ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF AGRICULTURE AND FORESTS

IMPROVING AGRICULTURAL STATISTICS
Global Strategy

# Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS) in Bhutan



June 2018

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# Acronyms

| | |
|---|---|
| AKRAs | Agency Key Result Areas |
| APA | Annual Performance Agreement |
| BAFRA | Bhutan Agriculture and Food Regulatory Authority |
| BSS | Bhutan Statistical System |
| CPP | Country Project Proposal for Improving Renewable Natural Resources Statistics in Bhutan, November, 2014 |
| DAMC | Department of Agriculture Marketing and Cooperatives |
| DoA | Department of Agriculture |
| DoFPS | Department of Forests and Parks Services |
| DoL | Department of Livestock |
| DRC | Department of Revenue and Customs |
| FYP | Five Year Plan |
| FAO | Food and Agriculture Organization of the United Nations |
| FCBL | Food Corporation of Bhutan Limited |
| FMUs | Forest Management Units |
| GNH | Gross National Happiness |
| GNHC | Gross National Happiness Commission |
| GS | Global Strategy to Improve Agricultural and Rural Statistics |
| IdCA | In-depth Country Assessment of the National System for Renewable Natural Resources Statistics in Bhutan, August, 2014 |
| IMS | Information Management Section |
| KPI | Key Performance Indicators |
| MDGs | Millennium Development Goals |
| MoAF | Ministry of Agriculture and Forests |
| MoF | Ministry of Finance |
| MYRB | Multi Year Rolling Budget System |
| NEC | National Environment Commission |
| NFI | National Forest Inventory |
| NKRA | National Key Result Areas |
| NRDCL | Natural Resources Development Corporation Limited |
| NSB | National Statistics Bureau |
| NSC | National Strategy Coordinator |
| NSDS | National Statistics Development Strategy |
| NSS | National Statistical System |
| PEMS | Public Expenditure Management System |
| PPD | Policy and Planning Division, MoAF |
| PlaMS | Planning and Monitoring System |
| RAP | FAO Regional Office for Asia-Pacific |
| RBP | Results Based Planning |
| RGOB | The Royal Government of Bhutan |
| RNR | Renewable Natural Resources |
| RNR-GNHC | Renewable Natural Resources Gross National Happiness Committee |
| RNR-SCS | RNR Statistics Coordination Section of PPD |
| RSC | RNR Statistics Committee |
| RSD | Renewable Natural Resources Statistics Division |
| RSF | RNR Statistical Framework |
| RS-TWG | Renewable Natural Resources Statistics Technical Working Group |
| RSPN | Royal Society for Protection of Nature |

| | |
|---|---|
| SAARC | South Asian Association for Regional Cooperation |
| SDGs | Sustainable Development Goals |
| SP-RNRS | Strategic Plan for Renewable Natural Resources Statistics |
| SPARS | Strategic Plan for Agricultural and Rural Statistics |
| TA | Technical Assistance |
| WWF | World Wildlife Fund |

# Foreword

The Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS) was prepared by the Renewable Natural Resources Statistics Division (RSD) and the Policy and Planning Division (PPD) of the Ministry of Agriculture and Forests in collaboration with the stakeholders of Renewable Natural Resources (RNR) statistics in Bhutan with Technical Assistance from FAO. The main objectives of the SP-RNRS are: (a) identification of core data sets that can be delivered on time, (b) integration of RNR statistics into national statistical system, and (c) promotion of appropriate governance framework for RNR statistical system.

Ministry of Agriculture and Forests and National Statistics Bureau jointly led the preparation of the Strategic Plan for RNR Statistics (SP-RNRS). It followed a logical sequence in line with the recommendations made by FAO. Firstly, "In-depth Country Assessment of the National System for Renewable Natural Resources Statistics in Bhutan" was prepared in August 2014. Secondly, "Country Proposal for improving RNR Statistics in Bhutan" was prepared in November 2014. Lastly, the "Roadmap for the SP-RNRS", which was prepared in August 2015, guided us in formulation of this strategic plan in an organized way. We are thankful to stakeholders for providing much needed support and inputs in this venture.

We thank the FAO for providing constructive comments and for the support in preparation of this strategic plan. Contents of the SP-RNRS mirror high quality of Technical Assistance provided by FAO.

The formulation of the plan was an important step. More important now is urgent technical interventions to support the implementation of this plan. The eight projects identified by the Country Proposal should be implemented as soon as possible. Of the eight projects, we accord highest priority to the RNR census and improve quality of RNR Statistics and its access, in that order of importance.

Rinzin Dorji
**Secretary**
Ministry of Agriculture and Forests

Chhime Tshering
**Director**
National Statistics Bureau

# Executive Summary

Recognizing the need to develop a strategic plan to strengthen Renewable Natural Resources statistics that addresses current weaknesses and takes advantage of emerging opportunities and needs, the Royal Government of Bhutan (RGOB) in general and the Ministry of Agriculture and Forests (MoAF) in particular, welcomed the partnership with the Global Strategy (GS) to Improve Agricultural and Rural Statistics.

The Global Strategy is the outcome of an effort made by the UN Statistical Commission, the Food and Agriculture Organization of the United Nations (FAO), the World Bank (WB), and an extensive consultation process that involved national statistics offices, agricultural ministries, and other government institutions that produce and use agricultural and rural statistics. The purpose of the strategy is to provide a framework and methodology that will improve the quality and availability of national and international food and agricultural statistics to guide policy analysis and informed decision making. The strategy is based on three pillars:

i. *Establishment of a minimum set of core data that countries will provide to meet the current and emerging demands;*
ii. *Integration of agriculture into the National Statistical Systems (NSS) in order to meet the data needs of policy makers and other data users and to ensure data comparability across countries and over time;*
iii. *Helping countries to enhance the sustainability of the National Agricultural Statistics System through governance and statistical capacity building.*

This Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS) describes an integrated statistical system to enable timely and coherent production, management and dissemination of reliable RNR statistics in Bhutan that meets the need of its users at national, regional and global levels.

The SP-RNRS has been developed through a comprehensive assessment of the prevailing situation and stakeholder consultation to reflect the constraints, challenges and aspirations of all major stakeholders. A Roadmap document was prepared initially to reflect the formal decision by the government to proceed with the design and implementation of an accepted process for development of the plan. The Roadmap document described the principles to be adopted, the steps to be followed and structure of the plan document as agreed through an inclusive process.

This plan document has been developed in compliance to the roadmap. An In-depth Country Assessment of the National System for RNR Statistics in Bhutan (IdCA) preceded the preparation of the Roadmap. The IdCA identified that the RNR statistical system is characterized by gaps in information quality, inconsistency in data, inadequate availability and accessibility to users and inadequate human and technological capacity to meet user requirements.

This plan, therefore, provides background information about and situational analysis on RNR statistical system that provides a basis for determination of strategic objectives for the SP-RNRS. The implementation of SP-RNRS is expected to bring about transformational change of the current state of RNR statistics - characterized by gaps in information quality -

to a system that meets the requirement of relevant users, producing statistics of good quality and coverage being managed by appropriate professionals with good statistical capacity through application of modern technological tools.

The plan document is structured in three chapters; Chapter 1 describing the context and process of the plan preparation, Chapter 2 focusing on the assessment of the statistical system and Chapter 3highlighting the core action plan. The core action plan of SP-RNRS is based on the vision/mission and five strategic objectives each with a set of outputs that are translated into actionable activities. A total of 20 outputs comprise the action plan with an estimated cost of Ngultrum 258.37 million spread over 5 years (2018-2023).

# CHAPTER 1: BACKGROUND (CONTEXT & PROCESS)

## 1.1 Objective and Rationale

Statistics has always been an integral part of social and economic development. It is the basis for scientific and evidence-based decisions for national development programs and policies. Bhutan's small and developing economy is based largely on agriculture, livestock and forestry, which provide the main livelihood for about 58 percent of the total population. The Ministry of Agriculture and Forests (MoAF) or the Renewable Natural Resources (RNR) sector, comprising of agriculture (field crops and horticulture), livestock (including fishery) and forestry has a direct link with the majority of the country's poor and rural population. Hence the sector bears a special responsibility in poverty alleviation and equitable socio-economic development.

Given the strategic importance of the RNR sector in the country's socio-economic development, the sector planning and decision-making process has to be scientific and evidence-based system. Its information system has to be robust and meet the changing need of changing times. Hence a coordinated approach to the development and strengthening of the RNR statistics and information system is deemed critical.

The objectives of implementing a globally accepted process in the context of national development process are to clarify and acknowledge the importance of RNR statistics for Bhutan's development; identify the main challenges of Bhutan's RNR statistical system and to develop a strategic plan to improve the system, that is coherent to the roles, needs and high level commitment of all relevant stakeholders. The strategic plan for Bhutan, called the Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS), is based on the three pillars of the global strategy which are 1) to establish a minimum set of core data, 2) to integrate RNR statistics into the national statistical system and 3) to foster sustainability of the statistical system through governance and statistical capacity building.

## 1.2 Vision and Mission of SP-RNRS

**Vision**

An integrated system of reliable and timely RNR statistics

**Mission**

To implement a sustainable system that provides high quality and timely RNR statistics to support policy and development initiatives in Bhutan

## 1.3 Strategic Objectives of SP-RNRS

The strategic objectives of the plan are as follows:

- Improve institutional and governance framework for RNR statistics
- Meet user requirement of RNR Statistics for development initiatives
- Improve quality of RNR statistics and its access
- Develop appropriate human resources capacity
- Improve technological infrastructure & financing mechanisms

## 1.4 Development Process of SP-RNRS

### *Planning Process of SP-RNRS*

Recognizing this special need to develop a strategic plan to strengthen RNR statistics that is coherent to the roles and needs, the Royal Government of Bhutan (RGOB) in general and the Ministry of Agriculture and Forests (MoAF) in particular, have welcomed the partnership with the Global Strategy (GS) to Improve Agricultural and Rural Statistics, an outcome of the effort of the UN Statistics Commission, the UN Food and Agriculture Organization (FAO) and the World Bank.

The Global Strategy recognizes that the improvement of RNR statistics requires inclusion and integration of agriculture in the National Statistical Development Strategy (NSDS). A sequence of steps was recommended by the GS to prepare a Strategic Plan for Agricultural and Rural Statistics (SPARS) to enable integration of RNR statistics into the NSDS. In the Bhutanese context, the SPARS is called the Strategic Plan for RNR Statistics (SP-RNRS). In alignment with the global SPARS process, the process for the SP-RNRS follows the three stages of launching, assessment and planning phases.

### *The Launching*

Recognizing the importance of improving agricultural and rural statistics for overall development of the country and acknowledging relevance of the SPARS process to improve agricultural and rural statistics, the RGOB has officially committed to development and implementation of SP-RNRS by preparing a Roadmap for Strategic Plan for RNR Statistics. The roadmap document was prepared with support from GS and adopted by MoAF in September, 2015 through a stakeholder workshop on 28th August, 2015 in Thimphu. This document reflects the formal decision by the government to proceed with the design and implementation of the SP-RNRS and specifies steps to be taken, organizational structures and resources needed to carry out the work of the SP-RNRS development.

### *The Assessment*

As part of this process, the MoAF has already conducted an In-depth Country Assessment (IdCA)[1] of Bhutan's National System for RNR Statistics in August, 2014. The IdCA identified areas requiring attention to improve RNR statistics and these are discussed in Chapter 2. The MoAF also prepared a Country Project Proposal (CPP)[2] for improving RNR statistics. The document covers the short and medium term technical assistance needs of the country.

### *Planning*

Before the institutionalization of the Renewable Natural Resource Statistics Division (RSD) in August 2017, the RNR Statistics Coordination Section (RNR-SCS) of Policy and Planning Division (PPD) coordinated the process for SP-RNRS and the head of RNR-SCS was appointed as the National Strategy Coordinator (NSC). The NSC worked with a constituted committee called the RNR Statistics Committee (RSC) comprising of members from all relevant stake holders as shown in Annex 9. The work of the RSC was supported by an international and a national consultant provided by the GS. A stakeholder workshop was held on 29th September 2015 to finalize the way forward

[1] Available at http://gsars.org/wp-content/uploads/2014/10/GS-Bhutan-IdCA_Bhutan_FINAL.pdf

[2] Available at http://www.fao.org/fileadmin/templates/rap/files/Project/Global_Strategy _Country_Pages/Bhutan/GS _Country_Proposal_Bhutan.pdf

and agree on a draft conceptual framework of the SP-RNRS document. The SP-RNRS draft was discussed in details by the stakeholders, mainly the RSC members during a retreat at the end of October 2015. The technical working session revisited the stakeholder analysis, the SWOT analysis, vision, mission, strategic objectives, outputs and activities to be included in the SP-RNRS. Thereafter, it was further reviewed by the technical team of FAO-Regional Office in Bangkok and submitted back to MoAF. The SP-RNRS after incorporating changes by RSD was reviewed and technically endorsed by the Renewable Natural Resource Statistics Technical Working Group (RS-TWG). The SP-RNRS was then finally endorsed by the Renewable Natural Resource-Gross National Happiness Committee (RNR-GNHC) of MoAF.

## 1.5 The Development Planning Framework in Bhutan

Since the early 1970s, Bhutan's leadership enunciated the development philosophy of Gross National Happiness – a development approach that seeks to achieve a balance between economic development with the social, spiritual and environmental wellbeing. Since then, the country's development policies, plans and programs have been guided by this overarching development philosophy.

Bhutan's development planning is based on a five-year planning cycle. The preparation of the plan starts with drafting of Guideline for Preparation of the Five-Year Plans in consultation with all relevant stakeholders. The guideline provides a basis for the central and local government agencies to formulate their respective sectoral/local government Plans. It highlights the key challenges, national objective, strategies, key result areas and the key performance indicators at strategic level.

The 12$^{th}$Five Year Plan (2018-2023) is based on a Results Based Planning (RBP) framework. The RBP framework articulates the outcomes and outputs to achieve the Twelfth Plan objective of "achieving food self-sufficiency for a prosperous and self-reliant society living in harmony with nature". The outcomes and outputs, defined as Key Result Areas, have been identified at the National, Agency, Dzongkhag, Thromdes and Gewog levels and capture the needs and aspirations of the nation and its people.

The Plan will be monitored on an annual basis using the integrated planning, budgeting and expenditure management system. The Planning and Monitoring System (PlaMS) of GNHC, Multi Year Rolling Budget System (MYRB) of Department of National Budget, and the Public Expenditure Management System (PEMS) of Department of Public Accounts, Ministry of Finance have been integrated to share planning, budgeting and expenditure information for planning and monitoring purposes.

The Prime Minister presents salient features of the progress and challenges to the Parliament annually. A mid-term review is conducted at the highest level for development plans at central as well as Dzongkhag levels. A terminal review of the plan is normally conducted to feed into the planning guideline of the subsequent plan.

*Importance and demand for RNR statistics*

The RNR sector contributes about 17% to the GDP (NSB, 2017). It is the lead sector for food and nutrition security; source of employment for majority of the population as 60% of the population depends on natural resources for their livelihoods; primary source of raw materials for other sectors in the economy. It is the sector that has a direct link with the majority of the country's poor and hence bears a special responsibility in poverty alleviation and equitable socio-economic development.

The strategic objectives of RNR sector for the 12thFive Year Plan (2018-2023) are to achieve food self-sufficiency for a prosperous and self-reliant society living in harmony with nature. Its social objective is to enhance sustainable rural livelihoods. Environmental objective is to promote sustainable management and utilization of natural resources. Recognizing this, four key objectives of the RNR sector in the 12th plan are as follows:

1. To enhance food and nutrition security
2. To enhance the RNR sector contribution to the national economy
3. To enhance sustainable management and utilization of natural resources
4. To enhance effective and efficient delivery of RNR services

RNR program's firm linkages with National Key Result Areas (NKRA) and Agency Key Result Areas (AKRAs) in the 12FYP are defined as follows:

| **National Key Result Areas (NKRA)** | **Agency Key Result Areas (AKRA)** | **NKRA's Key Performance Indicators (KPI)** |
|---|---|---|
| NKRA 8: Water, Food and Nutrition Security Ensured | National Food Self-sufficiency and Nutrition Security Enhanced | Food self-sufficiency enhanced |
| | RNR marketing and value chain development enhanced | Commodity value chain for RNR products established |
| | Enhanced Efficiency and Effectiveness of RNR Service Delivery | Timely RNR statistical releases |

Virtually, all planning documents reiterate the importance of statistics in planning, policy formulation, and in formulation of laws and regulation, monitoring and evaluation. Indicators identified in the RNR Sector Plan for ascertaining achievements made in national and agencykey result areas are important for monitoring and evaluation of RNR programs.

