ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF AGRICULTURE AND FORESTS

IMPROVING
AGRICULTURAL
STATISTICS

Global Strategy

Country Proposal for Improving Renewable Natural Resources Statistics in Bhutan

(An implementation of Global Strategy to Improve Agricultural and Rural Statistics)

November 2014

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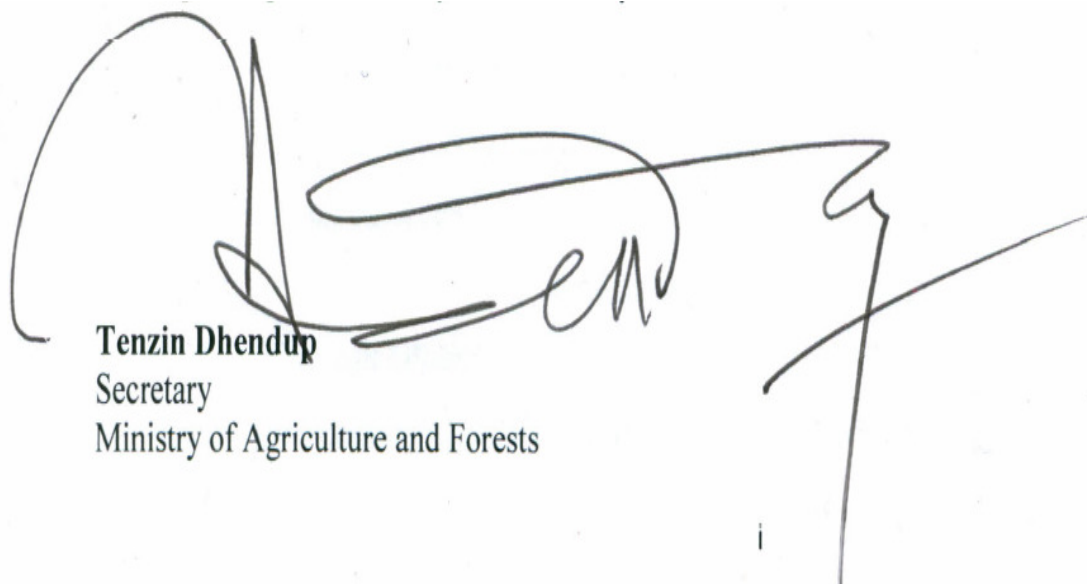*(An implementation of Global Strategy to Improve Agricultural and Rural Statistics)*

November 2014

The Ministry of Agriculture and Forests (MoAF) is pleased to bring out this **Country Proposal for Improving Renewable Natural Resources (RNR) Statistics in Bhutan**, which is the first of its kind that is prepared with collaborative efforts of the United Nations Food and Agricultural Organization (FAO) and MoAF in the context of the Global Strategy to Improve Agricultural and Rural Statistics.

The proposal is intended to be used as an authentic reference document by the RNR sector, other relevant government agencies and international community interested in the development of RNR statistics for making informed decision on poverty alleviation, livelihood and food security in the country. Unlike in the past, the RNR sector is now comfortably placed in implementing the prioritized statistical activities proposed in this proposal as they respond to specific problems or opportunities identified in the **In-depth Country Assessment (IdCA) of the National System for RNR Statistics**, which was undertaken by MoAF.

The MoAF would like to thank the FAO not only for its financial support but also for successfully guiding our national stakeholders of RNR statistics in both the IdCA and this proposal. We acknowledge the unwavering hard works and contributions put in by concerned RNR colleagues and members outside of the RNR sector in bringing out this proposal. Our deep and heartfelt appreciations also go to the member from National Statistics Bureau for facilitating the various stakeholders' meetings.

