evaluation, and alignment with strategic objectives. An independent review committee will be formed to conduct these reviews. This committee will be composed of plan focal officers, who are representatives from the departments and agencies. Their role will be to provide expert insights and unbiased evaluations of the progress and efficacy of the work plans and budgets. The review process will involve a thorough analysis of performance metrics, resource utilization, and achievement of set targets. The committee's findings and recommendations will then be presented to the Ministry of Agriculture and Livestock Gross National Happiness Committee (MoAL-GNHC).

#### 3. Monthly Departmental Meetings

The PPD, MoAL is set to enhance its coordination and communication strategies during the 13<sup>th</sup> FYP by initiating and formalizing monthly departmental meetings. These meetings aim to review progress and seek updates from various departments and agencies, ensuring alignment with the Ministry's overarching goals.

The primary objective of these meetings is to facilitate comprehensive progress reviews and status updates. Each department and agency will present detailed reports on their current projects, highlighting milestones achieved, challenges faced, and any deviations from planned timelines. Additionally, departments will showcase their key performance indicators (KPIs) to track efficiency and effectiveness, thereby identifying areas needing improvement and recognizing successful practices.

The meetings will also serve as a platform to facilitate inter-departmental collaboration and coordination. Departments will explore opportunities for collaboration, sharing insights and resources to foster cohesive and effective policy implementation. Feedback on policy decisions and recommendations for improvements based on on-the-ground experiences will be encouraged, promoting a culture of continuous improvement.

Problem-solving and strategic planning will be integral components of these meetings. Departments will discuss and find solutions to any challenges they encounter, ensuring that obstacles are promptly addressed. Additionally, long-term planning and strategizing for upcoming projects and initiatives will be emphasized, aligning departmental objectives with the ministry's strategic goals.

To ensure efficiency, the meetings will follow a structured format, with the Secretary chairing the sessions. An agenda will be circulated in advance, detailing discussion topics and preparatory works required. Detailed minutes will be recorded and shared with all participants, with follow-up actions assigned to ensure accountability and track progress.

#### 4. Reporting

The PPD, MoAL will take the lead in gathering information from various line agencies. This information will be synthesized and analyzed to form comprehensive reports on the overall progress of the Ministry's initiatives and activities. These findings will be compiled into an Annual Progress Report, which will be published to provide insights into the Ministry's achievements, challenges, and future plans.

In parallel, each line department and agency under the MoAL will be responsible for collecting and collating data pertinent to their specific functions and areas of operation. These individual agencies will analyze their respective data to assess their progress and performance over the year. The results of this analysis will be documented in their own Departmental Annual Progress Reports. These reports will serve to highlight the achievements, address the challenges encountered, and outline strategic plans for the coming year within each department.

By ensuring both the PPD and individual line agencies actively participate in the reporting process, the MoAL aims to maintain a transparent, comprehensive, and accurate account of the Ministry's performance. This dual-reporting mechanism will facilitate better coordination, resource allocation, and strategic planning across the entire Ministry.

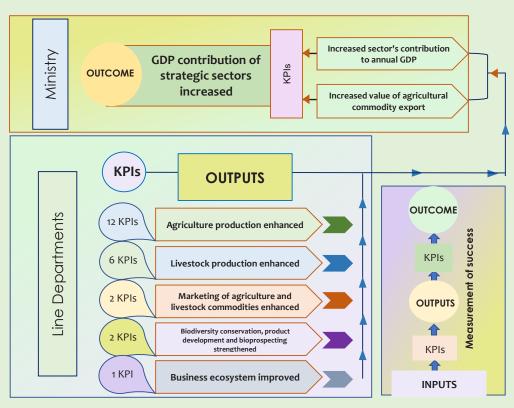


Fig. 10: 13<sup>th</sup> FYP KPI Matrix



# CHAPTER FIVE: PARTNERSHIPS AND COLLABORATIONS



Recognizing the intricate interplay between agriculture, livestock, food and nutrition security, biodiversity, environmental sustainability, and economic growth, the Ministry's 13<sup>th</sup> FYP places a significant emphasis on enhancing agricultural productivity, supporting smallholder farmers, promoting valuable products for export, conserving biodiversity through sustainable practices, and creating a conducive business environment. In this endeavor, partnerships and collaborations emerge as indispensable tools for leveraging resources, expertise, and innovation towards achieving the ambitious goals set forth. The diverse range of stakeholders spans across government agencies, nongovernmental organizations (NGOs), research institutions, private sector entities, development partners, international organizations, and local communities. Each stakeholder contributes distinct strengths, resources, and perspectives, fostering a collaborative approach towards achieving the Ministry's ambitious 13<sup>th</sup> FYP goals. As part of a broad partnership approach to achieving our vision, the Ministry continues to deepen its collaboration with the stakeholders; achieving the vision of the Ministry's 13th FYP will require the energy and commitment of all the stakeholders mentioned below.