Therefore, the design, planning, management and assessment of RNR programs and policies to fulfill the above objectives calls for renewed and diverse availability of timely and quality data. The crucial role of delivering adequate and timely data in the 12th Plan Period and beyond as well as the role of relevant stakeholders in doing so cannot be overemphasized. In this context, initiative to develop the SP-RNRS and to carry out adequate advocacy for the plan is a carefully considered critical step.

## 1.6 Development of RNR statistics

### 1.6.1 The National Statistical System

The Bhutan Statistical System (BSS) is a decentralized system with the National Statistics Bureau (NSB) as a central agency. The NSB has published a National Statistics Development Strategy (NSDS) in December 2014 to improve the coordination and strengthen the capacity of the National Statistical System (NSS) covering the period 2015 to 2018. The major challenges of the NSS are lack of human resources, the absence of a legal framework for the statistical activities, some data weaknesses and poor coordination among the data producers. It does not offer the users easy access to the data as desired.

The NSDS is consistent with Bhutan's overall development vision of Gross National Happiness and especially its five-year Action Plan is fully integrated in the 12$^{th}$Five Year Plan (FYP). The NSDS is also supporting the 12$^{th}$FYP as it has taken into account the data needed for the monitoring and evaluation of the plan, especially the sixteen NKRAs and various AKRAs.

The NSDS takes account of Official Statistics and technical solutions specific to a small country. It accords priority to compilation of administrative data rather than data collection through large and costly survey. The use of new statistical techniques like poverty mapping or small area estimations is also promoted

### 1.6.2 The RNR Statistical System

Prior to 1992, the Ministry of Agriculture like any other Ministries and agencies, collected RNR data as and when needed through special surveys for a project or through administrative reporting. In 1992, the statistical mandates of all ministries were centralized at Central Statistical Organization (CSO) under the then Ministry of Planning. However, as demand for data by various stakeholders diversified and increased manifolds, the CSO was not able to meet the data requirements mainly due to lack of adequate human resource capacity. This necessitated the CSO to revert back the data collection to the line ministries for their own data collection and by 1998, sector based statistical mandates were transferred back to Ministries from CSO.

Due to the need to provide cross sector information at the ministry level and to facilitate planning, monitoring and evaluation, the mandate for RNR statistics was placed at the PPD where an Information Management Section (IMS) was created. The IMS was mandated with collection, management and dissemination of RNR statistics. PPD conducted the first RNR sample survey in 1999 followed by RNR census 2000 and RNR sample surveys 2002 and 2003.

In 2004, the statistical mandates were decentralized to the departments and agencies within MoAF with the appointment of a statistical focal person and creation of an Information Management Sections (IMS) in all departments/agencies of the ministry. PPD of MoAF was mandated to provide technical backstopping and compile sub-sectoral data. Realizing that the RNR statistical system was deteriorating in terms of data quality, quantity, validity and consistency, the ministry reviewed the RNR statistical system in 2011. The review resulted in institution of a body for coordination of RNR statistical activities in the ministry as the RNR-Statistical Coordination Section (RNR-SCS) in 2012. Along with this, a RNR Statistical Framework 2012 (RSF) was also developed which documented statistical mandates across departments and agencies. "RNR Statistical Framework 2012 – An Implementation Guideline" describes the execution of statistical operations. It provides institutional mandates to individual departments/agencies for RNR statistics and to strengthen coordination mechanism, to promote use of appropriate methodologies, and capacity building. The framework sets out a statistical operations matrix defining data elements, frequency, reference period, release time schedule and identifies the agency that takes the lead role. However, the creation of Renewable Natural Resource Statistics Division (RSD) in August 2017 resulted in the institution of a technical working group for RNR statistics in MoAF as the Renewable Natural Resource Statistics Technical Working Group (RS-TWG). Also, the RSF 2012 was reviewed and revised as the Renewable Natural Resource Statistical Framework 2018 (RSF 2018). This framework will be used to guide activities in RNR statistics until alternative legal arrangements are in place.

### 1.6.3 Key Stakeholders of RNR Statistics

The primary stakeholders of RNR statistics in Bhutan are MoAF and National Statistics Bureau (NSB). Other stakeholders include the various data users, including the government agencies, private

sector, development-community and academic/research institutes. The main stakeholders of RNR data are the following;

***The Ministry of Agriculture and Forests (MoAF)***

***Policy and Planning Division (PPD)***

Prior to institutionalization of RSD, the RNR Statistical Coordination Section (RNR-SCS) under the PPD coordinated the RNR statistics and information management system. The RNR Census 2009[3] was conducted by PPD with a budget of Nu. 17.6 Million. The census development was guided by a Census Working Group consisting of staff from PPD, DoA, DoL and DoFPS. The NSB Focal Person, a Senior Statistician, served as the technical advisor to the Census Working Group.

The RNR Census 2009 intended to cover a total of 61,578 households listed as having engaged in RNR activities. The household frames for individual Gewogs were provided by the Gewog Extension Centers. The census provides data on agriculture land, crops, livestock, sale and purchase of agriculture and livestock products, inputs and pasture, social forestry, crop and livestock depredation by wildlife and farming constraints. In the case of supply and utilization of forestry products, the census used secondary data from Forestry Information Database maintained by DoFPS. Data on topography also came from Land Use Planning Project (LUPP). Secondary sources were used also in the case of data on fertilizer distribution, seed distribution, import, and purchase and distribution of food commodities.

***Department of Agriculture (DoA)***

The DoA published the Annual Agriculture Statistics, primarily covering crop related data, based on data collected from individual Gewog through the Gewog Agriculture Extension Officials in 205 Gewogs. The number of households drawn in a Gewog ranged from 10 to 50 percent, depending on the number of households in the Gewog. At the national level, the survey covers 12 percent of the total rural households in the country. The Annual Agriculture Statistics publication of the department also contained data on irrigation, farm roads and market infrastructure.

Through Food Corporation of Bhutan Limited (FCB), the government aims to maintain buffer stocks of food grains to ensure national food security. One of the important instruments as regards this would be construction of annual "Food Balance Sheet" at the national level based on the available secondary data. Potential data sources of these data are Population and Housing Census (for population data), BLSS (for per capita consumption of individual food item), DoA (for production, crop area, seed rates, use of feed, post-harvest losses), DoL (for livestock numbers and products), DRC (for net import and export data), and FCB and traders (for carry-over or change in stocks).

***Department of Livestock (DoL)***

The DoL published the Annual Livestock Statistics with data on livestock number, livestock products (amount produced, sold and consumed) based on complete enumeration of households carried out by Gewog Livestock Extension Officers in 205 Gewogs. Enumeration begins in October by the Gewog Livestock Extension Officers using a set of structured questionnaires developed by DoL and completed by December. The enumeration is closely monitored by Dzongkhag Livestock Officer and Asst. Dzongkhag Livestock Officer. The Annual Livestock Statistics includes data on

[3] reference period of RNR Census data is January-December 2008

animal numbers in government farms. Besides livestock data, DoL is the only source of data on fisheries production in the country. However, fishery data in terms of species of fishes and its production is available for the government fishery farms at Gelephu, Haa and Samrang. Fish production from water streams, rivers and lakes is unknown. However, fish exploitation from these sources is minimal as only controlled and limited sport fishery is allowed.

After final processing, data are firstly presented to senior level livestock officers headed by Director of DoL and then submitted to RNR-SCS of MoAF for their consideration and approval by the Ministry. Presented data are cross-checked by the users in mails. The cross checks involve consistency checks of the reported data against the historical data sets. No Post Enumeration Survey is conducted to assess the quality of reported data. However, large differences are always rechecked and explained. After approval the compiled data by Dzongkhag and Gewog (in Excel templates) are submitted to the RNR-SCS in PPD of MoAF for publication and dissemination. Dissemination of the data is done via MoAF's website, and in hard and soft copies.

***Department of Forests and Parks Services (DoFPS)***

The Department of Forests and Park Services (DoFPS) publishes the "Annual Forestry Facts, Figures and Trends" with information on forestry and wildlife. Main sources of data on forestry are in the form of administrative data maintained by the field offices on use of timber, non-wood forest products (NWFP), fuel wood, forest offenses, forest fire occurrence, community and private forest initiatives. Other sources of forestry information include land cover maps and data from agencies like Natural Resources Development Corporation Limited (NRDCL).Forestry data collected through various sampling methods and assessments include the National Forest Inventory, Forest Management Inventory, Forest Cover mapping and various studies on natural resources and wildlife. DoFPS completed the National Forest Inventory (NFI) and released the "National Forest Inventory Report" publication. The remote sensing assessment was carried out in parallel with the NFI and generated the Land Use and Land Cover of Bhutan 2016. The data on economic feasibility of Bhutan's forest is also available from Forest Resource Potential Assessment Report, 2012.

Study on the population status of the country's rich wildlife is a continuous process. Reports like the Tiger Report and Snow Leopard Report, etc. are the sources of information on the country's wild life. Other sources of floral and faunal data are available from World Wildlife Fund-Bhutan (WWF) and Royal Society for Protection of Nature (RSPN).

***Ministry of Labour and Human Resources (MoLHR)***

The MoLHR conducts Labour Force Survey on an annual basis. The survey gives useful information on the size, composition and economic characteristics of the urban and rural population. In addition, useful data on labour and human resources are available by sex, age, occupation, location, industry, nature of employment, and labour force participation.

The sampling frame for the survey for the rural areas is used from the Population & Housing Census of Bhutan 2005, whilst the latest *frame* (2012) developed by the National Statistics Bureau was used in the case of urban areas. Stratified two-stage sampling was adopted for the survey, in which primary sampling units (PSUs) were blocks (in urban) and the Chiwogs (in towns). Sampled PSUs were drawn by *probability proportional to size* (PPS), the size being the number of households in them. The households in the sampled blocks and Chiwogs were considered as *secondary sampling units* (SSUs). A pre-assigned number of sampled households were selected from the selected PSU's

by Circular Systematic Sampling (CSS). Overall, the survey targeted to cover a sample of 12,000 households, of which 236 households (less than 2%) were non-respondents.

***Ministry of Finance (MoF)***

MoF is the sole source of information on the government's expenditures on agricultural and rural development, including public investment and subsidies. Department of Revenue and Customs (DRC) of MoF is the main source of data on export (quantity and value) and import (quantity and value) of core crops, livestock, forestry and fisheries commodities.

The DRC publishes Bhutan Trade Statistic annually based on administrative data collected from the exit and entry points. The publication provides data at the national level and by country of sources or destination.

***National Environment Commission (NEC)***

The main focus of National Environment Commission (NEC) has been on land and agriculture, forests, air and climate, energy and minerals, biodiversity, water resources, natural disasters and waste. A proper framework to guide development, coordination and organization of environment statistics is already in place. Main stakeholders in the case of environment statistics are National Environment Commission Secretariat, PPD of MoAF, DoFPS, Gross National Happiness Commission (GNHC), National Soil Services Centre of DoA, Biodiversity Centre, National Land Commission and Ministry of Economic Affairs (Department of Geology and Mines, Hydro-Met Services Department and Department of Renewable Energy).

***Other Agencies***

Other agencies involved in the production of RNR related statics include the Department of Agriculture Marketing and Cooperatives (DAMC), Food Corporation of Bhutan Limited (FCBL), Natural Resources Development Corporation Limited (NRDCL), Department of Revenue and Customs (DRC), Bhutan Agriculture and Food Regulatory Authority (BAFRA) and Gross National Happiness Commission (GNHC).

The DAMC produces price information of agriculture commodities and farmer groups/cooperatives. The FCB publishes commodity price in the regional auction yards and disseminates it through its website. It also maintains the National Food Reserve by holding agreed levels of stock as per the requirement of the National and SAARC Food Security Reserve. NRDCL produces administrative data on supply of timber, sand, stones and boulders, processed wood and firewood, which form the core business operations of the company. In addition, it produces data on management of Forest Management Units (FMUs) and reforestation activities. The BAFRA provides import and export data on live animals, meats, cash crop, and plant materials that require certification for affecting import or export. The DRC produces external trade statistics and the Research and Evaluation Division of GNHC produces gender data from the secondary sources.

***International Cooperation in Agricultural Statistics***

International organizations have modestly participated in supporting the following activities that are intended to bring improvement in agricultural statistics:

- *Dissemination of RNR statistics (EU, IFPRI, SDC, ADB, WB)*
- *In-depth Country Assessment of the National System for RNR Statistics in Bhutan (FAO)*
- *Country Proposal for Improving Renewable Resources Statistics in Bhutan (FAO)*
- *Conduct of Livestock Pilot Sample Survey on Milk Production (FAO)*
- *Support for the development of SP-RNRS (FAO)*
- *Methodological Studies for Agricultural and Rural Statistics (ADB)*
- *Poverty Analysis (WB)*

Except for external funding provided for the 2009 RNR Census (DANIDA) and Rural-Urban Migration survey 2013 (IFAD), international support received in the field of agricultural statistics for many years has been very limited and declining. In general, the extent of international support to the production of RNR statistics has been very limited and given the critical importance of RNR statistics in the national development process, there is scope for increased international support in this field.

As stressed in the Country Proposal, the next RNR census is planned to be conducted soon after the Population and Housing Census of Bhutan (PHCB). However, RNR Census is resource intensive. Significant international assistance will be required in financing and technical assistance. Further, in line with the Country Proposal, similar types and extent of support would be required in the case of land cover mapping.

### 1.6.4 Situational analysis of the RNR Statistical system

The decentralized statistical operating system with various departments and agencies within the MoAF was confronted with numerous problems with variances in statistical coverage and methodologies with difficulties in integrating the statistics at the sector and national levels. In absence of an efficient coordination, the statistics produced by various departments/agencies remained inadequate and inconsistent. Moreover, there was inherent lack of efficiency leading to long time lag between collection and release, lack of use of common definitions and concepts, lack of long-term goals with regard to building statistical capacity and a sense of low credibility on the data produced in general because the same data is also used to evaluate the Department's and Agency's performance. In such a state, it not only hindered proper measurement of the progress and impact of those interventions, but more importantly it encumbered effective plan and program formulation.

### 1.6.5 Current Institutional Structure

Recognizing the importance of reliable and timely agriculture and rural statistics for informed policy and decision making, the Ministry of Agriculture and Forests (MoAF) created an independent division as the Renewable Natural Resources Statistics Division (RSD) to coordinate and streamline the RNR data collection, validation, harmonization and dissemination processes. The RSD is fundamentally created to generate key quality RNR data at par international standards with its focus on key data needs of agriculture, forests, livestock and natural resources. Unlike the erstwhile decentralized statistics institutional structuring and functioning, wherein the departments/agencies generated their own statistics and then routed to the Policy and Planning Division (PPD) for

dissemination, the RSD is mandated to generate and disseminate quality RNR data with high competence through better coordination of surveys, enhancement of statistical capacity, timely dissemination of RNR data and introduction of efficient and effective statistical methodologies. RSD and the departments within MoAF (DoA, DoFPs, DoL, DAMC, BAFRA, etc.) and other agencies as well as ministries and agencies outside MoAF(MoLHR, NSB, DRC, etc) will work in close liaison and establish an effective mechanism to facilitate achieving the mandates of RSD.

At the Ministerial level, a RNR-GNHC shall be the apex decision making statutory body, providing the overall strategic guidance and key policy decisions pertaining to RNR-Statistics.

For sustainability of an effective and efficient RNR statistical management system in MoAF, a Renewable Natural Resource Statistics-Technical Working Group (RS-TWG) was instituted comprising of representatives of all stakeholder Departments/Agencies both within and outside the MoAF. The Chief of the RSD will not only be a member secretary, but also provide coordination and secretarial jobs to the RS-TWG. The RS-TWG will ensure the effective implementation of policy decisions made by the RNR-GNHC.