Tenzin Dhendup
Secretary
Ministry of Agriculture and Forests

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Abbreviations

ADB	Asian Development Bank
BSS	Bhutan Statistical System
BLSS	Bhutan Living Standard Survey
DAMC	Department of Agricultural Marketing and Cooperatives
DoA	Department of Agriculture
DoFPS	Department of Forests and Park Services
DoL	Department of Livestock
DRC	Department of Revenue and Customs
FAO	Food and Agriculture Organization of the United Nations
FCB	Food Corporation of Bhutan
GHG	Green House Gas
GOE	General Operating Expenses
IdCA	In-Depth Country Assessment
MoAF	Ministry of Agriculture and Forests
MoF	Ministry of Finance
MoLHR	Ministry of Labor and Human Resources
NEC	National Environment Commission
NRDCL	Natural Resources Development Corporation Limited
NSB	National Statistics Bureau
NSDS	National Statistics Development Strategy
NSS	National Statistical System
ODE	Organizational Development Exercise
PPD	Policy and Planning Division
PSC	Project Support Costs
RGoB	Royal Government of Bhutan
RNR	Renewable Natural Resources
RNR-SF	RNR-Statistical Framework
RNR-SCS	RNR-Statistical Coordination Section
RNR-SSC	RNR-Statistical Steering Committee
RSD	RNR Statistics Division
RCSC	Royal Civil Service Commission
SPARS	Strategic Plan for Agricultural and Rural Statistics
SP-RNRS	Strategic Plan for Renewable Natural Resources Statistics
TSS	Technical Support Services

Glossary

Tseri	A land category used for shifting cultivation
Dzongkhag	District
Frame	List of units (e.g. list of households) from which a sample is drawn
Gewog	Block in a district

1. Background

Global Strategy to Improve Agricultural and Rural Statistics 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, 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 <u>three</u> 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)[1] 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.

2. In-depth Country Assessment

As part of the implementation of Global Strategy to Improve Agricultural and Rural Statistics, In-depth Country Assessment (IdCA) of the National System for Renewable Natural Resources (RNR) Statistics was undertaken by Royal Government of Bhutan with support from United Nations Food and Agriculture Organization (FAO). The main objective of the assessment was to prepare groundwork for developing a Strategic Plan for Agricultural and Rural Statistics (SPARS), which in case of Bhutan will be known as Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS).

The IdCA report identifies specific problems or opportunities for the development of the national agricultural statistics program. The report is intended to be used as an official reference document by the national and international community interested in the development of RNR statistics in Bhutan. The IdCA gives increased focus on the data on the RNR sector, environment, rural economy and the farm household. It was based on an assessment of the RNR data that users need. Understandably most of users' requirements relate to policy formulation, planning,

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[1] Bhutan Statistical System in the case of Bhutan

monitoring and evaluation of "economic development, poverty alleviation and food security". The IdCA identifies areas needing improvement in 5 years in order to develop the national agricultural statistics program. It sets benchmark to move forward.

As ensuing steps to IdCA, following documents need to be prepared:

(i)   Country Proposal for the development of the national agricultural statistics programme
(ii)   Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS)

This proposal takes the first step. A significant input to the development of SP-RNRS is already available within the existing "RNR Statistical Framework" of MoAF.

3. Role of Stakeholders

Economic objectives of Ministry of Agriculture and Forests (MoAF) for the 11th Five Year Plan (2013-2018) are to enhance food and nutrition security and accelerate RNR sector growth. Its social objective is to enhance sustainable rural livelihood. Environmental objective is to promote sustainable management and utilization of natural resources. Hence, besides generic conventional data, emerging data requirements will be more in the years to come and role of stakeholders in delivering relevant RNR data cannot be overemphasized.

The National Statistics Bureau (NSB) as the apex body and custodian of the country's statistics continues to strengthen its coordination and cooperation with all producer and user government agencies for production of quality statistics for informed decision making. While awaiting government approval of Statistics Bill, the NSB has been carrying out considerable revision of National Statistics Development Strategy (NSDS) 2008 which is going to be finalized by end of 2014. Very recently the NSB with the support of World Bank conducted a two-day workshop on NSDS, which was attended by all national stakeholders of Bhutan Statistical System (BSS) including Policy and Planning Division (PPD) of MoAF.