- Agricultural farm businesses: Agricultural farm businesses such as
  private sectors, individual farmers, farmer groups, cooperatives and
  federations including youth and women serve as critical stakeholders in
  the agrifood sector due to their central role in the production, processing,
  and distribution of food, and community engagement.
- 2. Value chain partners: Partners in the agricultural value chain such as input suppliers, farmers, processors and manufacturers, distributors and wholesalers, retailers, food service providers, consumers, regulatory bodies, investors, financial institutions and consumers are vital due to their essential roles in the production, processing, distribution, and marketing of agricultural products.
- 3. State-owned enterprises: State-owned agrifood enterprises and their partner organizations play a crucial role in supporting farmers, ensuring food security, promoting value addition, and enhancing the overall competitiveness and sustainability of the agrifood sector.
- 4. Research and extension bodies: Academic institutions, research centers and extension bodies play a critical role in strengthening the agricultural sector by generating knowledge, building capacity, providing

- technical support, facilitating technology transfer, informing policies, and promoting innovation and collaboration.
- 5. Civil society organizations: Civil society organizations (CSOs) play a crucial role in strengthening the agricultural sector through their diverse activities and initiatives on advocacy for policy reforms, building capacity, empowering communities, promoting sustainable practices, facilitating market access, fostering innovation, monitoring progress, and fostering collaboration among stakeholders.
- 6. Standard bodies: Standard bodies play a crucial role in strengthening the agrifood sector by establishing standards that promote uniformity in production methods, product quality, packaging, and labeling to build consumer confidence and facilitate trade.
- Consumer advocacy groups: Consumer advocacy groups play a significant role in strengthening the agricultural sector by advocating for policies and practices that promote transparency, sustainability, and consumer welfare.
- 8. Development partners: The support of the development partners through its technical expertise, financial resources, and policy support to seize the opportunities and address key challenges in the agricultural sector is critical. International organizations' support in the agrifood sector contributes to achieving the SDGs by tackling critical issues such as poverty, hunger, health, education, gender equality, water and sanitation, energy, economic growth, innovation, sustainable consumption and production, climate change, and biodiversity conservation.
- 9. Governments: The central and local governments play an instrumental role in strengthening the agricultural sector by providing policy support, infrastructure investment, research and extension services, input subsidies, market interventions, financial assistance, trade promotion, environmental conservation, and disaster management.
- 10. Community: The Bhutanese and the global community, at large, play a crucial role in strengthening the agricultural sector through their collective efforts, knowledge sharing, and participatory approaches.

**>>>** 

Harnessing the collective efforts and expertise of diverse stakeholders through partnerships and collaborations is imperative. By fostering inclusive, innovative, and mutually beneficial partnerships, the 13<sup>th</sup> FYP can catalyze positive change, strengthen resilience, and unlock the full potential of Bhutan's agrifood sector to improve food security, nutrition, and livelihoods for all citizens.



Annex 1: Results Matrix

		13	13 <sup>th</sup> FYP Result Matrix	t Matrix					
			Baseline		An	Annual Target	get		Target
Outcome		OIIIC	(2023)	Year 1	Year 2	Year 3	Year 4	Year 5	(505)
GDP	Increased sector's contribution to annual GDP	Nu. in million	31,126	34,861	38,596	42,331	46,066	50,000	50,000
of strategic	Increased value of								
sectors	agricultural commodity	Nu. in million	3,000 (2022)	3,600	4,200	4,800	5,400	000,9	6,000
increased	export								
Output	Output Indicators	Unit	Baseline (2023)	Year 1	Year 2	Year 3	Year 4	Year 5	Target (2029)
	Increase in paddy production	TW	40,804	45,000	47,157	49,234	51,539	54,040	54,040
	Increase in maize production	MT	25,118	27,102	28,211	29,414	30,738	31,966	31,966
	Increase in quinoa production	TW	12.88	50	100	150	200	250	250
	Increase in chili production	TM	4,848	5,951.20	6,306.70	6,751.80	7,243.70	7,665	7,665
	Increase in tomato production	MT	206	435.35	582.25	740.16	887.52	1,045	1,045
1. Agriculture Production	Increase in onion production	MT	185	329	909	788	939	1,089	1,089
Enhanced	Increase in bean production	MT	1,533	1,787.90	1,915.80	2,059.20	2,171.80	2,312	2,312
	Increase in cauliflower production	ΤM	1,063	1,342.40	1,509.43	1,630.66	1,731.59	1,815	1,815
	Increase in organic asparagus production	ΤM	1.136	2	4	9	8	10	10
	Increase in organic broccoli production	MT	14.2	15	16	18	22	25	25
	Increase in fruit production	MT	41,744	73,862	83,347	86,571	91,132	104,024	104,024