#### *1.6.5.1 Mandates of RSD*

RSD will function under the Directorate of Services (DS) of the Ministry of Agriculture and Forests (MoAF). RSD will report directly to the Director, DS, MoAF and the mandates of the RSD are as follows;

- Generate reliable and quality RNR statistics (agriculture, livestock, forestry and allied natural resources) on time in an efficient way.
- Improve the coherence between the RNR statistics sub-sectors and improve the quality of RNR statistics through collaboration with NSB and other external agencies.
- Ensure collection of adequate and quality data by strengthening proper supervisory mechanism in the field.
- Be the official source of RNR statistics through adoption of one gateway data dissemination and publication.
- Carry out RNR census and surveys in close collaboration with NSB.
- Develop and implement RNR Statistics Standards (Questionnaire, sampling methodology & data analysis).
- Develop and maintain central database for RNR Statistics.
- Be responsible for overall coordination and facilitation of geo-informatics and remote sensing application within the Ministry.
- Release periodic RNR statistics.
- Update and maintain Country STAT-Bhutan.
- Provide technical backstopping on RNR statistics to stakeholders.
- Facilitate capacity development for RNR statistics.

# CHAPTER 2: ASSESSMENT OF THE RNR STATISTICAL SYSTEM

## 2.1 Assessment of User Satisfaction

According to findings of the IdCA, potential users are aware of official RNR statistics being collected and published on the production, trade, prices, GDP, CPI and PPI. MoF, which is one of the main users of RNR data, expressed that some crop data, especially at sub-regional level, show very wide annual variations and their reliability is questionable. Agriculture trade data are often underestimated due to unofficial import and export which cannot be taken into account in official recording.

The IdCA also reveals that quality of livestock production data collected at household levels is weak because the reference period of reporting is 'past 1 year'. There is a lack of data on breed-wise milk yield (milk production/cow).

Emerging RNR data needs of the users are considerable, but some of the data gaps mentioned by the users are outside the scope of agricultural statistics. Such out-of-scope data include yield of a crop variety by agro-ecological zone and milk yield of a livestock breed by agro-ecological zone (for DoL). By and large, users express that the access to user-oriented RNR data is readily and easily accessible.

Potential uses of RNR data are yet to be appreciated by public and private sector investors, university students and agricultural researchers. However, generally speaking, transparency and quality consciousness of the users are at very high levels. This is because all RNR data collected are mostly demand driven. Overall management and the output of the RNR Census 2009 are commendable.

Various data users have expressed the need to;

- *Improve the timeliness and frequency of dissemination of RNR data. In September 2013 publication, the NSB used provisional data of 2012's agricultural production for calculating Gross Value Added (GVA) for agriculture sector. They had to revise GVA calculations after the final data were provided by MoAF. Buyers, sellers, consumers and other institutions also need near real time data for taking more informed timely decisions;*

- *Provide quarterly data on agricultural production for GDP calculation on quarterly basis, but it is not possible for MoAF to deliver such data under the prevailing arrangements;*

- *Update data on land cover and use, covering all land classes in the country. Special attention needs to be paid to the updated analysis of agricultural land (wetland in urban areas and dry land in rural areas, in particular) and natural vegetation in urban and semi-urban areas to record both spatial and temporal changes;*

- *Provide agriculture data by agro-ecological zone for research purposes, as currently the data is provided at the national and Dzongkhag levels;*

- *Provide data for mitigation of weather and disaster risks.*

- *Enable availability of comprehensive data on: (i) primary production, infrastructure and inputs: irrigation systems and canals; fertilizer and pesticides use by crop and (ii) storage infrastructure like go-downs, cold storages, warehouses, etc.*

- *To improve calculation of Self Sufficiency Ratio (SSR) and Import Dependency Ratio (IDR), MoAF would prefer data for individual crops: per capita consumption (from BLSS database) and latest import and export (from DRC). At present Royal Monetary Authority (RMA) for the purpose of Balance of Payments Compilation does periodic survey on informal trade which may not be specific on agriculture statistics. For this, in the future, MoAF together with RMA would like to conduct a survey on informal trade on agriculture produce.*

- *Provide data on per capita consumption of livestock products (from BLSS database) and latest import and export (from DRC). For the future, users suggested conduct of a trade flow survey on informal import of livestock and livestock products. Data on pond area and pond fisheries are of good quality, but timeliness of the delivery of such data is a problem.*

- *Provide data on social forestry (community forestry, leasehold forestry and private forestry).*

Although sources of environment statistics are dispersed over a variety of data producers, users such as PPD of various ministries have good access to latest available data on environment. Updating of land cover mapping is very important. Bhutan's Greenhouse Gas (GHG) emissions were adjudged insignificant in 2000. However, continued study and monitoring of GHG emissions will be required. A repeat survey is needed in the near future.

Users expressed that, for faster access of data, the ICT needs to be strengthened in producer agencies. For this RNR data need to be fed into online Management Information System (MIS) and Information Gateways (IGs) of all agencies. The speed of data transmission needs to be accelerated through the establishment of electronic links between the central office and offices in the Dzongkhags, Gewogs (in the case of DoA and DoL) and specialized locations (DRC, DoFPS and FCB).

## 2.2 Capacity Assessment

The MoAF intends to use Enumeration Area (EA) defined by NSB in the next RNR census. The frame of agricultural households would come from Population and Housing Census of Bhutan (PHCB 2017). PHCB 2017 included questions on agricultural households to generate frame for RNR censuses and surveys. One of the purposes of this would be to build a master frame for RNR sector to promote integrated censuses and surveys approach, in line with the recommendation made by the Global Strategy.

Capacity for large-scale survey or census data processing is limited in MoAF and need to be strengthened at the soonest. MoAF is yet to make use of appropriate software (e.g. CSPro) for processing and analyzing survey and census data. Such data are currently processed in Excel and Access. Designing, data processing, analyses and documentation of previous RNR Census was all done by PPD in consultation with line departments and NSB. Therefore, there is need to develop survey data processing capacity in MoAF.

Severe constraints on RNR data collection in MoAF are partly attributed to unavailability of manpower. The number of staff in RNR Sector is very unlikely to increase in the near future and MoAF will have to manage RNR data collection, processing, reporting and dissemination by using the available staff optimally and more efficiently. In the case of annual surveys and other generic work of RNR data collection, TA will have no real impact if sustainability of the activities initiated by the TA requires an increase in manpower and funding in the future. Given above, there will be minimum requirement of Technical Assistance in running the current activities. However, substantial

TA will be required in the case of RNR census and land cover mapping, which are once in five or ten years operations.

Some Technical Assistance supported by adequate resources will be needed to bring improvement in the environmental data. NRDCL require assistance in office and computer equipment, software, training and ICT.

As severe funding constraints in RNR sector is likely to have adverse impact on its stipulated plan in the twelfth plan period (2018-2023), MoAF will not be in a position to address resources constraints in overseas training on RNR data collection through internal means.

MoAF need staff members that hold a Degree in Statistics, preferably with specialization in survey sampling. Overseas long-term and short-term training of existing staff members on these subjects is an alternative solution. Technical Assistance alone cannot narrow the knowledge gap in this field in a sustainable way. This requirement will have to be met by mobilizing resources from the proposed eight projects of CPP.

## 2.3 Assessment of Statistical Outputs

Although a substantial amount of RNR data and information are collected in Bhutan, there are deficiencies in many respects as regards the quality, consistency, data gaps, lack of standardization, inappropriate data management, insufficient analytical capacities, delays in delivery of data and contradictions.

The IdCA, CPP and Road Map process have made the following observations in terms of statistical outputs.

***On the RNR Census**:*

The outputs of the RNR census 2009 served the purpose they were intended to and all users (both in MoAF and outside MoAF) are satisfied with the outputs. Conduct of next RNR Census together with or soon after the Population and Housing Census of 2017 is a necessity. Collection of fast changing indicators should be minimized in any census. Compared to a census, BLSS is a more cost effective way of gathering household data on income, expenditure and consumption.

***On Agriculture and Crop Statistics:***

The sampling design for agriculture survey needs to be improved. The survey's emphasis has been on generating Gewog statistics for all data items. This is in line with the users' demand and user-driven strategy (for assessing food security at the sub-national levels and for calculating SSR at the sub-national levels and IDR at the national levels). However, the survey precludes MoAF from producing reasonably precise crop statistics at Gewog level. This is because sampling error of crop estimates – or any estimates, for that matter - rises rapidly as the targeted geographical area gets smaller. Furthermore, reasonably precise estimates will not be possible to generate for sporadic variables (such as area planted with green vegetables). The solution to this is to generate only national and Dzongkhag estimates for the most important crops from the survey and use RNR Census data of Gewogs, with adjustments based on Dzongkhag's estimates, in between the RNR census years.

A sample of about 10 to 50 percent in a Gewog is an acceptable, practical rule as there is no other solution to the problem at present. The IdCA mission provided an advice on calculating "sample

size" for a targeted variable for a desired precision based on the RNR 2009 census data. As regards this, it is quite possible that the sample size required for generating reasonably precise estimators of some crop statistics will be unaffordable. However, TA under GS has trained statisticians within MoAF on sampling design which resulted in improving the existing sampling design.

Non-response in agriculture sample survey is a problem because the *frame* used for the survey is old and remoteness partly contributes to high non-response rate in annual surveys. The traditional paper-based data collection and entry in computer approach leads to longer time lag and survey fatigue. Complete non-response rate was 8% in the case of RNR Census of 2009. RSD intends to bring improvement in the existing *frame* by collecting additional information on cultivated area by type (wet, dry and cash crops) from the individual households in the updated *frame* which would identify and include new units also. This action will preclude non-crop growing households in the agriculture survey domain and will definitely increase the efficiency of the sampling design.

Latest Land Use and Land Cover Maps for Bhutan are available *for* 2016. An updated Land Use and Land Cover map is a fundamental decision-making tool for a sustainable use of RNR. It is also most important element for description, study and assessment of environment. As rural to urban migration, absenteeism from the holding and rapid urbanization have caused more land fallow (or otherwise used), updated land cover map is needed soon. In this connection, FAO's Land Cover Classification System (LCCS) is recognized worldwide as a very fine and reliable method to describe the reality with a very high level of accuracy and sharpness. Its output is a comprehensive land cover characterization, regardless of mapping scale, land cover type, data collection method or geographic location. Besides LCCS has proven potential for use in agro-ecological stratification and area sampling. Further information in this regard will be sought from Global Land Cover Network initiated by FAO and United Nations Environment Program (UNEP).

***On Livestock Statistics:***

Users of annual data on livestock number are confident in the published statistics. However, reference period of reporting livestock production, sale and consumption is too long at 1 year. DoL has devised some norms and cross-checks for livestock production reported at the household level. Under the circumstances, together with the cross-checks, this is probably the best method of collection.

Complete enumeration of households is not necessary on an annual basis. For maintaining consistency and validation, focus should be on estimating livestock numbers and production. Data on consumption will be taken from BLSS results.

***On Forestry Statistics:***

In forestry sub-sector, timber-use data are reported in local measures, which are very difficult to standardize. Hence, timber use data is quality deficient.

***Other statistical outputs:***

Through FCBL the government aims to maintain buffer stocks of food grains to ensure national food security. One of the important instruments as regards this would be construction of annual "Food Balance Sheet" at the national level based on the available secondary data. Potential data sources of these data are Population and Housing Census (for population data), BLSS (for per capita consumption of individual food item), RSD(for production, crop area, seed rates, use of feed, post-harvest losses, for livestock numbers and products), DRC (for net import and export data), and FCB

and traders (for carry-over or change in stocks).Due to a lack of data on production and producer price of various food items, some of the output tables produced by NSB in "Producer Price Index" include only logging; it does not include crops and livestock products. Currently CPI and PPI are available on quarterly basis.

***Outputs identified by the CPP:***

The RNR statistical activities in the next 5 years will be centered on the following projects proposed in the CPP:

*Project 1: Bring improvement in crop statistics*
*Project 2: Bring improvement in livestock Statistics*
*Project 3: Increase institutional and HR capacity*
*Project 4: Gather and publish updated environmental data*
*Project 5: Land cover mapping*
*Project 6: Conduct of a RNR census*
*Project 7: Support to Bhutan Living Standard Survey*
*Project 8: Support to Labor Force Survey*

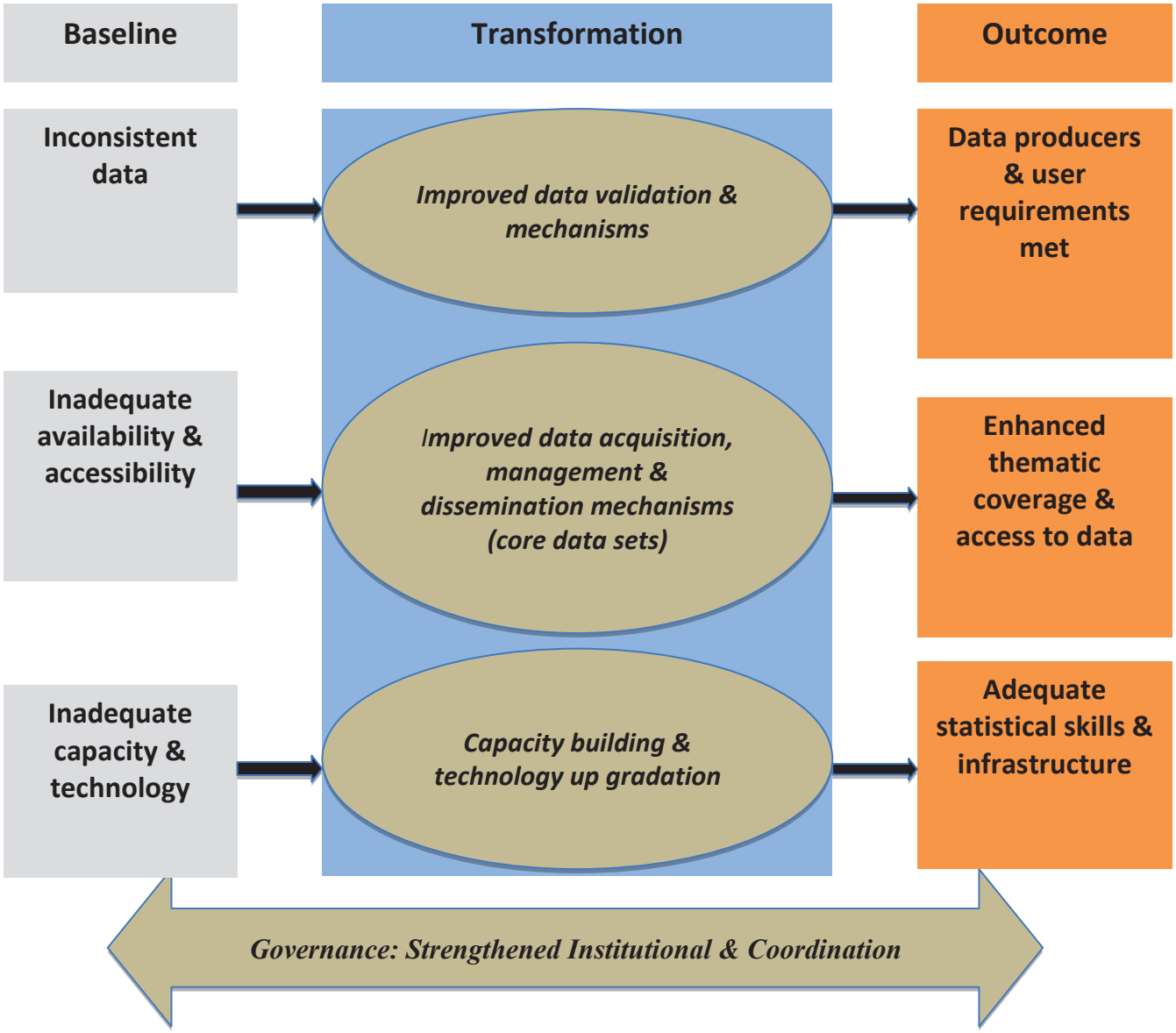
Assessment of the relevance, feasibility and sustainability of the above eight projects was done by the stakeholders. First four projects are short-term projects needing immediate attention, whilst 5-8 are medium and long-term projects that would exert lasting impact upon the RNR statistical system.