The PPD of MoAF is responsible for providing policy and planning services to various RNR programs and projects. In collaboration with line departments and agencies, it reviews and/or develops policy and legislative documents. It provides secretarial support to the Minister and Secretary. In addition, PPD is the most important user and producer of RNR statistics in Bhutan.

PPD provides support to NSB for the development of National Statistics Development Strategy (NSDS) for the RNR sector. It plays a coordinating role in RNR statistical activities of other agencies. PPD also plays a leading role in MoAF's "RNR-Statistical Framework (RSF)", "RNR-statistical coordination" and "RNR-Statistical Steering Committee (RNR-SSC)". In the RNR-SSC, currently there is no provision of participation of the stakeholders outside MoAF. The RSF

is being revised to include all major stakeholders in the RNR-SSC. The revision will also contain the ToR for the RNR-SSC. After further consultations, level of representation in SSC and/or in Technical Working Committee (technical or decision oriented) will also be elaborated. However, for taking actions that require additional funding, both SSC and/or Technical Working Committee (TWC) will report to RNR-SCS. Briefly, PPD will have a pivotal role to play in formulation of RSF and RNR part of NSDS, in expansion/establishment of the RNR-SSC, and in implementation of this Country Proposal, which includes preparation of SP-RNRS as one of the main activities.

4. The Country Proposal

4.1 Introduction

The preparation of this proposal was led by the PPD. It generally follows "Guidelines for contents of the Country Proposal" provided by FAORAP. The proposal heavily draws from the IdCA, which assesses the availability and quality of core RNR data identified in the context of the Global Strategy.

The approach used in the proposal can best be described as moving from "reviews and assessments" to "intervention and doing", resources permitting. The proposal responds to specific problems or opportunities identified in the IdCA by proposing 8 projects, in following order of priorities:

> 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 8 projects was done by the stakeholders. It should be noted that Project 1-4 are short-term projects, whilst 5-8 are medium and long-term projects that would exert lasting impact upon the RNR statistical system.

4.2 Background to the Concept Notes

The Government intends to use these "Concept Notes" as a vehicle for resource mobilization. Concept Notes on the 8 identified projects are given in Annex I. These notes closely follow 2 documentations of FAO: "Guide to the Project Cycle – Quality and Results" and "Concept Note Format".

The duration proposed in the notes is 2 years but the proposal is expected to exert lasting impact on the agricultural statistics system for 3-10 years. Each Concept Note (Annex I) elaborates on the following:

- Problem and priority identified in the In-depth Country Assessment
- Summary of the Proposed Strategy
- Results Chains

- o Expected Impact
- o Expected outcome
- o Expected outputs
- Participants and other stakeholders
- Potential risks
- Sustainability of the proposal
- Synergies with other projects and programs
- Work plan
- Implementation arrangements, budget and monitoring

For "identification of the problem" the notes are profoundly influenced by the "Wye Group Handbook on Rural Households' Livelihood and Well-Being Statistics". Outputs and outcomes mentioned in the notes mirror users' true perspective. However, the methodological aspects described in the notes are predominantly producer-oriented. Overall, sharper focus in each note is on "how the problem can be solved". For this "Strategy" and "How to" are used synonymously.

As part of the first phase of the project cycle, the intent at present is to accomplish task of "Identification of a problem" and "Preparation of Concept Notes". "Appraisal and formalization" with the resource partners" and "Endorsement" by a donor are extremely important aspects in the identification phase. It is equally important to note that ensuing phases of the project cycle (Formulation and Appraisal) are absolutely essential in the case of Project 5-8 mainly because funding requirements for these projects are substantial.

The Government is aware that Global Strategy has rather limited resources to support the entire proposal. It requests support from FAO in mobilization of resources from potential donors. At the country level PPD will liaise with the donor agencies for mobilizing potential funds.