Number of weather-based crop advisory services Timeline NA crop advisory services generate and disseminate crop advisory services and disseminate generate and disseminate crop advisory services and disseminate services and disseminate crop advisory services and disseminate crop advisory services are discretized including CSA Number 119 129 139 149 159 169 169 160 160 160 160 160 160 160 160 160 160						Weekly	Weekly	Weekly	Weekly	
generate and disseminate  Number of technologies  Output indicators  noticease in milk production  Increase in geg production  MT  1,165  MT  1,165  MA  Namediated rabies and bovine  Input indicators  Unit  Baseline  NA  NA  NA  NA  NA  NA  NA  NA  NA  N		Number of weather-based				during	during	during	during	Weekly
generate and disseminate         critical stage         critical stage         critical stage         critical stage         critical critical critical critical critical stage         critical critical critical critical stage         critical critical critical critical critical critical critical stage         critical critical critical critical critical critical critical stage		crop advisory services	Timeline	NA		crop	crop	crop	crop	during crop
Number of technologies         Number         119         129         139         149         159         169           generated including CSA technologies         Number         119         129         139         149         159         169           Output Indicators         Unit         Baseline (2023)         Year 1         Year 2         Year 3         Year 4         Year 5         169         169           Increase in milk production production         MT         43,828         49,860         55,890         61,922         67,953         73,984           Increase in chicken production         MT         1,165         1,532         1,499         1,666         1,833         2,000           Increase in fish production         MT         1,590         1,651         1,713         1,774         1,845           Increase in fish production         MT         43         75         125         167         208         250           Obtain official recognition of freedom from PPR, dog-mediated rabies and bovine brunchlosis in Bhutan         NA         NA         NA         Na         A         2003         23,795         25,900         23,795         25,900         23,790		generate and disseminate		-(	,	critical	critical	critical	critical	critical stage
Number of technologies         Number         119         129         139         149         159         169           technologies         Baseline         Year 1         Year 2         Year 3         Year 3         Year 4         Year 5         169         169           Output Indicators         MT         43,828         49,860         55,890         61,922         67,953         73,984           Increase in milk production         MIIIon         86         115         121         139         1,666         1,835         2,000           Increase in chicken         MT         1,165         1,650         1,651         1,713         1,774         1,845           Increase in prok production         MT         43         75         125         167         208         250           Obtain official recognition         MT         43         75         125         167         208         250           Obtain official recognition         MA         ABseline         Year 1         Year 3         Year 3         Year 4         Year 5           Input Indicators         Unit         Baseline         Year 1         Year 3         Year 3         Year 4         Year 5           Total number o						stage	stage	stage	stage	
generated including CSA technologies         Number         119         129         139         149         159         169           Cutput Indicators         Unit (2023)         Baseline (2023)         Year 2 (2023)         Year 2 (2023)         Year 3 (2022)         Year 4 (2023)         Year 5 (2023)         179         160         174         Year 5 (2023)         173         174         Year 5 (2023)         174         Year 5 (2023)         1774         174         Year 5 (2023)         1774         174		Number of technologies		$'$ $\Lambda$ $()$						
Output Indicators         Unit         Baseline (2023)         Year 1         Year 2         Year 3         Year 3         Year 4         Year 5           Increase in milk production         MT         43,828         49,860         55,890         61,922         67,953         73,984           Increase in egg production         MT         1,165         1,15         1,21         139         156         174           Increase in chicken         MT         1,165         1,532         1,499         1,666         1,833         2,000           Increase in fish production         MT         1,590         1,600         1,651         1,713         1,774         1,845           Increase in fish production         MT         43         75         125         167         208         250           Obtain official recognition         MT         43         75         125         167         208         250           Obtain official recognition         MA         A3         75         125         167         208         250           Input Indicators         Unit         Baseline         Year 1         Year 2         Year 3         Year 4         Year 5           Total number of bovine         Dose <td></td> <td>generated including CSA</td> <td>Number</td> <td>119</td> <td>129</td> <td>139</td> <td>149</td> <td>159</td> <td>169</td> <td>169</td>		generated including CSA	Number	119	129	139	149	159	169	169
Output Indicators         Unit         Baseline (2023)         Year 1         Year 2         Year 3         Year 3         Year 4         Year 5         Year 3         Year 4         Year 5	1	technologies								
Increase in milk production         MT         43,828         49,860         55,890         61,922         67,953         73,984           Increase in egg production         MIIIon         86         115         121         139         156         174           Increase in chicken         MT         1,165         1,332         1,499         1,666         1,833         2,000           Increase in production         MT         43         75         125         167         208         250           Obtain official recognition         MT         43         75         125         167         208         250           Obtain official recognition         NA		Output Indicators	Unit	Baseline (2023)	Year 1	Year 2	Year 3	Year 4	Year 5	Target (2029)
Increase in egg production   MII   1,165   1,332   1,499   1,666   1,833   2,000     Increase in chicken   MT   1,165   1,332   1,499   1,666   1,833   2,000     Increase in pork production   MT   4,390   1,600   1,651   1,713   1,774   1,845   1,845     Increase in fish production   MT   4,390   1,600   1,651   1,713   1,774   1,845   1,845     Increase in fish production   MT   4,300   1,600   1,651   1,713   1,774   1,845   1,845     Increase in fish production   MT   4,300   1,600   1,650   1,650     Increase in fish production   MT   4,300   1,600   1,650   1,7487   1,845   1,713   1,774   1,845   1,		Increase in milk production	MT	43,828	49,860	55,890	61,922	67,953	73,984	73,984
Increase in chicken         MT         1,165         1,332         1,499         1,666         1,833         2,000           Increase in production         MT         1,590         1,600         1,651         1,713         1,774         1,845         1           Increase in fish production         MT         43         75         125         167         208         250         250           Obtain official recognition         Obtain official recognition         NA         NA         NA         NA         3         3           mediated rabies and bovine brucellosis in Bhutan         Unit         Baseline brucellosis in Bhutan         Year 1         Year 3         Year 3         Year 4         Year 5           Total number of bovine semen doses produced         Dose         17,487         19,590         21,690         23,795         25,900         28,000			Million	98	115	121	139	156	174	174
Increase in pork production MT 43 75 125 167 208 250  Obtain official recognition of freedom from PPR, dog-nicellosis in Bhutan  Input Indicators  Dose  Increase in fish production  MI 43 75 125 167 208 250  Itimeline  NA  Baseline  Vear 1  Year 2  Year 3  Year 4  Year 5  19,590  21,690  21,690  22,795  25,900  28,000		Increase in chicken production	MT	1,165	1,332	1,499	1,666	1,833	2,000	2000
Obtain official recognition of freedom from PPR, dog- mediated rabies and bovine brucellosis in Bhutan Input Indicators  Total number of bovine semen doses produced  Dose  Increase in fish production  NA  Baseline (2023) Timeline NA  Timeline NA  Baseline (2023) Total number of bovine semen doses produced  Total number of bovine semen doses produced	100+101:1	Increase in pork production	MT	1,590	1,600	1,651	1,713	1,774	1,845	1,845
Obtain official recognition of freedom from PPR, dog- mediated rabies and bovine brucellosis in Bhutan Input Indicators  Total number of bovine Dose 17,487 19,590 21,690 23,795 25,900 28,000	. Livestock	Increase in fish production	MT	43	75	125	167	208	250	250
cators         Unit         Baseline (2.023)         Year 1         Year 2         Year 3         Year 4         Year 5           of bovine produced         Dose         17,487         19,590         21,690         23,795         25,900         28,000	Enhanced	Obtain official recognition of freedom from PPR, dogmediated rabies and bovine brucellosis in Bhutan	Timeline	AN					6	5
of bovine Dose 17,487 19,590 21,690 23,795 25,900 28,000 produced		Input Indicators	Unit	Baseline (2023)	Year 1	Year 2	Year 3	Year 4	Year 5	Target (2029)
		Total number of bovine semen doses produced	Dose	17,487	19,590	21,690	23,795	25,900	28,000	28,000