# CHAPTER 3: STRATEGIC PLAN FOR RNR STATISTICS

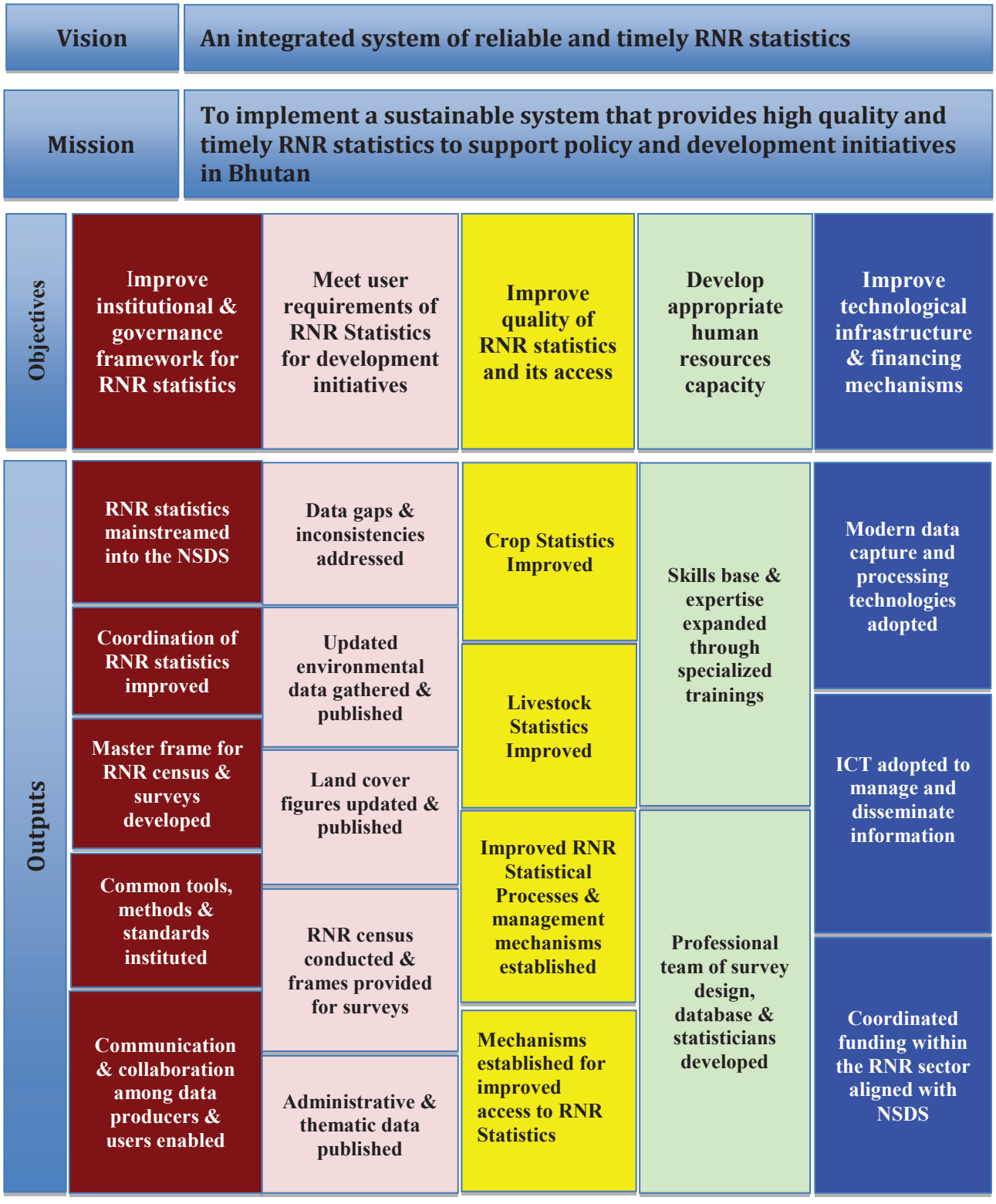
## 3.1 Core Strategies and Action Plan

### 3.1.1 The Core Strategies

The implementation of SP-RNRS is expected to bring about transformational change of the current state of RNR statistics - characterized by gaps in information quality - to a system that meets the requirement of relevant users, producing statistics of good quality and coverage being managed by appropriate professionals with good statistical capacity through application of modern technological tools.



### 3.1.2 The Core Action Plan




## 3.2 Summary of Action Plan

Arising from the situational analysis, stakeholder analysis and SWOT analysis the SP-RNRS focuses on the following strategic objective areas.

***Objective 1: Improve institutional & governance framework for statistics***

The ideal situation would be to have a national statistics act within which legal aspects of RNR statistics collection, management and dissemination are included. However, it is not certain when the proposed statistical act will be enacted. In the absence of the Act, outputs and activities under this objective will create an enabling environment for improved coordination among stakeholders and integration of RNR statistical activities with the NSDS[4].

Several ministries and agencies produce and use RNR statistics. Any change in data collection and dissemination system in an agency impacts other agencies. Therefore, an entity that represents all major stakeholders is desirable to govern development and implementation of SP-RNRS.

The RNR Statistics Technical Working Group (RS-TWG) has been constituted during the SP-RNRS process with representation of the major stakeholders both within and outside MoAF. The RS-TWG represents the process owner of SP-RNRS and will provide overall guidance to the development and implementation process of SP-RNRS. Hence the SP-RNRS will be closely monitored and its progress reviewed by the RS-TWG.

It will function as a think tank to define and realize the broad vision for the RNR statistical system and provide professional guidance on technical matters such as selecting better approaches (list frame/area frame/linking censuses etc.), calendar of censuses and surveys, integrated framework for surveys, etc. The list of the RS-TWG members is presented in Annex 8.

In summary, this objective comprises of the following outputs.

- ✓ *RNR statistics mainstreamed into the NSDS*
- ✓ *Overall coordination of the RNR statistics within and beyond RNR sector improved*
- ✓ *Master frame for RNR census and surveys developed linking it to PHCB*
- ✓ *Common tools, methods and standards across the sector instituted*
- ✓ *Communication and collaboration among data producers and users enabled*

***Objective 2: Meet user requirements of RNR Statistics for development initiatives***

The RNR data use assessment provides useful information on the expectation of different users and their perspective on the present status. In order to meet user requirements for RNR statistics, SP-RNRS defines outputs for addressing emerging data gaps and enabling improved production of agriculture, livestock, environmental and forestry as well as administrative and thematic data. The SP-RNRS includes a list of core data sets (Annex 3) to be collected and reported regularly to meet agricultural and rural development measurement needs at international as well as national level.

In September 2015, United Nations adopted the 2030 Agenda for Sustainable Development which contains a set of 17 global Sustainable Development Goals (SDGs)containing 169 targets for the next 15 years (i.e., up to 2030). These SDGs are devised through integration and balancing of Economic, Social and Environmental dimensions of sustainable development. As compared to the MDGs, the scope of the SDGs take into account cross-cutting issues such as peace and security, governance, human rights, the empowerment of women and inequality. There are also many goals that affect different dimensions of sustainable development simultaneously. For example, goals with respect to

[4] Use of master frame (from population and housing census), inclusion of RNR statistical plans and calendars in the national statistical plans to avoid duplications, sharing of technical and training resources and regular consultations with data producers and users on statistical planning and designing.

food, water and energy need to consider human development outcomes and environmental sustainability at the same time. Cross-cutting issues such as peace and security, governance, human rights, woman empowerment, etc. affect the achievement of goals in all three dimensions of sustainable development

To enable planning as well as measurement of sustainable development interventions, there is a need to align the RNR statistics to measurements of the SDGs, particularly those related to relevant targets and indicators of the following SDGs;

- *Goal 1. End poverty in all its forms everywhere*
- *Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture*
- *Goal 6. Ensure availability and sustainable management of water and sanitation for all*
- *Goal 12. Ensure sustainable consumption and production patterns*
- *Goal 13. Take urgent action to combat climate change and its impacts*
- *Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss*
- *Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development*

The SDGs require annual reporting of high-quality data from all countries. This will require much greater investments in building independent, impartial national statistical capacities and strengthening quality and standards. This implies that existing system will require continuous update and strengthening over time. As many aspects of a comprehensive SDG monitoring system can only be implemented over several years, detailed planning for this is beyond the scope of SP-NRS. Hence, the SP-RNRS includes only initial steps that need to be initiated in aligning the RNR statistics to the SDGs.

In summary, this objective comprises of the following outputs.

- ✓ *Data needs gaps, deficiencies, duplications and inconsistencies addressed.*
- ✓ *Updated environmental and forestry data gathered and published*
- ✓ *Land cover data updated and published*
- ✓ *RNR census conducted and frames provided for various surveys*
- ✓ *Other administrative and thematic data including core data sets published*
- ✓ *RNR statistics aligned with relevant SDGs' targets and indicators*

***Objective 3: Improve quality of RNR statistics and its access***

The user satisfaction assessment pointed out the weakness in RNR statistics as related to reference period, data gap, consistency and accessibility to users' specific data requirement. In order to address the weaknesses, the SP-RNRS aims to achieve the following outputs.

- ✓ *Crop statistics improved*
- ✓ *Livestock statistics improved*
- ✓ *Forestry statistics improved*
- ✓ *Improved RNR Statistical Processes & management mechanisms established*
- ✓ *Mechanisms established for improved access to RNR Statistics*

***Objective 4: Develop appropriate human resources capacity***

Capacity for large scale statistical surveys and data analysis and interpretation as well as in the use of statistical software and databases within MoAF is weak. The SP-RNRS aims to address these weaknesses through the following outputs.

- ✓ *Skills base and expertise expanded through specialized trainings*
- ✓ *A professional team of survey & census designers, database experts and statisticians developed with staggered HR succession planning*

***Objective 5: Improve technological infrastructure & financing mechanisms***

The traditional paper and pen survey method currently in practice in the MoAF is time-consuming. This effects timeliness, data quality and consistency. In order to address the above constraints, the SP-RNRS aims to achieve the following outputs.

- ✓ *Modern data capture and processing technologies adopted*
- ✓ *Information and Communication Technology (ICT) adopted to manage and disseminate information*
- ✓ *Coordinated funding strategy within the RNR sector aligned with NSDS*

The national financing component of SP-RNRS will be mobilized by way of integrating activities that pertain to national financing in the RGoB work plan and budget of the concerned stakeholders. The external financing component of the SP-RNRS will largely be sourced from donors as identified in the advocacy plan. Depending on the level of relevance, efforts will be made to align SP-RNRS components to externally- funded on-going and pipeline projects to secure funds for such components.

### 3.3 Calendar of Surveys

Different data producers related to RNR statistics conducts, distributes, and analyzes the results from a variety of surveys each year. The following calendar lists currently planned major surveys to avoid conflict in timing, harmonize field work, training and publication activities. The data producers can plan their survey activities and harmonize or such activities so that "survey fatigue" do not overburden respondents.

| Survey Name | Frequency | Responsible | 2018 | 2019 | 2020 | 2021 | 2022 | Enumeration month (s) |
|---|---|---|---|---|---|---|---|---|
| RNR Census | Quinquennial | RSD, MoAF | | | | | | January 2019 |
| Crop Survey | Bi-Annual | RSD, MoAF | | | | | | July &January |
| Livestock Survey | Bi-Annual | RSD, MoAF | | | | | | July &January |
| Forest Inventory | Decennial | DoFPS, MoAF | | | | | | January 2027 |
| BLSS | Quinquennial | NSB | | | | | | March 2022 |
| Labor Force Survey | Annual | MoLHR/NSB | | | | | | November to December |
| PHCB | Decennial | NSB | | | | | | May 2027 |

### 3.4 Advocacy – Communication Plan

The SP-RNRS represents an excellent opportunity for statistical advocacy. The design and planning phase has been a good platform for advocacy, particularly on issues such as ownership, actors, dialogue between producers and users, financing, political support and governance of the agricultural statistical system. As a result of which the RS-TWG has been established.

In order to raise the profile of statistics, which must be maintained during the implementation phase as well, the requirement for a specific communication plan on SP-RNRS has been included in the SP-RNRS. The communication plan of SP-RNRS is outlined as follows;

| Target Audience | Key Message | Mode of communication |
|---|---|---|
| Farmers | Importance of RNR data collection | Mass media, Gewog Administration |
| RNR staff | Quality of RNR data | Workshops/meetings |
| Dzongkhag Administration | Administrative support | Official letter/meeting/workshop |
| Stakeholders within and outside MoAF | Support and coordination/cooperation | Official letter/meeting/workshops |
| Policy makers | Quality statistics enhances better decision making | Policy briefs |
| Donors | Status of current RNR statistical system, SDG indicators | Proposals, correspondences, dialogues, |

### 3.5 M & E Framework

The RSD, MoAF will prepare annual work plans and budgets. The implementation and performance of the plan will be subjected to a monitoring and evaluation system as follows.

The purpose of the Monitoring and Evaluation (M&E) of SP-RNRS is two-fold:

- *To track the achievement of milestones and assess whether the strategic objectives of SP-RNRS are achieved.*

- *To enable corrective actions and ensure that the SP-RNRS continues to address emerging constraints or opportunities.*

In principle, the SP-RNRS's M&E will be conducted at outputs level (short-term) and at objectives level (long-term). A monitoring and evaluation matrix developed based on the log frame is given in Annex4.

An internal mid-term review (MTR) will be conducted by the RS-TWG in the third half year after start of the SP-RNRS implementation. Depending on the number of projects mobilized within the SP-RNRS, development partner agencies may conduct project monitoring and evaluation for such projects. Such reports will form part of the reporting by the RS-TWG and verticals beyond.

The findings from such M&E as well as regular RS-TWG reporting shall be taken into account in the discussion and decision on modification of the SP-RNRS where needed.

The chief of RSD at MoAF will report to Chair and members of RS-TWG on the progress of SP-RNRS implementation and its funding status during the biannual RS-TWG workshops/meetings.

## 3.6 Budget Overview (2018-2022)

| Outputs | Ngultrum in millions | | |
|---|---|---|---|
| | National | External | Total |
| Output 1.1:RNR statistics mainstreamed into the NSDS | 0.000 | 0.450 | 0.450 |
| Output 1.2: Overall coordination of the RNR statistics within and beyond RNR sector improved | 1.620 | 0.580 | 2.200 |
| Output 1.3: Master frame for RNR census and surveys developed using household list from PHCB | 0.038 | 0.113 | 0.150 |
| Outputs 1.4: Common tools, methods and standards across the sector instituted | 1.01 | 0.32 | 1.33 |
| Output 1.5: Communication and collaboration among data producers and users enabled | 0.00 | 0.15 | 0.15 |
| Output 2.1: Data needs gaps, deficiencies, duplications and inconsistencies addressed. | 0.10 | 0.05 | 0.15 |
| Output 2.2: Updated environmental/forestry data gathered and published | 1.20 | 1.19 | 2.39 |
| Output 2.3: Land cover figures updated and published | 0.13 | 3.71 | 3.83 |
| Output 2.4: RNR census conducted and frames provided for various surveys | 3.40 | 182.31 | 185.71 |
| Output 2.5: Other administrative and thematic data published | 2.50 | 3.59 | 6.09 |
| Output 2.6: RNR statistics aligned with relevant SDG's targets and indicator | 0.00 | 2.70 | 2.70 |
| Output 3.1: Improved RNR Statistical Processes & management mechanisms established | 0.00 | 1.45 | 1.45 |
| Output 3.2: Improve crop statistics | 1.50 | 1.32 | 2.82 |
| Output 3.3: Improve livestock statistics | 1.50 | 0.97 | 2.47 |
| Output 3.4: Mechanisms established for improved access to RNR Statistics | 0.13 | 0.78 | 0.90 |
| Output 4.1: Skills base and expertise expanded through specialized trainings | 0.00 | 5.85 | 5.85 |
| Output 4.2: A professional team of survey & census designers, database experts and statisticians developed with staggered HR succession planning | 0.00 | 23.50 | 23.50 |
| Output 5.1: Modern data capture and processing technologies adopted | 1.83 | 8.48 | 10.31 |
| Output 5.2: Information and Communication Technology (ICT) adopted to manage and disseminate information | 0.13 | 0.75 | 0.88 |
| Output 5.3: Coordinated funding strategy within the RNR sector aligned with NSDS | 4.54 | 0.50 | 5.04 |
| **Total cost** | **19.61** | **238.76** | **258.37** |

*Note: Budget details at outputs and activities levels are provided in Annex 6 and Annex 7 respectively*