4.3   Implementation arrangements

To address coordination problems and to improve quality of statistics, one of the important solutions – specifically under Pillar 3 of the Global Strategy - would be to centralize the responsibility of all RNR data collection activity. This solution was adopted by all stakeholders and was reflected as one of the recommendations in the IdCA. Later, further appraisal at MoAF found that it will not be possible to do so because centralization would mean creation of a separate division, which cannot happen at least during the 11th Plan (2013-2018) period. Therefore, the idea of "centralization" has been dropped and sharp focus is now on strengthening the existing system. That is why this country proposal has separate work plan for individual sectors and sub-sectors.

In this connection, the Royal Government of Bhutan (RGoB) is currently carrying out Organizational Development Exercise (ODE) in which the issue of centralization and creation of a separate RNR Statistics Division (RSD) will be subjected to critical review from the Royal Civil Service Commission (RCSC), which is the lead government agency for the ODE. In any case, proposed activities in this Country Proposal will be implementable as they focus on specific areas within the RNR statistical system. In either case, the RNR-SSC will have to be expanded and maintained somehow. For this, MoAF and NSB will expand the RNR-SSC to include all stakeholders[2] involved in RNR statistics, and the expanded committee would be engaged in discussion of project strategies, emerging data requirements and other technical matters related to the RNR statistics programs and projects.

The list of implementing agency of individual projects is shown in Table 1 (in the case of existing system) and Table 2 (in the case of centralized system).

Table 1: Implementation Arrangement for the Country Project Proposals (in the existing system)

Project	Project Title	Implementing Agency	Other main stakeholders
1	Bring improvement in crop statistics	DoA	PPD and NSB
2	Bring improvement in livestock Statistics	DoL	PPD and NSB
3	Increase institutional and HR capacity	PPD	NSB, MoF, DAMC, DRC, DoA, DoL, FCB, DoFPS, NRCDL, NEC
4	Gather updated environmental data	NEC	MoAF
5	Land cover mapping	PPD	DoA, DoFPS and NEC
6	Conduct of a RNR census	PPD, NSB	DoA, DoL, DoFPS,
7	Bhutan Living Standard Survey	NSB	MoAF
8	Labor Force Survey	MoLHR	NSB

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[2] PPD, DoA, DoL, DoFPS, DAMC, Council for RNR Research in Bhutan (CoRRB), BAFRA, Bhutan Bio-Security Information Section (BIMS) and Human Resources Information Section (HRIS)

Table 2: Implementation Arrangement for the Country Project Proposals (in centralized system)

Project	Project Title	Implementing Agency	Other main stakeholders
1	Bring improvement in crop statistics	RSD	NSB
2	Bring improvement in livestock Statistics	RSD	PPD and NSB
3	Increase institutional and HR capacity	RSD	NSB, MoF, MoAF, FCB, NRCDL, NEC
4	Gather updated environmental data	NEC	MoAF
5	Land cover mapping	RSD	MoAF and NEC
6	Conduct of a RNR census	RSD, NSB	MoAF
7	Bhutan Living Standard Survey	NSB	MoAF
8	Labor Force Survey	MoLHR	NSB

Sharp focus of the proposed projects is on the betterment. For example, these projects do not include costs of (i) vehicles (for increased movement/supervision) and (ii) long-term training (for sustainable human resource development and management). The cost of hiring vehicles is included in the relevant project costs.

The SP-RNRS would include all activities including longer-duration professional training. The SP-RNRS will be mapped out after finalization of the Country Proposal.

4.4 Coordination, monitoring and evaluation

Responsibility of overall coordination of the projects to be implemented in MoAF will rest upon PPD (in case of existing system) or RSD (in centralized system) of MoAF. Quarterly meetings of the RNR-SSC will be held to monitor the progress of all RNR statistical programs and projects, including the projects proposed in the Country Proposal. Similar arrangements will be put into place in the case of the projects implemented by other implementing agencies as well.