	Total quantity of liquid	,							
	nitrogen produced and	Liter	71,653	80,370	89,000	98,000	106,500	115,225	115,225
	supplied to Al Centres								
	Acreage of improved pasture	Acre	25.565	26.500	27.500	28.500	29.500	30.565	30.565
	developed		-000-	//	22007	//	2266-	(2)(2)	6-66-6
	Total number of layer DOCs	4	7, 5,	0 0 0	0,000	007	0	0	0 0
	produced and distributed	Nulliber	555,495	500,5/0	043,240	090,112	754,905	/50//00	/50,/00
	Total number of piglets	1 - 1	278	7000,	000	1	-)-01		
	produced and distributed	Number	12,013	14,000	16000	1/,/25	19,303	21,000	21,000
	Total number of fingerlings			-	-				
	produced and distributed	Number	1,654,527	1,971,622	2,288,716	2,605,810	2,922,905	3,240,000	3,240,000
	Number of large-scale	304	~ 2		,	(	(	,	(
	livestock farms established	Maillogi	V.		7	ç	ç	7	2
	Acreage of winter fodder	Acre	210 6	003 6	2 500	003 6	003 6	003 6	11 517
	production	Acres (	2,91/	2,300	2,300	2,300	2,300	2,300	/16,41
	Output Indicators	Unit	Baseline (2023)	Year 1	Year 2	Year 3	Year 4	Year 5	Target (2029)
3. Marketing	Number of Grand Challenge/			7	(				
of agriculture	Premium Quality Product	Number	0	5	_		-		7
and livestock	developed for export								
commodities	Number of new export	1	,			,	,	,	ı
enhanced	markets established	Nulliber	7	3		-	-	-	ς
	Input Indicators	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Target
			(2023)			,		,	(505)

50	7 4	50	481	118
∞	-	10	30	15
01		10	30	15
01	-	10	30	15
∞		10	30	51
9		10	30	15
8	0	°	331	43
Number	Number Number	Number	Number	Number
Number of Farmer Groups and Cooperatives strengthened through instituting effective and operational Internal Control System	Number of Agri-fod economic hubs established Number of Farmer Groups and Cooperatives consolidated and upgraded to Federations	Number of Farmer Groups/ Cooperatives linked with Gyalsung Academies, GMC and export market	Number of linkages institutionalized between Farmers Group/Cooperatives and schools, institutions (Monastic and Education), and hospitals	Number of agrifood enterprises established or strengthened

5 (2 new and 3 enhancement of existing platforms)	Target (2029)	21	50	Target (2029)	5	16	5,000	2,900
-	Year 5	3	10	Year 5	2	1	1,000	100
-	Year 4	1	10	Year 4	1		1,000	100
-	Year 3	2	10	Year 3	1	1	1,000	100
-	Year 2	1	10	Year 2	(1)		1,000	100
-	Year 1		01	Year 1			1,000	100
3	Baseline (2023)	14		Baseline (2023)		14		2,400
Number	Unit	Number	Number	Unit	Number	Number	Number	Number
Number of digital platform for enhanced agricultural marketing improved/ developed	Output Indicator	Number of bioprospecting initiatives increased	Number of new species discovered or new records for Bhutan	Input Indicators	Number of value-added products developed (Quantity)	Number of ABS products developed (Value)	Number of key native ornamental plants propagated	Number of new registered users acquired for the Bhutan Biodiversity Portal with increased observations record
				4. Biodiversity	conservation, product development	bioprospecting		

Annex 2: Implementation Plan

	Project 1: Large scale commercial farming	ing					
	Implementation Plan						
7	: - : - V	Budget			Timeline	ē	
Outputs	Activities	(Nu Mn)	γ1	Y2	Y3	Υ4	Υ5
	Activity 1: Promote innovative agriculture farms (150 ac) 2 chirup farm	324.12					
Agricuiture	Activity 2: Establish Commercial farms (4 nos)	400					
Enhanced	Activity 3: Promote large-scale commercial farms (Total area: 435 acres) at Yarjugang, Wangduephodrang	250					
	Activity 1: Establishment of large-scale Broiler farm in Tsirang, Samdrupjongkhar, Samtse each with 10,000 birds producing 270MT annually	125					
Livestock	Activity 2: Construction (turnkey) of clean chicken processing plant with allied facilities (Dagana (Lhamoizingkha) & Samtse) and linking value chain actors	110					
Production Enhanced	Activity 3: Establish large scale fattening farms in 4 Dzongkhags of Dagana, Sarpang, Samtse and Samdrupjongkhar each with capacity of 200 fattener level/farm.	101					
	Activity 4: Establish large scale high tech pig breeding farm in Samtse with capacity of 240 sow level	150					
	Activity 5: Establish Chirup commercial Carp farms in Samdrupjongkhar and Dagana with the capacity to produce 15 MT each annually	40					
Marketing of agriculture and livestock	Activity 1: Consolidation and upgradation of farmer group and cooperatives to federation – dairy federation, poultry federation, cardamom federation	10					
commodities enhanced							