# ANNEXES

## Annex 1: Stakeholder Analysis

| Stakeholders | Roles in RNR Statistics | Services Offered | Expectations |
|---|---|---|---|
| NRDCL | Rural timber supply; Forest Nursery Plantations; supply of sand, stones, stone aggregates, commercial timber, other timber resources | Data on timber supply, sand supply; Forest road and bridge construction information in rural areas; nursery; plantations; sale prices, | Support in strengthening information management at NRDCL |
| DoFPS | Information on sustainable management; Community and private forests; Carbon assessment; National Forest Inventory; NWFP management; G2C service; Endangered Flora and fauna species; Human Wildlife Conflict; Nature based eco-tourism; Management plans for PAs; Nature recreation, cultural sites and heritage forests; Forest Fire management; PES Socio-economic researches | Data on timber resources, area under sustainable forest management; Products from CF & PF; Carbon stock data; Forest resources and health; NWFP groups; Endangered species of flora and fauna; HWC hotspots, HWC incidents & compensation, HWC groups; Eco-Tourist infrastructure and income; PAs and communities and recreational/ cultural site; Income from eco-tourism; Forest fire information; PES data; conservation programs | Information of CF and PF from SFED; NWFPS products price and market information from DAMC; Collaboration with TCB |
| DAMC | Market/Consumer Prices; Auction Prices; FGs/Cooperative Information; | Provision of Weekly Weekend Market Prices; Auction prices during seasons; Inventory of FGs/Coop information | Timely data input from Dzongkhag Marketing Focal Persons; Data sourcing from NSB; Timely data input from Auction Yards; Timely reporting from Gewog/Dzongkhag Cooperative Focal persons |
| FCBL | Auction Prices; Buyback price and Selling price of RNR products; Producer groups/contact farmers information | Provision of auction prices during seasons through web and IVR uploading of auction price information on FCBL website<br><br>Provision of buying price information of RNR products on FCBL website and Information on market-oriented products on FCB website (Quality, specification and packaging) | Timely data updating from DAMC for IVR |

| Stakeholders | Roles in RNR Statistics | Services Offered | Expectations |
|---|---|---|---|
| NSB | National Accounts Report (RNR GDP); BLSS; CPI; PPI; Poverty Analysis; Gewog Database; Statistical year Book; Annual Dzongkhag Statistics | Regular publication; Survey, analysis and publication; Quarterly Publication (CPI); | Production of various RNR products from MoAF; Support from RNR; Production cost from RNR; RNR Data including administrative data from MoAF; |
| NEC | State of Environment Report; Emission from Agriculture and Livestock sector; | Annual publication of State of the Environment and GHF Report | Information on land use conversion; Forest resources extraction; Pesticides and chemical fertilizer distribution; Water sources, demand and use; Amount of organic amendment by fermented and non-fermented residue; Livestock population by location, region, breed, age group and feed intake estimates |
| DoL | Providing Livestock Related Information | Publication of Livestock information | Agencies to use this publication to calculate GDP, MDG etc. |
| ICS | Advocacy and dissemination of information | Publication (print and audio visual) and ICT services to MoAF agencies | Timely and reliable information from stakeholders |
| DoA | Land and crop statistics | Publication of crop statistics | Agencies to use this publication to calculate GDP, MDG etc. |
| MoLHR | Labour Force Survey | Publication of labor force and employment statistics | |
| DRC (MoF) | External trade statistics | Exports and imports of RNR commodities | Useful in food security analysis |
| RSD | RNR data collection, analysis, compilation and dissemination, Conduct RNR Census and surveys | Publication and dissemination<br>Mobilization of funds | Dissemination and archival of reliable and timely RNR data |

## Annex 2: SWOT Analysis

| Strengths | Weakness | Opportunities | Threats |
|---|---|---|---|
| **Institutional & Governance Framework** | | | |
| RNR Statistics Technical Working Group (RS-TWG) established as a permanent coordinating body with representation from all stakeholders | | The linkage between all the stakeholders and coordination can be strengthen through RS-TWG | |
| | Absence of a law governing statistics – the adoption of the Statistics Act is likely to be delayed. | "RNR Statistical Framework 2017– An Implementation Guideline" describes the execution of statistical operation and NSDS is in place | |
| Cooperation of RSD, stakeholders and NSB is good | Organizational review of NSB is not ascertained at the moment | Empowering NSB will strengthen statistical coordination in the sectors | |
| SP-RNRS is highly relevant to RNR policy, planning, program and strategy<br><br>It complements well with the draft Agricultural Marketing Policy | | Integration with RNR Sector Twelfth Plan (2018-2023) for period 2018to 2022 of all sectors beyond 2022. | |
| National Environment Protection Act of Bhutan 2007, mandates NECS to collect and publish report on state of environment | Lack of National/Dzongkhag level information and data on thematic issues (Land, Air, Water and Biodiversity)<br><br>Environment Information Management System maintained with NECS still rudimentary | Reliability, coverage, Timeliness, data processing, publication of environmental data is included in the NSDS.<br><br>State of Environment Report for Dzongkhag level initiated and to be produced for all Dzongkhags by 11 FYP. | |
| Strong institutional linkage between DAMC and FCBL (auction prices) & DAMC & technical departments (weekly prices, marketing of RNR products, input supply through Farm Shops) | The MIS management unit under DAMC & FCBL is weak at this moment. The linkage between relevant stakeholders on data collection/sharing/dissemination is poor | Opportunity to cover all auction yards and Dzongkhags and to liaise with RSEBL on online commodity marketing through newly established Farm Shops | No dedicated Stats Unit within DAMC and FCBL |

| Strengths | Weakness | Opportunities | Threats |
|---|---|---|---|
| **Data, Methods and Standards** | | | |
| Efforts in place to update the DoA sampling frame | Under or over estimation in DoA statistics in absence of good sampling frame, estimation technique | Full implementation of findings in IDCA and Country proposals will strengthen the DOA sampling frame and reduce estimation errors | Lack of fund for and ad-hoc transfer of trained statistical staff |
| Administrative data reporting systems in place. | Deficiencies exist in quality, consistency, data gaps, lack of standardization, inappropriate data management, insufficient analytical capacities, delays in delivery of data and contradictions. | RSC has the mandate to rectify such deficiencies and use of Common formats for Progress report compilation and data sharing | |
| The main users – MoAF and stakeholders - are directly involved in identifying the data needs as well as in production of data | Agriculture trade data are often underestimated due to unofficial imports and exports<br><br>Private sector users are not adequately consulted to define data needs | Updated frame availability for an RNR Census from the work on PHCB which is slated for 2016<br><br>RSC can include identification of private sector needs in their coordination meetings/consultation | If next RNR census and PHCB are not synchronized, linking RNR statistics, master frame for RNR census may not be achieved |
| | Sectoral requirements gets priority over a perceived soft goal of statistical development; timeliness wins against accuracy in the trade-off between the two | | Precision of the estimates obtained from sample surveys unknown<br><br>Due to remoteness, some survey or census households are not visited but interviewed at a pre-assigned place; high non-sampling errors |
| | Quality of data suffers due to complete non-response and/or item non-response; in some cases reference period of reporting is too long (1 year) | | Occurrence of rural to urban migration, sudden abandonment of land, and urbanization could make effective survey sampling difficult |
| Standard Gewog level database and dissemination is under consideration by NSB | RNR census includes fast changing indicators (such as production) and social wealth (such as social forestry). | | |
| GHG Framework in place | Published information lacks in depth analysis (*eg. Chemical fertilizer and pesticides supply and use*) | Third National Communication and First Biennial Update Report for Bhutan initiated (TNC to be completed by 2017 and BUR by 2016) | |
| Established data reporting system (developed by DITT/ICTD) in place and FCBL is in process of developing ERP | The system developed by DITT/ICTD are not fully followed due to lack of standard data collection and processing method at present. | Data sourcing and synchronization with NSB (CPI) | Lack of production clusters (village/gewog) related data on marketable surplus |

| Strengths | Weakness | Opportunities | Threats |
|---|---|---|---|
| **Data, Methods and Standards (Contd…….)** | | | |
| Data processing capacity is also improving with the technical support from NSB | The capacity of staff in both quantitative and qualitative analysis is weak | | |
| | Traditional Method of data collection and processing | Use of improved data collection and analysis methods | |
| DoL Data collected by Extension Staff with standard electronic format easy for data transfer | Shortage of manpower in certain gewogs | Collaboration with E-agriculture strategy expected to improve electronic transfer, ease of access and use of data | Delay in Publishing report on time, Due to remoteness and difficult terrain households may be missed out |
| NRDCL Data managed by Production & Marketing Division | No dedicated Information management system | Data unit/Section to be established for the purpose | |
| **Technology and Infrastructure** | | | |
| Capacity development in office and computer, equipment, training, ICT, staff training from RAP and others is a possibility | No fund or zero fund allocated for technical capacity building of the statistical staff at the head quarter and field | Collaboration with implementation of E-agriculture strategy | |
| Web-based and Mobile system already established. FCBL is in the process for trial run of new ERP (Enterprise Resource Planning) system which is a real time web based system for data management and sharing | IVR on Market prince information provided through B-mobile only | Use of other platforms - app The Bhutan Commodity Exchange under Royal Security Exchange of Bhutan Limited (RSEBL) | Since end-users are mostly farmers, dissemination platform may not suit the needs of the users |
| | Outdated ICT infrastructures | Use of modern technology to information management | Data migration and synchronization with existing systems |
| Internet connectivity (lease line, mobile broadband) across the country | Coverage mostly concentrated to urban/semi-urban areas | Online/mobile based applications can enhance timely and accurate data collection and dissemination | Telcos increasing data tariffs, policy restrictions to procure gadgets |
| Presence of laptop/desktops/smart phone in the RNR centers | Erratic power supply, lack of capacity on maintenance of available equipment | Online/mobile based applications can enhance timely and accurate data collection and dissemination | Misuse of provided equipment, policy restrictions to procure gadgets |
| Community Centers (CC) connected with internet and Government Intranet | Erratic power supply, not all CCs connected, | Extension agents can use CCs connectivity, govt. intranet is free, Online/mobile based applications can enhance timely and accurate data collection & dissemination | CCs operated by different entity (BDBL) |
| RNR staffs already familiar with smart phone usage and similar apps | Less resource for training/capacity building, | | Mentality of not using private property for govt. work |

| Strengths | Weakness | Opportunities | Threats |
|---|---|---|---|
| **Financial Resources** | | | |
| Annual RNR surveys and admin data collection activities are almost entirely funded by the government resources; sustainable; commensurate with MoF policy<br><br>Large-scale surveys (BLSS), Labour Force Survey, RNR Census and Land Cover Mapping likely to be funded by donors | | TNC and BUR funded by GEF (enabling activities). GHG inventory system resource in place. | Spending constraints in RNR Sector |
| Administrative reporting of FCBL & DAMC are as per annual budget funded by RGoB | The fund requirement is huge although it is one-time investment so RGoB cannot cover all at a time which will not be effective | Need to explore funding possibilities from projects (Few projects are supporting but in their project area only) | Limited budget provision |
| RGOB has been funding till date for the cost of survey | Needs to secure enough funds from RGOB, FAO and other Donors | | Inadequate funding from RGOB to conduct the annual survey and ad-hoc surveys. |
| Livestock census is covered by regular RGOB annual work plan and budget funding | Not enough fund to make publication, and shortage of TA/DA fund to carry out work plan | | |
| **Human Resources & Capacity** | | | |
| Technical departments/agencies have information management section (IMS) with focal person (s). | Existing capacity of the MoAF is not able to keep pace with the ever increasing demand of data - number of staff involved in RNR statistics is unlikely to increase in the near future. | Pool of experts can be developed and shared among stakeholders. Collaboration with NSB and use of Dzongkhag Statistical Officers for most of administrative data &market prices | Trained personnel transfers/separations |
| RNR extension workers handle most of the data collection works in their respective places besides providing their extension services to farmers | There is no dedicated staff for RNR statistics posted in the regions, Dzongkhags and gewogs. | Posting of adequate personnel dedicated for RNR statistics at subnational levels. | Transfer of experienced staff |
| | No assigned fund for short and long term training related RNR statistics. | SP-RNRS to include capacity development component | |
| RNR Statistics Division of MoAF | Poor HR capacity (Most of the staff lack skills and knowledge in statistics) | Strengthening RNR statistics Division with skilled HR | |

| Strengths | Weakness | Opportunities | Threats |
|---|---|---|---|
| **Communication and Dissemination** | | | |
| Well defined frequency; transparency; easy access (web-based) | Insufficient communication experts with line agencies;<br>Inadequate and untimely submission | Standardized data reporting format in sub sectors | |
| Dissemination of market information through web and Interactive Voice Response<br><br>Internet connection is well setup so sharing the information through web base system widely | Dissemination through print or media (TV) are minimal | Wider outreach by dissemination through T-Cell<br>Dissemination through print or media (TV) | |
| Publication of annual livestock statistics | | Use E-agriculture | |
| Non-departmental agency established for communication and information dissemination mandate | duplication of information and resources | A one-stop for information needs | |
| Already using multiple channels for information dissemination (radio, television, web, social media, publications, etc.) | lack of professionals | any information can be disseminated | Budget constraints |
| Website for information sharing | No database server linked to the field offices | Online database system needs to be developed | Financial and Infrastructure |
| Compilation and review of quarterly report on all NRDCL produce in alignment with the common format developed within and updating through NRDCL website and newspapers on availability of the products | Lack of proper system for data dissemination. | Develop an effective information management and sharing system | |

## Annex 3: A minimum set of core data agreed by stakeholders

| Group | Key variables | Data items | Frequency | Source of Data | Remarks |
|---|---|---|---|---|---|
| **ECONOMIC** | | | | | |
| Output | Production and harvested/planted area of core crops) | Paddy, Maize, Wheat, Barley, Buckwheat, Millet, Apple, Orange, Arecanut, Potato, Ginger, Cardamom, Mustard | Bi-Annual / 5years | Crop surveys (RSD) / RNR censuses (RSD) | Global/National |
| | Production of minor crops | Chili, Hazelnut, Coffee, Quinoa, Groundnut, Kiwi, Other vegetables, Other fruits | Bi-Annual / 5years | Crop surveys (RSD) / RNR censuses (RSD) | Global/National |
| | Production (livestock) | Beef, Pork, Mutton, Fish, Milk, Butter, Cheese, Eggs, Wool, Honey | Bi-Annual / 5years | Livestock censuses / RNR censuses (DoL and RSD) | Global/National |
| | Production (Forestry) | Timber, Woodchips, Firewood, Briquette, Cordyceps, Other NWFPs | Annual | Administrative records (DoFPS and NRDCL) | Global/National |
| Trade | Exports and Imports (Volume and Value) | Core crops, core livestock products, wood products, live animals, NWFPs and fertilizers & plant protection chemicals | Bi-Annual | Bhutan Trade Statistics (DRC) | Global/National |
| Resources | Land cover and use | Forest area, Protected forest area & Biological Corridors, | 5 years | RSD/DoFPS | Global/National |
| | | Community forestry and private forestry | Annual | DoFPS | Global/National |
| | | Agriculture area by Wetland, Dry land and Orchard | 5 years | RSD/DoA | Global/National |
| | Livestock numbers (Live animals) | Cattle, Yak, Buffaloes, Sheep, Goats, Pigs, Horses, Poultry birds | Annual / 5years | Livestock censuses / RNR censuses (DoL and RSD) | Global/National |
| | Machinery | Distribution of farm machineries and equipment (plough, rice mill, oil mill, power sprayer, power tiller, rice huller etc.) | Annual | Administrative records (DoA) | Global/National |
| | Economically active population | Number of people in working age by sex | Annual / 10 years | Labor Force Surveys (MoLHR) & PHCB (NSB) | Global/National |
| | | Number of people engage in agricultural farming by sex | Annual / 10 years | Labor Force Surveys (MoLHR) & Population Census (NSB) | Global/National |