Individual project in this proposal may be evaluated by the Government, implementing partner and donor at the end of the project. The terms of reference and exact timing for the evaluation mission will be decided in consultation with all partners concerned. PPD will be held responsible for organizing the evaluation mission in the case of MoAF projects. For projects outside MoAF, individual agencies will be responsible. The draft evaluation report, which will be prepared by the evaluation mission, will report on the achievements of the project. It will also look at any follow up required.

4.5   Estimated budget for the proposed projects

Summarized cost estimates for the projects included in the proposal are shown in Table 3. In this table, Government's contribution in kind, which is going to be substantial, is not included. Costs of international staff travel, Technical Support Services (TSS), General Operating Expenses (GOE), and "Project Services Cost (PSC) apply to donors' contribution. The cost of consultants' service (34 person/months in total) is estimated at $20,000 per month. The PSC is 13% of the donors' contribution; it is not 13% of the total estimated budget.

Table 3: Summarized Cost estimates for the proposed projects (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P1. Bring improvement in crop statistics	60,000		30,000	8,000	16,000	15,000	129,000	50,000		50,000	179,000
P2. Bring improvement in livestock Statistics	60,000		25,000	5,000	3,500	12,000	105,500	50,000		50,000	155,500
P3. Increase institutional and HR capacity	60,000		110,000	14,000	5,500	24,000	213,500	300,000		300,000	513,500
P4. Gather updated environmental data	40,000	40,000	50,000	8,000	21,000	21,000	180,000	20,000		20,000	200,000
P5. Land cover mapping	200,000	100,000	30,000	89,000	429,000	110,000	958,000	50,000	50,000	100,000	1,058,000
P6. Conduct of a RNR census	260,000	700,000	60,000	47,000	39,500	144,000	1,250,500	83,300	250,000	333,300	1,583,800
P7. Bhutan Living Standard Survey								10,000	145,000	155,000	155,000
P8. Labor Force Survey								50,000	90,000	140,000	140,000
Overall	**680,000**	**840,000**	**305,000**	**171,000**	**514,500**	**326,000**	**2,836,500**	**613,300**	**535,000**	**1,148,300**	**3,984,800**

Table 4 provides estimated costs in the case of "Other expenses". In this table "Travel" covers the costs of international experts' travel only. "Expendables" include the cost of 2 sets of data processing software ($10,000), and the cost of very high resolution (5 m) land cover maps ($400,000), which will be considerably lesser if FAO is involved. Non-expendable cost covers the cost of 2 overhead projectors for training purposes. TSS covers the cost of Technical Support Services from FAO.

Table 4: Split of the "Other Expenses" (US$)

Project/Action Plan	Travel	Expendable	Non-expendable	TSS	Other Expenses
P1. Bring improvement in crop statistics	5,000	10,000		1,000	16,000
P2. Bring improvement in livestock Statistics	2,500			1,000	3,500
P3. Increase institutional and HR capacity	2,500		2,000	1,000	5,500
P4. Gather updated environmental data	20,000			1,000	21,000
P5. Land cover mapping	25,000	400,000		4,000	429,000
P6. Conduct of a RNR census	32,500			7,000	39,500
P7. Bhutan Living Standard Survey					
P8. Labor Force Survey					
Overall	**87,500**		**2,000**	**15,000**	**514,500**

There are wide areas of expertise to be covered in the case of Project 3 "Increase institutional and HR capacity". The split of the costs by individual areas are given in Table 5.