-			-	
Activity 2: Establishing and strengthening farmer groups including	09			
youth groups, and cooperatives for supplies to four Gyalsung academies				
(vegetables, fruits and livestock products), GMC and export markets				
(asparagus, broccoli, ginger, turmeric, cardamom, chili).				
Activity 3: Institutionalization of agrifood supplies to schools,	40			
institutions (Monastic and Education) and hospitals (Productive				
alliances, offtake agreements, essential post-harvest inputs, revision of				
the concept, identification of schools)				
Activity 4: Support agrifood business through provision of value	85			
addition equipment, processing facilities, product development,				
packaging, logistics, and digitalization in strategic locations				
Activity 5: Improve and integrate existing digital platforms for enhanced	12			
marketing (commodity exchange, AMIS, e- commerce platform, digital				
database of FGs/Co-ops., etc.)				
Activity 6: Establishment of market infrastructures, main outlet for sale	70			
of products from all 20 dzongkhags; formation of aggregators, linking				
with potential processors, retailers, wholesalers, vendors; capacity				
building.				
Activity 7: Establish Agrifood Economic Hub in Paro for high value	140			
export commodities				
Activity 8: Establish Agrifood Economic Hub in Sarpang for domestic/	147			
export marketing of bulk commodities				
TOTAL BUDGET	2,064.12			

	Project 2: Building resilience of smallholder farmers	farmers					
	Implementation Plan						
7	or jeginger V	Budget			Timeline	е	
Outputs	Activities	(Nu Mn)	Υ1	Υ2	۲3	Y4	Υ5
	Activity 1: Construction/renovation of irrigation channels	905.99					
	Activity 2: Installation of fencing	5100					
	Activity 3: Implement Million Fruit Tree Project (MFTP) to enhance the production of high-value fruits and nuts for food and nutrition security and income generation	625.5					
	Activity 4: Enhance self-sufficiency of rice through irrigation, land development, mechanization, input subsidy, research, and production support services (25% to 30% SSR)	194.00					
	Activity 5: Self-sufficiency of maize enhanced through research and production input supports	15					
Agricuiture Production	Activity 6: Self-sufficiency of wheat crop enhanced through improved seed and research	56					
Enhanced	Activity 7: Self-sufficiency of essential vegetable enhanced (Chili, onion, tomato, cauliflower, and beans) enhanced through protected cultivation and other production input services (41% to 62%)	689.14					
	Activity 8: Production of potatoes through the support of strategic production inputs, research, and development	88					
	Activity 9: Production of mushrooms by supporting private entrepreneurs with necessary equipment, skill development, research and development	27.8					
	Activity 10: Generate and promote innovative agriculture technologies through R&D and support services, including CSA technologies	140.2					
	Activity 11: Strengthen Agro-meteorology services and institute index-based crop insurance to enhance adaptation to climate change impacts	59					

agriculture and livestock commodities enhanced	Marketing of agriculture and livestock commodities enhanced agriculture and livestock commodities enhanced			
IOIAL BODGE!	Co:Co//oi		_	

	Project 3: Promotion of high value products for export markets	export markets					
	Implementation Plan						
7	- 14: -14- A	Budget		T	Timeline	a	
Outputs	Activities	(Nu Mn)	١٨	Y2	٧3	Y4	Υ5
	Activity 1: Production of high-value Asparagus & Broccoli through improved	48					
Agriculture	management practices						
Production	Activity 2: Establish commercial strawberry farm (Greenhouse -100m*24 m and 19.7	19.7					
	supply of runners)						
Enhanced	Activity 3: Establish mushroom enterprises by empowering mushroom entre-	20					
	preneurs						
•	Activity 1: Enhance honey production and marketing (blossom honey & cream	36					
Livestock	honey (72 MT); comb honey (8.5 MT), pot honey (Putka) (2.5MT): Total 83 MT						
production	Activity 2: Enhance fish production (Trout - 30 MT by 2029)	116					
eiiiiaiiced	Activity 3: Enhance production of Cage free eggs for export market (10 million)	5					

Marketing of	Marketing of         Activity 1: Grand Challenge/Premium Quality Product Development for High         17.5	17.5		
agriculture and livestock	End Market Activity 2: New Market Exploration and Establishment	50	+	
commodities enhanced				
	TOTAL BUDGET	312.2		

<b>a</b> .	Project 4: Enhancing ecosystem services from sustainable and resilient biodiversity innitiatives	ilient biodivers	ity inn	itiative	Š		
	Implementation Plan						
244	Activities	Budget		T	Timeline	<b>a</b>	
Outputs		(Nu Mn)	γ1	Y2	Y2 Y3 Y4	Y4	Y5
Biodiversity	Activity 1: Utilization of Native animal and plant genetic resources through 53	53					
conservation,	product diversification and valuation						
product devel-	Activity 2: Revenue generation through Biodiversity Initiatives	24					
opment and	Activity 3: Strengthening biorepository and ex-situ conservation facilities to 24	24					
bioprospecting	prevent species extinction in the country						
strengthened							
	TOTAL BUDGET	101					

	Project 5: Improving business ecosystem	sm.					
	Implementation Plan						
1	20 j. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Budget		ï	Timeline	a)	
Outputs	Activities	(Nu Mn)	Y1	Y2	Y3	Y4	Υ5
Business ecosystem	Business ecosystem Activity 1: Agriculture Bill of Bhutan						
improved	Activity 2: Livestock Bill of Bhutan (Amendment)						
	Activity 3: Cooperatives Act of Bhutan (Amendment)						
	Activity 4: Institute credit access facility						
	Activity 5: Institute crop and livestock insurance scheme	1,500					
	Activity 6: Develop National Biodiversity Strategies and Action Plans (NBSAP)						
	Activity 7: Construct and relocate MoAL Secretariat Building	300					
	Activity 8: Monitor and evaluate plan programs and projects						
	TOTAL BUDGET	1,800					