| Group | Key variables | Data items | Frequency | Source of Data | Remarks |
|---|---|---|---|---|---|
| Inputs | Water | Quantity of water withdrawn for agricultural irrigation | | Proxy indicator is **Wetland area** | Not possible to gather and/or deliver |
| | Fertilizers in Volume and value | Qty. distribution of Suphala (NPK: 15:15:15); SSP (15% P2O); Ammonium Phosphate, CAN (15% N); Bone meal, MOP (15% K2O) | Bi-Annual | Administrative records (DoA) | Not possible to obtain value |
| | Pesticides in quantity and value | Qty. distribution of Insecticides, Fungicide, Rodenticides, Herbicides, Acaricides, Non-toxins) | Bi-Annual | Administrative records (DoA) | Not possible to obtain value |
| | Seeds in quantity and value | Qty. of seed distributed | Bi-Annual | Administrative records (DoA) | Not possible to obtain value |
| | Feed in quantity and value | Qty. of feed produced and distributed | Annual | Administrative records (DoL) | Not possible to deliver |
| | Pasture seeds in quantity and value | Qty. of pasture seed produced and distributed | Bi-Annual | Administrative records (DoL) | |
| Agro-processing | Volume and Value of core crops, livestock, fishery used in processing food | Fruits, vegetables and milk | Annual | Annual report of Bhutan Agro-Industry | Global/National |
| | Other uses (e.g. bio-fuels) | Qty. of Firewood and Briquette | Annual | Annual report of NRDCL | Global/National |
| Prices | Producer prices | Crops, livestock and forestry products identified in "Outputs" | Quarterly | Administrative records (NSB, DoA, DoL, DoFPS) | Global/National |
| | Consumer prices | Crops, livestock and forestry products identified in "Outputs" | Quarterly | Administrative records (NSB and DAMC) | Global/National |
| | PPI | Crops, livestock and forestry products identified in "Outputs" | Quarterly | NSB | Global/National |
| Final expenditure | Government expenditure on agriculture and rural development | Public investments, subsidies, etc. | Annual | Ministry of Finance | Global/National |
| | Private Investments in agriculture and rural development | Investment in machinery, in research and development, in infrastructure | Annual | Ministry of Finance | Difficult to deliver |

| Group | Key variables | Data items | Frequency | Source of Data | Remarks |
|---|---|---|---|---|---|
| | Household consumption | Consumption of core crops, livestock, etc. in Volume and value | 3 years | BLSS (NSB) | Global/National |
| Rural infrastructure (capital stock) | Irrigation/roads/ communications | Area under irrigation (Acre) | Annual | DoA | Global/National |
| | | Roads including farm roads (km) | Annual | RSD/Department of Road | Global/National |
| | | Telephone connection (Number) | Annual | | |
| International transfer | Official development assistance for agriculture and rural development | | Annual | GNHC/Ministry of Finance | Global/National |
| **SOCIAL** | | | | | |
| Demographics of urban and rural population | Sex | Sex ratio (overall) | 10 years | PHCB (NSB) | Global/National |
| | | Employment status by sex | Annual | Labor force Survey (MoLHR) | Global/National |
| | | Proportion participating in agriculture by sex | | | |
| | | Parliament members by sex | | | |
| | | Decision makers at local level (Gup, Mangmis, Tshogpas) by sex | | | |
| | Age | Population by age in completed years | 10 years | PHCB (NSB) | Global/National |
| | Country of birth | Country of birth | 10 years | | |
| | Educational status | Highest level of education completed | 10 years | | |
| | Labour status | Labor status | Annual | Labor force Survey (MoLHR) | Global/National |
| | Economic sector in employment | Employment by sectors | Annual | | |
| | Total income of household | Household consumption expenditure | 3 years | BLSS (NSB) | Global/National |
| | Household composition | Household composition by sex | 10 years | PHCB (NSB) | Global/National |
| | Number of family/hired workers on the holding | Number of family/hired workers on the holding by sex | 10 years | | |
| | Housing conditions | Type of building, building character, main material, etc. | 10 years | | |
| | Access and distance to services and social capital | Time taken to reach nearest motor-road points, service centers etc. | 10 years | | |
| **ENVIRONMENTAL** | | | | | |
| Land | Soil degradation | Degraded area by type | 5 years | MoAF (LCMP 2010) | Not possible to deliver by type |

| Group | Key variables | Data items | Frequency | Source of Data | Remarks |
|---|---|---|---|---|---|
| Water | Pollution as a result of agriculture | Calculated based on amount of fertilizer and chemical used. | | National Environment Commission | Difficult to deliver |
| Air | Emissions resulting from agriculture | | | | Not possible to deliver |
| **GEOGRAPHIC LOCATION** | | | | | |
| **Group** | **Key variables** | **Data items** | **Frequency** | **Source of Data** | **Remarks** |
| GIS coordinates | Location of the statistical unit | GIS coordinates of Enumeration Area (EA) | 10 years | PHCB and other large-scale surveys | Global/National |
| Degree of urbanization | Urban/rural area | % of people in urban area by sex, age, education and employment status | Annual / 10 years | Labour Force Surveys / PHCB | Global/National |

## Annex 4: SP-RNRS Logical Framework Matrix

| Objective | Outputs | Output Indicators | Means of verification | Assumptions |
|---|---|---|---|---|
| *Objective 1: Improve Institutional and Governance framework for statistics* | Output 1.1: RNR statistics mainstreamed into the NSDS | RNR sample surveys based on PHCB master frame by 2018 | Agriculture and livestock sample survey reports | |
| | | RNR statistical plan included in NSDS by 2019 | NSDS | NSDS revised in 2019 |
| | Output 1.2: Overall coordination of the RNR statistics within and beyond RNR sector improved | RS-TWG established and functional by 2017 | RS-TWG minutes | |
| | | National Statistical Coordination Committee mandate includes RNR statistical coordination by 2019 | National Statistical Committee ToR | National Statistical Coordination Committee established by 2019 |
| | | RNR statistical standards implemented by 2018 | Document on Standard nomenclatures, definitions, geographic codes, data security, confidentiality in place | |
| | | SP-RNRS activities included in RGOB Work plan and budget + APA for 2018-2019by 2018 | Annual plan of agencies | |
| | | SP-RNRS activities included in RGOB's 12th FYP by 2018 (2018-2022) | 12 FYP document | |
| | Output 1.3: Master frame for RNR census and surveys developed linking it to PHCB | PCHB, 2017questions include RNR questions by 2018 | PHCB, 2017questionnaire | |
| | | Master frame for all RNR census and surveys in place by 2018 | RNR Census frame | RNR Census is conducted in 2018-2019 |
| | Outputs 1.4: Common tools, methods and standards across the sector instituted | Sector wide standard data management and reporting formats adopted by 2018 | RS-TWG Meeting records | |
| | | Monitoring & evaluation system for RNR statistical implemented by 2018 | M&E report of SP-RNRS | |
| | Output 1.5: Communication and collaboration among data producers and users enabled | SP-RNRS communication plan available by 2018 | SP-RNRS Progress report | |

| Objective | Outputs | Indicators | Means of verification | Assumptions |
|---|---|---|---|---|
| ***Objective 2: Meet user requirement of RNR Statistics for development initiatives*** | Output 2.1: Data needs gaps, deficiencies, duplications and inconsistencies addressed. | Needs, gaps, and duplication in data identified among stakeholders | Central database and sample survey reports | |
| | Output 2.2: Updated environmental/forestry data gathered and published | Environmental and forestry data collected through real-time online system and managed through central database | Central database environmental/forestry survey report | |
| | Output 2.3: Land cover figures updated and published | Updated land cover data published by 2023 | Publication | |
| | Output 2.4: RNR census conducted and frames provided for various surveys conducted by the agencies & Department under MoAF | RNR census conducted using master frame by 2018-2019 | RNR Census publication | |
| | Output 2.5: Other administrative and thematic data published | Minimum core data sets at global and national levels available annually by 2019 | Core data sets | |
| | | Publication of annual Bhutan RNR Statistics | Publication | |
| | | Publication of annual Food Balance Sheet | Publication | |
| | Output 2.6: RNR statistics aligned with relevant SDG targets and indicators | Data gaps for indicators under relevant SDGs and targets identified | | |
| | | Plan of action to realize the data gaps for SDGs prepared and SP-RNRS updated. | | |
| | | Investments to enhance capacity to collect and analyze data relevant to SDG's targets and indicators identified. | | |
| | | Data gaps for relevant SDG's targets and indicators included in the annual crop, livestock and forestry surveys. | | |
| | | Data gaps for relevant SDG's targets and indicators included in the next RNR census | | |
| ***Objective 3: Improve quality of RNR statistics and its access*** | Output 3.1: Improved RNR Statistical Processes & management mechanisms established | Administrative data reporting system at Research, Central Programs, Dzongkhags and Gewogs levels streamlined by 2018 | SP-RNRS M& E report | |
| | | Data archiving and documentation system implemented by 2019 | Data archiving and documentation system | |
| | Output 3.2 & 3.3: Crop, forestry and livestock statistics improved | Crops & livestock data collected through CAPI and managed through central database by 2019 | Central database and sample survey reports | |
| | Output 3.4: Mechanisms established for improved access to RNR Statistics | RNR data dissemination protocol in place by 2018 | Protocol document | |
| | | RNR statistics updated regularly through Country STAT | M&E report of SP-RNRS | |

| Objective | Outputs | Indicators | Means of verification | Assumptions |
|---|---|---|---|---|
| ***Objective 4: Develop appropriate human resources capacity*** | Output 4.1: Skills base and expertise expanded through specialized trainings | Capacity available for survey design, data processing/analysis, data management, use of tablets for data acquisition and commodity price analysis and Food Balance Sheet by 2018 | Training records | Availability of budget |
| | Output 4.2: A professional team of survey & census designers and statisticians developed with staggered HR succession planning | 3 staff with Bachelor in statistics recruited in RNR sector by 2019 | Training records | Approval by RCSC |
| | | 3 statisticians trained with Post-Graduate Diploma in statistics by 2020 | Training records | Approval by RCSC |
| | | 3 statisticians trained with MSc. Degree by 2020 | Training records | Approval by RCSC |
| | Output 4.3:A professional team of data management and database experts developed | 3 staff trained in data management and database systems | Training records | Approval by RCSC |
| | Output 4.4:A professional team of GIS and Remote sensing experts developed | 3 staff trained in GIS and remote sensing | Training records | Approval by RCSC |
| ***Objective 5: Improve technological infrastructure and financing mechanisms*** | Output 5.1: Modern data capture and processing technologies adopted | Regional centers are equipped with servers for RNR data management | Regional center inventory | |
| | | Digital & real-time data collection system using tablets implemented including RNR Census by 2018-2019 | Online tablet use for data reporting | Availability of budget for procurement of tablets |
| | Output 5.2: Information and Communication Technology (ICT) adopted to manage and disseminate information | Centralized database for storage of validated data established and functioning at ICTD/RSD by 2018 | Central database | |
| | | RNR data dissemination common call center services established and functional | Call center existence | |
| | Output 5.3: Coordinated funding strategy within the RNR sector aligned with NSDS | Advocacy strategy for RNR statistics available by 2018 | SP-RNRS M&E report | |
| | | Project proposals for funding commitments for SP-RNRS prepared and resources mobilized | Project documents | |