Table 5: Split of the cost for the project "Increase institutional and HR capacity" (US$)

Activity/Component	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
1. Formulation of SPARS and overall aspects	40,000				2,000	5,000	47,000				47,000
2. Support to ICT development	20,000		30,000	2,500	3,500	8,000	66,500	50,000		50,000	116,500
3. Consumer price data			10,000			1,000	12,000	40,000		40,000	52,000
4. Customs data			25,000			5,000	33,000	70,000		70,000	103,000
5. Auction data			10,000			1,000	12,000	70,000		70,000	82,000
6. RNR data use			15,000			2,000	19,000	20,000		20,000	39,000
7. Forestry data sets			10,000			1,000	12,000	30,000		30,000	42,000
8. Forest resources use			10,000			1,000	12,000	20,000		20,000	32,000
Sub-total	60,000		110,000	2,500	5,500	24,000	213,500	300,000		300,000	513,500

4.6   Sustainability

A common cause of concern for the government is on sustainability, an issue which is adequately addressed in the Concept Notes by:

- Ensuring Government ownership. A National Project Director will be assigned in each project. At least one counterpart will work closely with every international consultant. The purpose is to stimulate effective and faster knowledge transfer. No National Consultant will be hired so as to avoid further delay in knowledge transfer.

- Promoting and proposing interventions which can build on local activities, capacities and resources. The focus will be to strengthen initiatives that have been undertaken to date.

- Mobilizing coordinated funding.
- Appreciating NSDS and RNR Statistical Framework.
- Advocating and requesting partial assistance from donors for extremely urgent activities that require substantial amount. For example, limited assistance from donors is needed specifically for:

  a)   purchase of software and hardware,
  b)   purchase of Land Cover Maps (once in 5-7 years),
  c)   conduct of RNR Census (once in 10 years) and
  d)   collection, processing and dissemination of updated environmental data (Bhutan Environment Outlook and Dzonkhag Environment Outlook).

To summarize, the objective would be to make arrangements for the government to fund all operational activity, slowly but surely, whilst donors will be required to provide funds mainly for very well-targeted focussed training and technical assistance.

4.7   Annexures

Annex I: Concept Notes on the proposed projects

Project 1: Bring Improvement in Crop Statistics

Problem and priority identified in the In-depth Country Assessment

The DoA's annual crop statistics are based on household data collected from individual Gewogs. The proportion of households drawn in a Gewog ranges from 10 to 50 percent, depending on the number of households in the Gewog. At the national level, the DoA survey covers 12 percent of the total rural households in the country. The IdCA made following observations on the DoA annual survey:

- The "frame" used for the survey is not sound.

- DoA's emphasis has been on generating Gewog statistics for all data items covered by the DoA survey. This is in line with the users' (DoA and PPD) demand and for calculating Self Sufficiency Rate at the sub-national levels. However, the DoA survey precludes MoAF from producing reasonably precise crop statistics at Gewog level. This is because sampling error of crop estimates rises rapidly as the targeted geographical area gets smaller.

- A sample of about 10 to 50 percent of households in a Gewog is an acceptable, practical rule as there is no other option available at present.

- Reasonably precise estimates will not be possible to generate from the DoA survey for sporadic variables (minor crops).

- Complete non-response rate (over 15%) in DoA sample survey is increasingly becoming a serious problem because the frame used for the survey is old. Complete non-response rate was 8% in the case of RNR Census of 2009. Remoteness partly contributes to high non-response rate in annual surveys. Item non-response rate is unknown.

- Capacity of DoA staff in survey data processing needs to be enormously strengthened.

Summary of the Proposed Strategy

The DoA survey is an annual household production survey in which respondents report both area and production through enquiry. The sampling design used by DoA will be improved and DoA staff will be trained in sampling design (by TA) and survey data processing (by NSB). In due course, improvement in the existing frame of the DoA survey will be brought by gathering ownership information (Yes/No) on cultivated area by type (wet, dry and cash crops) from the individual households. This action will preclude non-crop growing households in the DoA survey domain and will definitely increase the efficiency of the sampling design. Secondly, after the conduct of the Population and Housing Census, updated frame of agricultural households will be used. Lastly, whenever household data are available from RNR census, "sample size" required for gathering reasonably precise crop data will be calculated on the basis of the RNR census data.