Annex 3: Resource Mapping

	Remarks	Secured	Explore/ Propose										Secured
	Funding Source	GOI-PTA	ESP	RGoB	Samdrupjongkhar- GEF	Tsirang-BRECSA Samtse-RGoB	ESP	Samdrupjongkhar- GEF	Dagana-	Samtse- Sarpang- BRECSA	RGoB		GOI-PTA
ning	Budget (Nu Mn)	324.12	400	550		125	110		101		150		40
Project 1: Large scale commercial farming	Activities	Activity 1: Promote innovative agriculture farms (150 ac) 2 chirup farm	Activity 2: Establish Commercial farms (4 nos)	Activity 3: Promote large-scale commercial farms (Total area: 435 acres) at Yarjugang, Wangduephodrang	Activity 1: Establishment of large-scale Broiler farm in Tsirang, Samdrupjongkhar, Samtse each with 10000 birds producing	270MT annually	Activity 2: Construction (turnkey) of clean chicken processing plant with allied facilities (Lhamoizingkha, Dagana & Samtse) and linking value chain actors	Activity 3: Establish large scale fattening farms in 4 Dzongkhags of Dagana, Sarpang, Samtse and Samdrupjongkhar each with	capacity of 200 fattener level/farm.		Activity 4: Establish large scale high tech pig breeding farm in Samtse with capacity of 240 sow level	Activity 5: Establish Chirup commercial Carp farms in	Samdrupjongkhar and Dagana with the capacity to produce 15 MT each annually
	Outputs		Agriculture Production Enhanced					Livestock Production	Ennanced				

	Activity 1: Consolidation and upgradation of farmer group and cooperatives to federation – dairy federation, poultry	10	GEF, BRECSA,	
	federation, cardamom federation		CAKLEP, EU	
	Activity 2: Establishing and strengthening farmer groups			
	including youth groups, and cooperatives for supplies to four		RGoB, BRECSA,	
	Gyalsung academies (vegetables, fruits and livestock products),	09	CARLEP, GEF, EU	
	GMC and export markets (asparagus, broccoli, ginger, turmeric,			
	cardamom, chili).			
	Activity 3: Institutionalization of agrifood supplies to schools,			
	institutions (Monastic and Education) and hospitals (Productive		RGoB, BRECSA,	
	alliances, offtake agreements, essential post-harvest inputs,	40	CARLEP, GEF	
Marketing of	revision of the concept, identification of schools)			
agriculture and	Activity 4: Support Agrifood business through provision of value		V 3 2 4 4 4 7 4	
livestock commodities	addition equipment, processing facilities, product development,	85	CABLEB CEF FIL	
enhanced	packaging, logistics, and digitalization in strategic locations		CANLER, UEF, EU	
	Activity 5: Improve and integrate existing digital platforms for		(SVVLIIJ) OVJ	
	enhanced marketing (commodity exchange, AMIS, e- commerce	12	WED (RRECSATA)	
	platform, digital database of FGs/Co-ops., etc.)		WER (BRECSATA)	
	Activity 6: Establishment of market infrastructures, main			
	outlet for sale of products from all 20 dzongkhags; Formation	C	ARECCA CARLED	lei tre d
	of aggregators, linking with potential processors, retailers,	2	הוורט, כחוובו	- מו כומו
	wholesalers, vendors; capacity building.			
	Activity 7: Establish Agrifood Economic Hub in Paro for high	0	V)II	Evolore
	value export commodities	140	SICA	LAPIOIE
	Activity 8: Establish Agrifood Economic Hub in Sarpang for	, ,	RRECCA	
	domestic/export marketing of bulk commodities	/+-		
	TOTAL BUDGET	2,064.12		

	Project 2: Building resilience of smallholder farmers		
Outputs	Activities	Budget (Nu Mn)	Funding Source
	Activity 1: Construction/renovation of irrigation channels	905.99	GOI-PTA
	Activity 2: Installation of fencing	5,100	RGoB (1.5B from
			GOI-PTA)
	Activity 3: Implement Million Fruit Tree Project (MFTP) to enhance the production of high-value fruits and nuts for food and nutrition security and income generation	625.5	RGoB, EU
	Activity 4: Enhance self-sufficiency of rice through irrigation, land development, mechanization, input subsidy, research, and production support services (25% to 30% SSR)	194.00	RGoB
	Activity 5: Self-sufficiency of maize enhanced through research and production input supports	15	RGoB
Aoriculture	Activity 6: Self-sufficiency of wheat crop enhanced through improved seed and research	56	RGoB
Production Enhanced	Activity 7: Self-sufficiency of essential vegetable enhanced (Chili, onion, tomato, cauliflower, and beans) enhanced through protected cultivation and other production input services (41% to 62%)	689.14	RGoB, EU
	Activity 8: Production of potatoes through the support of strategic production inputs, research, and development	88	RGoB
	Activity 9: Production of mushrooms by supporting private entrepreneurs with necessary equipment, skill development, research and development	27.8	RGoB
	Activity 10: Generate and promote innovative agriculture technologies through R&D and support services, including CSA technologies	140.2	RGoB
	Activity 11: Strengthen Agro-meteorology services and institute index-based crop insurance to enhance adaptation to climate change impacts	59	RGoB, WFP-AF
	Activity 12: Production of Nutri-cereals (Quinoa & buckwheat) through the support of strategic production inputs, research and certification.	30.73	FAO, GEF
	Activity 13: Area brought under sustainable land development	180	RGoB