## Annex 5: Implementation Matrix

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| Output 1.1: RNR statistics mainstreamed into the NSDS | 1.1.1 Develop guidelines & frameworks for RNR data collection and sharing aligned with NSDS | RNR census/survey frame developed based on PHCB | 2008 | X | | | | | RSD in consultation with stakeholders |
| | | RNR Statistical calendar incorporated in NSDS | 2012 | | X | | | | RSD in consultation with stakeholders |
| | | Sectorial Guidelines & Framework published | | X | | | | | RSD in consultation with stakeholders |
| Output 1.2: *Overall coordination of the RNR statistics within and beyond RNR sector improved* | 1.2.1 Establish RNR Statistics Technical Working Group (RS-TWG) | RS-TWG functional with clear mandate | 2017 | | | | | | RSD in consultation with stakeholders |
| | 1.2.2. Institutionalize Biannual Coordination meetings of RS-TWG, each coordination meeting with a thematic focus (data producers, university, private sector, farming community) | RS-TWG meetings held biannually | 2017 | X | X | X | X | X | RSD in consultation with stakeholders |
| | 1.2.3 Develop a standardization policy for RNR statistics defining standard nomenclatures, definitions, geographic codes, data security, confidentiality etc. | Standardization policy for RNR statistics defining standard nomenclatures, definitions, geographic codes, data security, confidentiality etc. in place | | | X | | | | RSD in consultation with stakeholders |
| | | Reports documented using above standards | | | X | | | | RSD in consultation with stakeholders |
| | 1.2.4 Statistical program of work for RSD developed and incorporated in annual work plans | Statistical activities included in RGOB plan and budget | 2017 | X | X | X | X | X | RSD in consultation with stakeholders |
| Output 1.3: *Master frame for RNR census and surveys developed linking it to PHCB* | 1.3.1 Include RNR households questions in the PHCB listing | RNR household questions included the PHCB listing form | 2016 | X | | | | | RSD in consultation with stakeholders |
| | 1.3.2 Develop frame for RNR census and surveys based on master frame | Frame for RNR census and surveys based on available | | X | | | | | RSD in consultation with stakeholders |
| Output 1.4: *Common tools, methods and standards across the sector instituted* | 1.4.1 Adopt standard data management and reporting formats by relevant stakeholders | Standard data management and reporting formats adopted by relevant stakeholders | | X | X | | | | RSD in consultation with stakeholders |
| | 1.4.2 Establish a Monitoring and evaluation system of RNR statistical development (Data quality check, plan implementation) | M&E for SP-RNRS in place | | | X | | | | RSD in consultation with stakeholders |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018 -19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| Output 1.5: *Communication and collaboration among data producers and users enabled* | 1.5.1 Develop communication plan for SP-RNRS | SPRNR communication plan in place | | X | | | | | RSD in consultation with stakeholders |
| Output 2.1: *Data needs gaps, deficiencies, duplications and inconsistencies addressed.* | 2.1.1 Stakeholder (RS-TWG+) consultation to identify data needs, gaps and duplication | Needs, gaps and duplication in data identified among stakeholders beyond RS-TWG | | X | | | X | | RSD in consultation with stakeholders |
| | 2.1.2 Stock taking of RNR statistical publications to assess and address data duplications | List of annual RNR statistical publications available | 2015 | | | | X | | RSD in consultation with stakeholders |
| Output 2.2: *Updated environmental/forestry data gathered and published* | 2.2.1 Prepare format for annual environment/forestry data collection including land, air, water, biodiversity, NWFPS and Community forestry | Format for annual environment/forestry data collection exist | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 2.2.2 Train staff on environmental data | At least 3 staff trained | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 2.2.3Train staff on data Processing and assessment | At least 3 staff trained | 2015 | | | X | | | RSD in consultation with stakeholders |
| | 2.2.4 Release annual data on environment and forest | Annual publication | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| Output 2.3: *Land cover figures updated and published* | 2.3.1 Acquire latest satellite image and processing software | Satellite image of 2021 prescribed for 4 scenes covering whole Bhutan | 2016 | | | | | X | RSD in consultation with stakeholders |
| | 2.3.2 Image processing and classification | Image processed | 2015 | | | | | X | RSD in consultation with stakeholders |
| | 2.3.3 Update land cover figures and publication | Updated (2021) land cover data available | 2016 | | | | | X | RSD in consultation with stakeholders |
| Output 2.4: *RNR census conducted and frames provided* | 2.4.1 Operational cost of Census Program (Preparations, piloting, testing, travel, TWG meetings, awareness and publicity, data collection, processing, tabulation, printing) | RNR Census conducted | 2008 | X | X | | | | RSD in consultation with stakeholders |
| | 2.4.2 Develop IT infrastructure (CAPI), application development and maintenance | IT infrastructure (CAPI), software development and maintenance in place | 2016 | X | X | | | | RSD in consultation with stakeholders |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| | 2.4.3 Training on RNR census enumeration and supervision | 650 enumerators trained | 2009 | X | | | | | RSD in consultation with stakeholders |
| | 2.4.4 RNR Census logistics and travel expenses | | 2008 | X | X | | | | RSD in consultation with stakeholders |
| | 2.4.5 TA for the conduct of sound RNR Census | Census data conducted | 2008 | X | | | | | RSD in consultation with stakeholders |
| | 2.4.6 Infrastructure development and mobility facilities for conducting RNR Census | Publication of RNR Census 2018 | 2008 | X | X | | | | RSD in consultation with stakeholders |
| Output 2.5: *Other administrative and thematic data published* | 2.5.1 Quarterly publication of PPI including crops & livestock products | Quarterly publication of PPI includes crops & livestock products | 2015 | X | X | X | X | X | NSB |
| | 2.5.2 Analysis and publication of production cost of major food crops & livestock products | Production cost of core crops available | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 2.5.3 Develop conversion factors for RNR statistical units | Conversion factors for all RNR statistical units available | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 2.5.4 Compilation of annual exports and imports RNR related data items | Export and import for all core crops, livestock and forestry products available | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| | 2.5.5 Annual population figures | Updated Demographic data available | 2015 | X | X | X | X | X | NSB |
| | 2.5.6 Support to BLSS | BLSS publication | 2012 | | X | | | | RSD in consultation with stakeholders |
| | 2.5.7 Support to annual labour force survey | Annual LFS publication | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 2.5.8 Annual publication of Bhutan RNR Statistics | | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| Output 2.6: RNR statistics aligned with relevant SDG targets and indicators | 2.6.1: Assessment of data gaps in the RNR statistics for relevant SDG's indicators and targets | List of data gaps for SDG made available | | | | X | | | RSD in consultation with stakeholders |
| | 2.6.2: Develop an addendum to SP-RNRS, that includes plan of action to realize the data gaps for SDGs | SP-RNRS contained plan of action for relevant data for SDG | | | | X | | | RSD in consultation with stakeholders |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018 -19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| | 2.6.3: Identify and secure required investments to enhance capacity to collect and analyze data | Institutional capacity enhanced through project support from international partnership. | | | X | | | | RSD in consultation with stakeholders |
| | 2.6.4: Inclusion of data gaps for SDGs in the annual agriculture, livestock and forestry data collection | Annual surveys contained data items for SDG | | X | X | X | X | X | RSD in consultation with stakeholders |
| | 2.6.5: Inclusion of data gaps for SDGs in the upcomingRNR census | Next RNR census contained data items for SDG | | X | X | | | | RSD in consultation with stakeholders |
| Output 3.1: *Improved RNR Statistical Processes & management mechanisms established* | 3.1.1 Establish administrative data reporting system at Research, Central Programs, Dzongkhags and gewogs levels | Administrative data reporting system at Research, Program, Dzongkhags and gewogs levels | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.1.2 Set up raw data quality checking mechanism | Organized raw data quality checking mechanism in place | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 3.1.3 Institute data archiving and documentation system | Data archiving and documentation system in place | 2015 | | | X | | | RSD in consultation with stakeholders |
| Output 3.2: *Crop Statistics Improved* | 3.2.1 Revise questionnaire and survey design | Revised questionnaire and survey design available that reduces non-response rate | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.2.2 Development of central database for tablet-based survey data entry | Central database available and real time field data input from tablets enabled | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.2.3 On-the-job training of staff | 10 staff trained in new survey frame and questionnaire | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.2.4 Conduct Pilot Sample Survey in large Dzongkhags (Data recording system by farmers-pilot) | Pilot Sample Survey in a large Dzongkhags conducted using the revised frame and questionnaire | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.2.5 Release crop survey results biannually | Survey reports available | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| Output 3.3: Livestock Statistics Improved | 3.3.1 Develop central database for tablet-based-survey data entry | Central database available and real time field data input from tablets enabled | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.3.2 Conduct Pilot Sample Survey in 3 Dzongkhags | Pilot Sample Survey in large Dzongkhags conducted using the revised frame and questionnaire | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.3.3 Release annual data on livestock | Sample survey publication | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| Output 3.4: *Mechanisms established for improved access to RNR Statistics* | 3.4.1 A data dissemination protocol (e.g. data release calendars, publishing annual reports) implemented | A data dissemination protocol (e.g. data release calendars for the entire sector, publishing annual reports) implemented. | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 3.4.2 Develop central data repository and sharing platform) | Central data repository and sharing platform developed | 2015 | | | X | | | RSD in consultation with stakeholders |
| | 3.4.3 Upload updated data on the CountrySTAT (a web-based system for dissemination of food and agricultural statistics) regularly | Updated data uploaded | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| Output 4.1: *Skills base and expertise expanded through specialized trainings* | 4.1.1 In-country or ex-country Short terms courses for 3 subject specialists of RSD on survey design, questionnaire design, data processing, analysis and construction of FBS | 3 subject specialists of RSD trained on survey design, questionnaire design, data processing, analysis and FBS | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 4.1.2 Ex-country short term course on data management over network based platforms to 10 officials | 10 officials trained on data management over network based platform | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 4.1.3 In-country Short term course on use of tablets and data capture for 650 field officials over 1 week | 650 field officials trained on use of tablets for data capture and real-time reporting | 2015 | X | | | | | RSD in consultation with stakeholders |
| | 4.1.4 Short term course on Commodity price analysis and projection for 10 officials (RSD and relevant stakeholders) for one month | 10 officials trained on Commodity price analysis and projection | 2015 | | X | | | | RSD in consultation with stakeholders |
| Output 4.2: *A professional team of survey & census designers, database experts and statisticians developed with staggered HR succession planning* | 4.2.1 Recruit 3 officer with Bachelor in statistics | 3 new graduates with bachelors in statistic recruited | 2015 | | | X | X | | RSD in consultation with stakeholders |
| | 4.2 2 Three Post-Graduate Diploma in statistics | 3 officials trained in Post-Graduate Diploma in statistics | 2015 | | | X | X | | RSD in consultation with stakeholders |
| | 4.2.3 Three MSc in statistics | 3 officials complete Masters course in statistics | 2015 | | X | X | | | RSD in consultation with stakeholders |
| | 4.2.4 Three officials trained on data management and database analysis | 3 officials trained | 2015 | X | X | | | | |
| | 4.2.5 Three officers trained on GIS and Remote sensing | 3 officials trained | | X | X | | | | |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| Output 5.1: *Modern data capture and processing technologies adopted* | 5.1.1 Infrastructure development at regional and central offices | Four regional centers and ICS equipped with regional servers lined electronically with the central server at ICS | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 5.1.2 Institute digital data collection system (tablet) through 3G, 4G connectivity with cost effective tablets and broadband devices | 500 tablet sets procured and used for data acquisition and real-time reporting to central server through regional servers | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 5.1.3 GIS integration in central survey database | Field data reporting contains GIS information | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 5.1.4 Establish real-time survey and administrative data entry and update system | Convert current systems to Computer-Assisted Personal Interviewing (CAPI) system to improve quality of statistics. | 2015 | | X | X | X | X | RSD in consultation with stakeholders |
| Output 5.2: *Information and Communication Technology (ICT) adopted to manage and disseminate information* | 5.2.1 Development of centralized database for storage of validated data | Centralized database for storage of validated data established at RSD/ICTD | 2015 | | X | | | | RSD in consultation with stakeholders |
| | 5.2.2 Align with common call Centre services of e-agriculture to disseminate data on commodities and prices through IVR, mobile applications, SMS, email, social media, TV, radio and the web | RNR data/information on commodities and prices accessible through common call Centre services of e-agriculture | 2015 | | | X | | | RSD in consultation with stakeholders |

| Outputs | Activities | Activity Indicators | Baseline Year | Target Year | | | | | Responsible |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | |
| Output 5.3: *Coordinated funding strategy within the RNR sector aligned with NSDS* | 5.3.1 Develop partnership and collaborative programs/projects with the external/development partners for different outputs | Number of projects developed | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| | 5.3.2 Consultations with development partners providing technical and/or financial aid in the field of statistics established through specific advocacy efforts | Number of consultations and list of commitments from potential partners to support SPRNRS | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| | 5.3.3 Develop and institute system of integrated work planning for RNR statistics and include into development plan and budget | Integrated work plan for RNR stats (SP-RNRS) SPRNRS work plan included in sector development plan and budget of concerned sectors | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| | 5.3.4 Carry out continuous research and development activities and disseminate research findings through annual publication and press conference | Annual publication on issues and solutions in RNR statistical development | 2015 | X | X | X | X | X | RSD in consultation with stakeholders |
| | 5.3.5 Develop a coherent advocacy strategy to raise the profile of RNR statistics | Communication and advocacy plan | 2015 | X | | | | | RSD in consultation with stakeholders |

## Annex 6: Budget Matrix by Outputs and Years (Ngultrums in million)

| Outputs | 2018-19 | | | 2019-20 | | | 2020-21 | | | 2021-22 | | | 2022-23 | | | 2018-2023 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | National | External | Total | National | External | Total | National | External | Total | National | External | Total | National | External | Total | National | External | Total |
| Output 1.1:RNR statistics mainstreamed into the NSDS | 0.000 | 0.200 | 0.200 | 0.000 | 0.250 | 0.250 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.450 | 0.450 |
| Output 1.2: Overall coordination of the RNR statistics within and beyond RNR sector improved | 0.200 | 0.080 | 0.280 | 0.280 | 0.500 | 0.780 | 0.280 | 0.000 | 0.280 | 0.580 | 0.000 | 0.580 | 0.280 | 0.000 | 0.280 | 1.620 | 0.580 | 2.200 |
| Output 1.3: Master frame for RNR census and surveys developed using household list from PHCB | 0.038 | 0.113 | 0.150 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.038 | 0.113 | 0.150 |
| Outputs 1.4: Common tools, methods and standards across the sector instituted | 0.500 | 0.000 | 0.500 | 0.010 | 0.320 | 0.330 | 0.000 | 0.000 | 0.000 | 0.500 | 0.000 | 0.500 | 0.000 | 0.000 | 0.000 | 1.010 | 0.320 | 1.330 |
| Output 1.5: Communication and collaboration among data producers and users enabled | 0.000 | 0.150 | 0.150 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.150 | 0.150 |
| Output 2.1:Data needs gaps, deficiencies, duplications and inconsistencies addressed. | 0.000 | 0.050 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.100 | 0.000 | 0.100 | 0.000 | 0.000 | 0.000 | 0.100 | 0.050 | 0.150 |
| Output 2.2: Updated environmental/forestry data gathered and published | 0.000 | 0.936 | 0.936 | 0.300 | 0.000 | 0.300 | 0.300 | 0.250 | 0.550 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 1.200 | 1.186 | 2.386 |
| Output 2.3: Land cover figures updated and published | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.125 | 3.707 | 3.832 | 0.125 | 3.707 | 3.832 |
| Output 2.4: RNR census conducted and frames provided for various surveys conducted by the agencies & Department under MoAF | 3.400 | 166.610 | 170.010 | 0.000 | 15.700 | 15.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.400 | 182.310 | 185.710 |
| Output 2.5: Other administrative and thematic data published | 0.500 | 1.179 | 1.679 | 0.500 | 2.412 | 2.912 | 0.500 | 0.000 | 0.500 | 0.500 | 0.000 | 0.500 | 0.500 | 0.000 | 0.500 | 2.500 | 3.591 | 6.091 |
| Output 2.6: RNR statistics aligned with relevant SDG's targets and indicators | 0.000 | 0.350 | 0.350 | 0.000 | 0.850 | 0.850 | 0.000 | 1.300 | 1.300 | 0.000 | 0.100 | 0.100 | 0.000 | 0.100 | 0.100 | 0.000 | 2.700 | 2.700 |
| Output 3.1: Improved RNR Statistical Processes & management mechanisms established | 0.000 | 0.450 | 0.450 | 0.000 | 0.504 | 0.504 | 0.000 | 0.500 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.454 | 1.454 |
| Output 3.2: Improve crop statistics | 0.300 | 1.324 | 1.624 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 1.500 | 1.324 | 2.824 |
| Output 3.3: Improve livestock statistics | 0.300 | 0.968 | 1.268 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 1.500 | 0.968 | 2.468 |
| Output 3.4: Mechanisms established for improved access to RNR Statistics | 0.125 | 0.375 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.400 | 0.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.125 | 0.775 | 0.900 |
| Output 4.1: Skills base and expertise expanded through specialized trainings | 0.000 | 1.950 | 1.950 | 0.000 | 3.900 | 3.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 5.850 | 5.850 |
| Output 4.2: A professional team of survey & census designers, database experts and statisticians developed with staggered HR succession planning | 0.000 | 0.000 | 0.000 | 0.000 | 10.000 | 10.000 | 0.000 | 8.500 | 8.500 | 0.000 | 5.000 | 5.000 | 0.000 | 0.000 | 0.000 | 0.000 | 23.500 | 23.500 |
| Output 5.1: Modern data capture and processing technologies adopted | 0.000 | 0.000 | 0.000 | 0.925 | 8.483 | 9.408 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 0.300 | 0.000 | 0.300 | 1.825 | 8.483 | 10.308 |
| Output 5.2: Information and Communication Technology (ICT) adopted to manage and disseminate information | 0.000 | 0.000 | 0.000 | 0.000 | 0.375 | 0.375 | 0.125 | 0.375 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.125 | 0.750 | 0.875 |
| Output 5.3: Coordinated funding strategy within the RNR sector aligned with NSDS | 0.620 | 0.500 | 1.120 | 0.980 | 0.000 | 0.980 | 0.980 | 0.000 | 0.980 | 0.980 | 0.000 | 0.980 | 0.980 | 0.000 | 0.980 | 4.540 | 0.500 | 5.040 |
| **Total cost (Nu)** | **5.983** | **175.235** | **181.217** | **3.595** | **43.294** | **46.889** | **3.085** | **11.325** | **14.410** | **3.860** | **5.100** | **8.960** | **3.085** | **3.807** | **6.892** | **19.608** | **238.761** | **258.37** |