In Bhutan one of the typical problems with crop area reporting is that there can be a big difference between area sown and area harvested, largely because of wildlife problems. Crop cuts system is being practiced at the Gewog level but its data are not compiled and used at the headquarters of DoA. The DoA survey will be used to generate only national and Dzongkhag level area and yield estimates for the most major crops (Paddy, Maize, Wheat, Buckwheat, Barley and Millet).

Given the serious human resources constraints, an increase in the frequency of crop data collections is not possible. Various users, including NSB, have expressed that there is a need to do so.

For providing Gewog level data on the major crops on an annual basis blend of following sources will be used:

- Extension officers will work with village heads to identify crop producing households to create a more appropriate frame
- Dzogkag level crop data from the annual DoA survey (Proportionate allocation)
- Crop data from RNR census for Gewogs (Benchmarks)
- Use of data from crop cuts system being practiced at the Gewog level
- Gewog level crop reporting - to be reported once a year by the first week of February - to tap very unusual annual changes in area and/or yield (for possible adjustment). These data would come from administrative reporting, for which census data will be used as benchmarks. For this, gradually there will be devolution of responsibility to Gewog offices.

The number of households to be sampled for generating reasonably precise crop statistics of some crops (such as minor crops and vegetables) is unaffordable. Hence, following approach will be adopted in the case of minor crops:

Dzongkhag level crop reporting - to be reported by the first week of February - will be introduced to tap unusual changes in area or yield at Dzonghag level. Each Dzongkhag will be requested to contribute towards this.

Area data of such crops at the sub-regional levels will be updated on the basis of data available from the latest RNR census and current year's field reporting.

Data on yield of most important 2-3 minor crops per Dzongkhag will be collected through small scale purposive survey.

RDC (Research Development Centers) carry out various agronomic research and experiments, but mainly due to a lack of qualified statisticians in RDC reliable results of such experiments are difficult to produce and use. In consultation with Indian Agricultural Statistics Research Institute (IASRI) this project will provide funding support to organize on-the-job training in IASRI and a research farm in India on carrying out such "Experiments". A total of 2-3 DoA staff are expected to benefit from this "Training of Trainer" training. Project 3 will provide about $2,500 (additional) for this training.

In a nutshell, the aim will be to collect core quality data that are reasonably reliable. Attempt will be made to allocate separate budget for the conduct of annual crop surveys in Dzongkhags. Emphasis will be laid on quality, not on quantity, with appreciation that Gewog level data based on survey alone are not at all reliable. Towards this, the questionnaire of DoA survey will be revised to reflect above concerns. One thing that has clearly emerged is the fact that the questionnaire will be much shorter than the one used currently.

Results Chains

Expected Impact

- Enabling environment for annual assessment of food security and productivity growth at the national and Dzongkhag levels

Expected outcome

- A workable and reliable system for providing annual crop statistics on a timely manner

Expected outputs

- Improved frame for gathering crop statistics.

- A report on methodology that includes details on sampling, questionnaires, enumeration, supervision, tabulation plan and data processing.

- More reliable annual crop data (due a more efficient and targeted sample design, and much reduced burden in data gathering).

- Trained Staff (4 at the centre and 1 in each Dzonghag) to ensure sustainability of the activities initiated by the project.

Participants and other stakeholders

Main stakeholders include NSB (for national accounts, frame and data processing) and PPD in the MoAF. The action proposes no change in existing organizational or conceptual framework. No individual/group/organization will be negatively affected by the project.

Potential risks

The DoA Survey has been and will be a regular activity of DoA. There are no potential risks which could hinder the achievement of the expected results of this Project.

Sustainability of the proposal

Although the cost for DoA's surveys is embedded into DoA's budget, conduct of these surveys is still subject to the fund availability. Therefore extra efforts will be made to ensure financial/economic and operational sustainability in order to implement the survey activities in a regularized frequency and time. Technological sustainability will be ensured by human resources management, at all levels, and by human resources development, including higher level training. TA and NSB will greatly contribute towards this. See Section 4.6 also.