	Activity 1: Intensify dairy breed improvement program for enhanced milk production	343	RGoB
	to achieve 85% of the total milk consumption through domestic production		
	Activity 2: Support resilient and climate smart dairy farming practices	201	RGoB, EU
	Activity 3: Enhance animal nutrition services for enhanced productivity	179	RGoB
	Activity 4: Enhance input support for increased egg and chicken production	291	RGoB, EU
	Activity 5: Enhance input support for increased pork production	26.89	RGoB, EU
	Activity 6: Heighten farm biosecurity standards in all pig farms to protect resilience of the farms	53	всов, моан
	Activity 7: Enhance input support for fish production	174	RGoB, EU
	Activity 8: Enhance highland livestock productivity and rangeland management	107	RGoB, GEF, FAO
Livestock Production Enhanced	Activity 9: Ongoing Trial and Research for Development of High Value Livestock Products	250.5	RGoB, GEF, FAO
	Activity 10: Eliminate PPR, dog-mediated rabies and bovine brucellosis in Bhutan	73	RGoB, World
	through application of strategies outlined in the National official control pro-		Organization for
	gramme, and eventually applying for official recognition by WOAH for PPR free,		Animal Health
	dog-mediated Rabies free and bovine brucellosis free status of Bhutan.		(WOAH)
	Activity 11: Strengthen laboratory diagnostic facilities and veterinary epidemiology	102	RGoB, WOAH,
	services to enhance service efficiency and increase productivity		EU
	Activity 12: Strengthen clinical veterinary service delivery to enhance livestock pro-	498	RGoB, WOAH,
	ductivity and ensure animal welfare		EU
	Activity 13: Strengthen veterinary services to optimize resource allocation and allevi-	5	RGoB
	ate the financial burden on the government		
Marketing of agriculture and	Activity 1: Establish 'Sanam Tshongkhang' Farm Shops in viable locations	6/2	RGoB
livestock commodities enhanced			
	TOTAL BUDGET	10,705.83	

	Project 3: Promotion of high value products for export markets	S	
Outputs	Activities	Budget (Nu Mn)	Funding Source
Adriculture	Activity 1: Production of high-value Asparagus & Broccoli through improved management practices	48	GEF, BRECSA, RGoB, EU
Production	Activity 2: Establish commercial strawberry farm (Greenhouse -100m*24 m and supply of runners)	19.7	RGoB
Enhanced	Activity 3: Establish mushroom enterprises by empowering mushroom entrepreneurs	20	FAO-TCP, RGoB
:	Activity 1: Enhance honey production and marketing (blossom honey & cream honey (72 MT); comb honey (8.5 MT), pot honey (Putka) (2.5MT): Total 83 MT	96	RGoB, GOI-PTA
Livestock Production Enhanced	Activity 2: Enhance fish production (Trout - 30 MT by 2029)	116	GOI-PTA, RGoB
	Activity 3: Enhance production of Cage free eggs for export market (10 million)	5	RGoB
Marketing of agriculture and	Activity 1: Grand Challenge/Premium Quality Product Development for High End Market	17.5	EU, FAO
livestock commodities en- hanced	Activity 2: New Market Exploration and Establishment	50	EU-TAAS, WFP-BRECSA TA, FAO
	TOTAL BUDGET	312.2	

nt biodiversity innitiatives	Budget (Nu Funding Source Mn)	ITPGRFA (International Treaty on Plan Genetic Resoruces for Food and Agriculture), Crop Trust, EU  24 CHANEL  AGOB, BTFEC	101
Project 4: Enhancing ecosystem services from sustainable and resilient biodiversity innitiatives	Activities	Activity 1: Utilization of Native animal and plant genetic resources through product diversification and valuation (NUS), BOLD Activity 2: Revenue generation through Biodiversity Initiatives Activity 3: Strengthening biorepository and ex-situ conservation facilities to prevent species extinction in the country	TOTAL BUDGET
Project 4: Enhand	Outputs	Biodiversity conservation, product development and bioprospecting strengthened	

	Project 5: Improving business ecosystem		
Outputs	Activities	Budget (Nu Mn)	Funding Source
	Activity 1: Agriculture Bill of Bhutan		RGoB
	Activity 2: Livestock Bill of Bhutan (Amendment)		RGoB
	Activity 3: Cooperatives Act of Bhutan (Amendment)		RGoB
	Activity 4: Institute credit access facility		RGoB
Business ecosystem improved	Activity 5: Institute crop and livestock insurance scheme	1,500	BIOFIN (TA sup-
			port), RGoB
	Activity 6: Develop National Biodiversity Strategies and Action Plans (NBSAP)		NBSAP-GEF
	Activity 7: Construct and relocate MoAL Secretariat Building	300	RGoB
	Activity 8: Monitor and evaluate plan programs and projects		EU
	TOTAL BUDGET	1,800	