## Annex 7: Budget Matrix by Activities and Years (Ngultrums in millions)

| Outputs | Activities | 2018-19 | | | 2019-20 | | | 2020-21 | | | 2021-22 | | | 2022-23 | | | 2018-2023 | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | National | External | Total | National | External | Total | National | External | Total | National | External | Total | National | External | Total | National | External | Total | |
| Output 1.1: RNR statistics mainstreamed into the NSDS | 1.1.1: Develop sectorial guidelines & frameworks for RNR data collection and sharing in alignment with NSDS | | 0.20 | 0.20 | | 0.25 | 0.25 | | | | | | | | | | | 0.45 | 0.45 | Cost of 3 Workshops and meetings of RS-TWG |
| Output 1.2: Overall coordination of the RNR statistics within and beyond RNR sector improved | 1.2.1: Establish RS TWG(Technical Working Group) | | | | | | | | | | | | | | | | | | | Update RS-TWG's ToR and endorse by RNR-GNHC |
| | 1.2.2: Institutionalize biannual coordination meetings of RS-TWG, each coordination meeting with a thematic focus (data producers, university, private sector, farming community) | | 0.08 | 0.08 | 0.08 | | 0.08 | 0.08 | | 0.08 | 0.08 | | 0.08 | 0.08 | | 0.08 | 0.32 | 0.08 | 0.40 | Cost of biannual meetings |
| | 1.2.3: Develop a standardization policy for RNR statistics defining standard nomenclatures, definitions, geographic codes, data security, confidentiality etc. | | | | | 0.50 | 0.50 | | | | | | | | | | | 0.50 | 0.50 | Local TA |
| | 1.2.4: Statistical program of work for RSD in annual work plans | 0.20 | | 0.20 | 0.20 | | 0.20 | 0.20 | | 0.20 | 0.50 | | 0.50 | 0.20 | | 0.20 | 1.30 | | 1.30 | Workshops and meetings of RS-TWG |
| Output 1.3: Master frame for RNR census and surveys developed using household list from PHCB | 1.3.1: Include RNR households questions in the PHCB listing | | | | | | | | | | | | | | | | | | | |
| | 1.3.2: Develop frame for RNR census and surveys based on master frame | 0.04 | 0.11 | 0.15 | | | | | | | | | | | | | 0.04 | 0.11 | 0.15 | Cost of 2 weeks TA |
| Outputs 1.4: Common tools, methods and standards across the sector instituted | 1.4.1: Adopt standard data management and reporting formats by relevant stakeholders | 0.50 | | 0.50 | 0.01 | | 0.01 | | | | 0.50 | | 0.50 | | | | 1.01 | | 1.01 | Cost of conducting stakeholder workshop |
| | 1.4.2: Establish a monitoring and evaluation system of RNR statistical development (data quality check & plan implementation) | | | | | 0.32 | 0.32 | | | | | | | | | | | 0.32 | 0.32 | Cost of 1 month TA on M&E |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output 1.5: Communication and collaboration among data producers and users enabled | 1.5.1: Develop communication plan for SP-RNRS | | 0.15 | 0.15 | 0.00 | | | | | | | | | | | | | 0.15 | 0.15 | Cost of developing communication plan |
| Output 2.1: Data needs gaps, deficiencies, duplications and inconsistencies addressed. | 2.1.1: Stakeholder (RS-TWG+) consultation to identify data needs, gaps and duplication | | 0.05 | 0.05 | | | | | | | 0.05 | | 0.05 | | | | 0.05 | 0.05 | 0.10 | Cost of meetings of RS-TWG and relevant stakeholders |
| | 2.1.2: Stock taking of RNR statistical publications to assess and address data duplications | | | | | | | | | | 0.05 | | 0.05 | | | | 0.05 | | 0.05 | Cost of meetings of RS-TWG and relevant stakeholders |
| Output 2.2: Updated environmental/ forestry data gathered and published | 2.2.1: Prepare format for annual environment/ forestry data collection including land, air, water, biodiversity, NWFPS and Community forestry | | 0.27 | 0.27 | | | | | | | | | | | | | | 0.27 | 0.27 | |
| | 2.2.2: Train staff on environmental data collection | | 0.37 | 0.37 | | | | | | | | | | | | | | 0.37 | 0.37 | Training cost |
| | 2.2.3: Train Staff on data processing and data analysis | | | | | | | | 0.25 | 0.25 | | | | | | | | 0.25 | 0.25 | |
| | 2.2.4: Release annual data on environment and forest | | 0.30 | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 1.20 | 0.30 | 1.50 | Cost of publication |
| Output 2.3: Land cover figures updated and published | 2.3.1: Acquire latest satellite image and processing software | | | | | | | | | | | | | | 0.72 | 0.72 | | 0.72 | 0.72 | Costs for 4 scenes of SPOT images at US$ 2700 per scene |
| | 2.3.2: Image processing and classification | | | | | | | | | | | | | | 2.61 | 2.61 | | 2.61 | 2.61 | |
| | 2.3.3 Updating of land cover figures and publication | | | | | | | | | | | | | 0.13 | 0.38 | 0.50 | 0.13 | 0.38 | 0.50 | Cost of publication |
| Output 2.4: RNR census conducted and frames provided | 2.4.1: Operational cost of Census program (preparations, piloting, testing, travel, TWG meeeting, Awareness & publicity, data collection, processing, tabulation & printing) | 2.000 | 27.00 | 29.00 | | 1.50 | 1.50 | | | | | | | | | | 2.00 | 28.50 | 30.50 | |
| | 2.4.2:Develop IT infrastructure (CAPI), app. development & maintenance | 0.400 | 53.34 | 53.74 | | 1.50 | 1.50 | | | | | | | | | | 0.40 | 54.84 | 55.24 | 1 month international TA |
| | 2.4.3:Training on RNR census enumeration and supervision | 1.000 | 8.07 | 9.07 | | | | | | | | | | | | | 1.00 | 8.07 | 9.07 | |
| | 2.4.4: RNR Census logistics and travel expenses | | 35.00 | 35.00 | | 7.70 | 7.70 | | | | | | | | | | | 42.70 | 42.70 | |
| | 2.4.5: TA for conduct of sound RNR Census | | 13.20 | 13.20 | | 5.00 | 5.00 | | | | | | | | | | | 18.20 | 18.20 | 2 weeks international TA for 9 times |
| | 2.4.6: Infrastructure development and mobility facilities for conduct of RNR Census | | 30.00 | 30.00 | | | | | | | | | | | | | | 30.00 | 30.00 | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output 2.5: Other administrative and thematic data published | 2.5.1: Quarterly publication of PPI including crops & livestock products | | | | | | | | | | | | | | | | | | | |
| | 2.5.2: Analysis and publication of production cost of major food crops & livestock products | | 0.90 | 0.90 | | | | | | | | | | | | | | 0.90 | 0.90 | 2 months international TA and publication cost |
| | 2.5.3: Develop conversion factors for RNR statistical units | | 0.28 | 0.28 | | | | | | | | | | | | | | 0.28 | 0.28 | |
| | 2.5.4: Compilation of annual exports and imports on RNR related data items | | | | | | | | | | | | | | | | | | | |
| | 2.5.5: Annual population figures | | | | | | | | | | | | | | | | | | | |
| | 2.5.6: Support to BLSS | | | | | 1.61 | 1.61 | | | | | | | | | | | 1.61 | 1.61 | |
| | 2.5.7: Support to annual labour force survey | | | | | 0.80 | 0.80 | | | | | | | | | | | 0.80 | 0.80 | |
| | 2.5.8: Publication of annual Bhutan RNR Statistics | 0.500 | | 0.50 | 0.50 | | 0.50 | 0.50 | | 0.50 | 0.50 | | 0.50 | 0.50 | | 0.50 | 2.50 | | 2.50 | Cost of publication |
| Output 2.6: RNR statistics aligned with relevant SDG's targets and indicators | 2.6.1: Assessment of data gaps in the RNR statistics for relevant SDG's indicators and targets | | | | | | | | 0.20 | 0.20 | | | | | | | | 0.20 | 0.20 | Cost of meetings and consultation with relevant stakeholders |
| | 2.6.2: Develop an addendum to SP-RNRS, that includes plan of action to realize the data gaps for SDGs | | | | | | | | 1.00 | 1.00 | | | | | | | | 1.00 | 1.00 | |
| | 2.6.3: Identify and secure required investments to enhance capacity to collect and analyze data | | | | | 0.50 | 0.50 | | | | | | | | | | | 0.50 | 0.50 | |
| | 2.6.4: Inclusion of data gaps for SDGs in the annual agriculture, livestock and forestry data collection | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.50 | 0.50 | |
| | 2.6.5: Inclusion of data gaps for SDGs in the next RNR census | | 0.25 | 0.25 | | 0.25 | 0.25 | | | | | | | | | | | 0.50 | 0.50 | |
| Output 3.1: Improved RNR Statistical Processes & management mechanisms established | 3.1.1: Establish administrative data reporting system at Research, central Program, Dzongkhags and Gewogs levels | | 0.45 | 0.45 | | | | | | | | | | | | | | 0.45 | 0.45 | |
| | 3.1.2: Set up raw data quality checking mechanism | | | | | 0.50 | 0.50 | | | | | | | | | | | 0.50 | 0.50 | |
| | 3.1.3: Institute data archiving and documentation system | | | | | | | | 0.50 | 0.50 | | | | | | | | 0.50 | 0.50 | |
| Output 3.2: Improve crop statistics | 3.2.1: Revision of survey design/questionnaire for crop statistics survey | | 0.19 | 0.19 | | | | | | | | | | | | | | 0.19 | 0.19 | 7 days international TA |
| | 3.2.2: Develop crop central database for tablet-based-survey data entry | | 0.27 | 0.27 | | | | | | | | | | | | | | 0.27 | 0.27 | 2 weeks local TA |
| | 3.2.3: On-the-job training of staff | | 0.37 | 0.37 | | | | | | | | | | | | | | 0.37 | 0.37 | |
| | 3.2.4: Conduct Pilot Sample Survey in large Dzongkhags | | 0.50 | 0.50 | | | | | | | | | | | | | | 0.50 | 0.50 | Cost of pilot survey, data processing and analysis |
| | 3.2.5: Release crop survey results bi-annually | 0.300 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 1.50 | | 1.50 | Cost of publication |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output 3.3: Improve livestock statistics | 3.3.1: Develop livestock central database for tablet-based-survey data entry | | 0.37 | 0.37 | | | | | | | | | | | | | | 0.37 | 0.37 | 2 weeks local TA |
| | 3.3.2: Conduct Pilot Sample Survey in 3 more Dzongkhags | | 0.60 | 0.60 | | | | | | | | | | | | | | 0.60 | 0.60 | Cost of pilot survey, data processing and analysis |
| | 3.3.3: Release annual data on livestock | 0.300 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 1.50 | | 1.50 | Cost of publication |
| Output 3.4: Mechanisms established for improved access to RNR Statistics | 3.4.1: A data dissemination protocol (e.g. data release calendars for the entire sector, publishing annual reports) implemented. | 0.125 | 0.38 | 0.50 | | | | | | | | | | | | | 0.13 | 0.38 | 0.50 | |
| | 3.4.2: Develop central data repository and sharing platform | | | | | | | | 0.40 | 0.40 | | | | | | | | 0.40 | 0.40 | |
| | 3.4.3: Upload updated data on the CountrySTAT (a web-based system for dissemination of food and agricultural statistics) regularly | | | | | | | | | | | | | | | | | | | |
| Output 4.1: Skills base and expertise expanded through specialized trainings | 4.1.1: In-country or ex-country short-term courses for 3 subject specialist of RSD on survey design, data processing and analysis | | | | | 0.90 | 0.90 | | | | | | | | | | | 0.90 | 0.90 | |
| | 4.1.2: Ex-country short-term course on data management over network based platforms to 10 officials | | | | | 2.00 | 2.00 | | | | | | | | | | | 2.00 | 2.00 | |
| | 4.1.3: In-country Short term course on use of tablets and data capture for 650 field officials over 1 week | | 1.95 | 1.95 | | | | | | | | | | | | | | 1.95 | 1.95 | |
| | 4.1.4: Short-term course on commodity price analysis and projection for 10 officials (relevant stakeholders) for one month | | | | | 1.00 | 1.00 | | | | | | | | | | | 1.00 | 1.00 | |
| Output 4.2: A professional team of survey & census designers, database experts and statisticians developed with staggered HR succession planning | 4.2.1: Recruitment of 3 officers with Bachelor in statistics | | | | | | | | | | | | | | | | | | | |
| | 4.2.2: Three Post-Graduate Diploma in statistics | | | | | | | | 3.50 | 3.50 | | | | | | | | 3.50 | 3.50 | |
| | 4.2.3: Three MSc. course in statistics | | | | | 5.00 | 5.00 | | 5.00 | 5.00 | | 5.00 | 5.00 | | | | | 15.00 | 15.00 | |
| | 4.2.4: Three data management, database experts developed | | | | | 2.50 | 2.50 | | | | | | | | | | | 2.50 | 2.50 | |
| | 4.2.5: Three officials trained on GIS & RS | | | | | 2.50 | 2.50 | | | | | | | | | | | 2.50 | 2.50 | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output 5.1: Modern data capture and processing technologies adopted | 5.1.1: Infrastructure development at regional and central offices | | | | 0.63 | 1.88 | 2.50 | | | | | | | | | | 0.63 | 1.88 | 2.50 | Cost of servers (5) in regions and central offices (1 at RSD/ICTD and 4 in regions) |
| | 5.1.2: Institute digital data collection system (tablet) through 3G, 4G connectivity with cost effective tablets and broadband devices | | | | | 5.00 | 5.00 | | | | | | | | | | | 5.00 | 5.00 | Cost of tablets |
| | 5.1.3: GIS integration in central survey database | | | | | 1.61 | 1.61 | | | | | | | | | | | 1.61 | 1.61 | 2 months internaitonal TA |
| | 5.1.4: Establish real-time survey and administrative data entry and update (convert to CAPI) | | | | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 0.30 | | 0.30 | 1.20 | | 1.20 | Salary of staff RSD engaged in developing CAPI |
| Output 5.2: Information and Communication Technology (ICT) adopted to manage and disseminate information | 5.2.1: Development of centralized database for storage of validated data | | | | | 0.38 | 0.38 | | | | | | | | | | | 0.38 | 0.38 | 2 weeks local TA |
| | 5.2.2: Align with common call center services of e-agriculture to disseminate data on commodities and prices through IVR, mobile applications, SMS, email, social media, TV, radio and the web | | | | | | | 0.13 | 0.38 | 0.50 | | | | | | | 0.13 | 0.38 | 0.50 | Support cost to e-agr1culture strategy |
| Output 5.3: Coordinated funding strategy within the RNR sector aligned with NSDS | 5.3.1: Develop partnership and collaborative programs/projects with external/development partners for different outputs | FALSE | | 0.00 | 0.36 | | 0.36 | 0.36 | | 0.36 | 0.36 | | 0.36 | 0.36 | | 0.36 | 1.44 | | 1.44 | Salary of Head (National Strategy Coordinator), RSD, MoAF |
| | 5.3.2: Consultations with development partners providing technical and/or financial aid in the field of statistics established through specific advocacy efforts; | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.10 | | 0.10 | 0.50 | | 0.50 | Cost of consultarion meetings |
| | 5.3.3: Develop integrated work plan for RNR stats (SP-RNRS) and include into development plan and budget of concerned sectors | 0.02 | | 0.02 | 0.02 | | 0.02 | 0.02 | | 0.02 | 0.02 | | 0.02 | 0.02 | | 0.02 | 0.10 | | 0.10 | |
| | 5.3.4: Carry out continuous research and development activities and disseminate research findings through annual publication and press conference | 0.50 | | 0.50 | 0.50 | | 0.50 | 0.50 | | 0.50 | 0.50 | | 0.50 | 0.50 | | 0.50 | 2.50 | | 2.50 | Cost of publication and press conferences |
| | 5.3.5: Develop a coherent advocacy strategy to raise the profile of RNR statistics | | 0.50 | 0.50 | | | | | | | | | | | | | | 0.50 | 0.50 | Local TA for resource mobilisation and communication plan |
| **Total cost (Nu)** | | **5.98** | **175.23** | **181.22** | **3.60** | **43.29** | **46.89** | **3.09** | **11.33** | **14.41** | **3.86** | **5.10** | **8.96** | **3.09** | **3.81** | **6.89** | **19.61** | **238.76** | **258.37** | |

Note: The total estimated budget for 2018-2019 is Nu. 181.58 million and for 2019-2020 is Nu. 43.29 million, of which Nu. 183.33 million is for RNR census 2018

## Annex 8: RNR Statistics Technical Working Group (RS-TWG) members

| Position of the RS-TWG members | Departments/Agencies |
|---|---|
| 1. Chairperson | Director of Directorate Services |
| 2. Member | Representing Department of Agriculture (DoA) |
| 3. Member | Representing Department of Livestock (DoL) |
| 4. Member | Representing Department of Forests & Park Services (DoFPS) |
| 5. Member | Representing Department of Agriculture Marketing & Cooperatives (DAMC) |
| 6. Member | Representing Information & Communication Technology Division (ICTD of MoAF) |
| 7. Member | Representing Policy & Planning Division (PPD), MoAF |
| 8. Member | Representing Bhutan Agriculture & Food Regulatory Authority (BAFRA) |
| 9. Member | National Statistics Bureau (NSB) |
| 10. Member | Representing Department of Revenue & Customs (DRC) |
| 11. Member Secretary | Representing RSD (Chief, RSD) |

## Annex 9: RNR Statistics Committee (RSC) members

| S/N | Name | Designation | Email | Phone | Agency |
|---|---|---|---|---|---|
| 1 | Mr. Galey Tenzin | Marketing Officer, MoAF | gtenzin@moaf.gov.bt | 77204262 | DAMC, MoAF |
| 2 | Mr. Namgay Dorji | Principal Planning Officer, MoAF | ndorji@moaf.gov.bt | 17621552 | DoL, MoAF |
| 3 | Ms. Rinchen Euden | Asst. Customs Officer, DRC | rephuntsho@mof.gov.bt | 17992252 | DRC, MoF |
| 5 | Mr. Jamyang Kuenzang | Statistical Officer, MoAF | jamkins05@gmail.com | 17280002 | DoA, MoAF |
| 6 | Mr. Karma Tenzin | Communication Officer, MoAF | kazee@moaf.gov.bt | 17629991 | ICS, MoAF |
| 7 | Ms. Nima Dolma Tshering | Environment Officer, NRDCL | nima@nrdcl.bt | 16917523 | NRDCL |
| 8 | Mr. Sangay Phuntsho | Sr. Programme Officer, GNHC | sphuntsho@gnhc.gov.bt | 17551971 | GNHC |
| 9 | Mr. Pema Namgay | Sr. Statistical Officer, NSB | pnamgay@nsb.gov.bt | 17315242 | NSB |
| 10 | Mr. Tandin Dorji | Statistical Officer, MoLHR | tandindorji@molhr.gov.bt | 17625370 | MoLHR |
| 11 | Mr. Tshering | Sr. Forestry Officer, MoAF | shabtshering@moaf.gov.bt | 17858569 | DoFPS, MoAF |
| 12 | Mr. Tshering Tashi | Communication Officer, NEC | tsheringtt@nec.gov.bt | | NEC |
| 13 | Mr. Pelden Tashi | Regional Manager | pelden_2001@hotmail.com | 17589640 | FCBL |
| 14 | Mr. Chencho Dukpa | National Strategy Coordinator, MoAF | cdukpa@moaf.gov.bt | 17650075 | PPD, MoAF |
| 15 | Mr. Kencho Thinley | Chief, PPD, MoAF | kthinley@moaf.gov.bt | 17118384 | PPD, MoAF |
| 16 | Mr. Phub Sangay | Chief Statistical Officer, NSB | psangay@gmail.com | 77653547 | NSB |

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