Annex 4: Division of Responsibility Framework (DoRF) for the 13th Five Year Plan

SI. No.	Activities	Regulation (Policy, target setting, overall monitoring)	Financing (Outlay)	Implementation (feasibility, estimates, and execution)	External Technical Support (expertise/ skills)
	Promotion of Large-scale commercial farming for increased farmer's income and Agri-economic development	g for increased fa	armer's income	and Agri-economic de	evelopment
1	Large scale commercial poultry, piggery and fishery farms	DOL MOAL	DOL, MoAL	LGs/SOE/Private Sector	DOL MoAL
2	Large scale commercial agricultural farms	DOA MOAL	DOA MOAL	LGs/FMCL/RBP/Private	DOA MoAL
				Sector	
	Enhance support to subsistence farming for improved livelihood and food security	farming for imp	roved livelihoo	d and food security	
	А	AGRICULTURE SERVICES	ICES		
1	Crop Production Prioritization (National)	DOA MOAL	DOA MOAL	DOA MoAL	DOA MoAL
2	Crop Production Prioritization (Dzongkhag level)	TGs \	FGs	LGs	LGs
3	Million Fruit Tree Project	DOA MoAL	DOA MOAL	LGs/Desuups	DOA MoAL
4	Enhance self-sufficiency of rice, cereals, vegetables	DOA MOAL	DOA MOAL	LGs	DOA MoAL
			(for targets		
			provided by the Department)		
5	Chain link fencing	DOA MoAL	DOA MoAL	LGs	DOA MoAL
9	Land management	DOA MOAL	DOA MoAL	LGs	DOA MoAL
7	Farm mechanization	DOA MoAL	DOA MOAL	DOA MoAL	DOA MoAL
8	Input supply - fertilizers, pesticides, seeds, greenhouses	DOA MoAL	LGs.	LGs	
6	Farm roads	MOIT/MoAL	LGs.	LGs	MOIT
10	Irrigation (Major/Large)	DOA MoAL	DOA MoAL	MOIT	MOIT

11	Irrigation (Minor/small)	LGs	LGs.	LGs	MOIT
12	Human Wildlife Conflict	DOA MoAL	LGs	LGs	MOAL
13	Climate resilient agri-tech farm (greenhouse, irrigation, etc)	DOA MOAL	DOA MoAL	DOA MoAL	DOA MoAL
	LIVESTOCK SERVICES	SERVICES			
-	Enahnce self-sufficiency of dairy, meat, eggs	DOL MOAL	DOL MoAL (for targets provided by the	rgs	DOL MOAL
		1	Department)		
2	Livestock breed improvement (AI, LN2, semen sourcing and supply)	DOL MOAL	DOL MOAL	DOL MoAL	DOL MoAL
8	Input supply - DOC, piglets, fingerlings	DOL MOAL	DOL MOAL	DOL MoAL	DOL MoAL
4	Biogas	DOL MOAL	DOL/LGs	LGs	DOL MoAL
5	Animal nutrtion	DOL MOAL	DOL/LGs	DOL/LGs	DOL MoAL
	Animal Health	DOL MoAL	DOL/LGs	DOL/LGs	DOL MoAL
5	Climate resilient farming technologies	DOL MoAL	DOL MOAL	DOL MoAL	DOL MoAL
9	Enhancing farm biosecurity	DOL MoAL	DOL MoAL	דפ	DOL MoAL
7	Highland activities	DOL MoAL	DOL/LGs	DOL/LGs	DOL MoAL
8	Transboundary disease prevention (nation-wide)	DOL MoAL	DOL MOAL	DOL MoAL BFDA RBP DOFPS LGs	DOL MOAL BFDA RBP DOFPS LGs
6	Transboundary disease prevention (local)	DOL MoAL	LGs	r.Gs	DOL MOAL BFDA RBP DOFPS LGs
10	Veterinary Clinical Services	DOL MoAL	DOL MOAL	DOL/LGs	DOL MoAL
11	Human Wildlife Conflict	DOL MoAL	TCs	LGs	MOAL, MOENR (DOFPS)
	V	MARKETING SERVICES	ICES		
-	Farm shops	DAMC MoAL	DAMC MoAL	LGs/Private	DAMC MOAL

2	Farmers Groups/Cooperatives (registration, capacity building, de-registration)	DAMC MOAL	DAMC/LGs	DAMC/LGs	DAMC MOAL
3	RNR Enterprises	DAMC MOAL	DAMC/LGs/ Private	DAMC/LGs/Private	DAMC/LGs/Private
4	RNR Marketing (National level)	DAMC MOAL	DAMC/SOEs/ Private	DAMC/SOEs/Private	DAMC/SOEs/Private
5	RNR Marketing (Local level)	LGs	LGs	LGs	LGs
9	Buy back	DAMC MOAL	DAMC/SOEs/ Private	DAMC/SOEs/Private	DAMC/SOEs/Private
7	Value addition equipment	DAMC MOAL	DAMC/LGs	DAMC/LGs	DAMC MOAL
8	Exports	DAMC MOAL	DAMC/Private	DAMC/Private	DAMC/Private
6	Establishment of cold storage, warehouse, export facilitation centre, packhouse	DAMC MOAL	DAMC/Private	DAMC/Private	DAMC/Private
	)	CONSERVATION SERVICES	ICES		
1	Conservation Livestock Farms (ex-situ)	NBC MoAL	NBC MoAL	NBC MoAL	NBC MoAL
2	Conservation Livestock Farms (in-situ)	NBC MoAL	FDS	LGs	NBC MoAL
3	Bioprospecting, research, genebanks	NBC MoAL	NBC/LG	NBC/LGs	NBC MoAL



#### **Plan Formulation Team**

- 1. Dr. N. B Tamang, Specialist I, DoL
- 2. Sonam Yangchen, DCLPO, DoL
- 3. Choney Zangmo, DCAO, DoA
- 4. Kuenzang Om, DCAO, DoA
- 5. Namgay Wangdi, Sr. EDMO, DAMC
- 6. Lhaksam Chedrup, Sr. EDMO, DAMC
- 7. Mani Prasad Nirola, DCBO, NBC
- 8. Kelzang Wangchuk, BO, NBC
- 9. Karma Tshering, CPO, PPD
- 10. Sonam Pelgen, SPO, PPD
- 11. Krishna Lungeli, PO, PPD
- 12. Leki Choda, PO, PPD
- 13. Dechen Choki, NFSE, PPD
- 14. Sonam Euden, TLO, PPD