Synergies with other projects and programs

The proposed action would complement initiatives to be taken under Project 5: Land cover mapping and Project 6: Conduct of a RNR census. For example, Project 5 would provide data on wetland, which can be used to check consistency of data obtained from DoA survey on area cultivated with paddy. Similarly, Project 6 will provide frame and benchmark data for DoA Survey, DOL Census and other RNR surveys.

Work plan

Activity	Time schedule	Responsibility	Remark
1a. Revise questionnaire and survey design	February/March 2015	DoA, PPD Consultant 1 p/m	
1b. Development of online database for survey data entry	February/March 2015	DoA Consultant 1 p/m	
1c. On-the-job training of DoA staff	February/March 2015	3 Consultants, DoA	On-the-job training of 2-3 counterpart staff members by the consultant.
1d. Training of DoA staff on census frame and survey data processing	October 2015	DoA, PPD NSB	
1e. A Report on the methodology	April 2016	Consultant, DoA	
1f. Publish results based on the improved survey	April/May 2017	DoA Consultant 1 p/m	

Implementation arrangements, budget and monitoring

Overall implementation arrangements are described in Section 4.3 of the proposal. DoA will implement the project. TA of 3 p/m will be needed to address the strategy mentioned above properly. Amount allotted for the training is $30,000, which will be used for formal short-term training of 1-2 staff from DoA in sampling in institutions such as SIAP and IASRI. Tailor-made, formal training in data processing will be provided by NSB. No provision has been made for long-term training.

Table A1: Estimated total budget of Project 1 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P1. Bring improvement in crop statistics	60,000		30,000	8,000	16,000	15,000	129,000	50,000		50,000	179,000

In the table other expenses include international staff travel ($5,000), expendable (software; $10,000) and TSS.

Project 2: Bring improvement in livestock Statistics

Problem and priority identified in the In-depth Country Assessment

Annual data on livestock number, livestock products (amount produced, sold and consumed) published by DoL are the results of complete enumeration of households carried out by Gewog Livestock Extension Officers in 205 Gewogs. Enumeration for the DoL survey begins in October. Under this operation the officer collects the data by using a set of structured questionnaires developed by DoL. The enumeration is monitored by Dzongkhag Livestock Officer and Assistant Dzongkhag Livestock Officer. Data on numbers include animals in government farms also. Preliminary data processing of livestock census data starts at individual Gewog level. By the last week of December all compiled data from Gewogs and Dzongkhags reaches Department of Livestock (DoL).

After final processing, data are firstly presented to departmental level Livestock Statistics Committee (LSC), which is headed by Director of DoL. Then these are submitted to RNR-SSC of MoAF for its consideration and approval. Reported data are checked by MoAF for their consistency with 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 Statistical Coordination Section (RNR-SCS) in PPD of MoAF for publication and dissemination. Dissemination of the data is done via MoAF's website (www.moaf.gov.bt) and CountrySTAT (http://countrystat.org/home.aspx?c=BTN), and in hard and soft copies. Users have confidence in the reported data.

Following observations were made by IdCA as regards DoL complete enumeration survey:

- Technical capability of staff is good. The "frame" used for the survey is not sound.

- Gewog level annual data on livestock and livestock numbers and products are not national requirements.

- Given the vastness of the coverage (each Gewog) it is very difficult to ensure quality of collected data on livestock numbers and products. Hence, complete enumeration of households on an annual basis is uneconomical.

- Reference period of reporting livestock production, sale and consumption is 1 year, which is too long. 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.

Summary of the Proposed Strategy

Extension officers will work with village heads to identify households with livestock ownership to create a more appropriate frame. Improvements will be made to the frame by collecting (Yes/No) answer on livestock holdings by types of livestock from the individual households. This would identify and include new enumeration units also. The questionnaire will also be revised.

Focus will be laid on estimating livestock numbers, sale and production only. For data on consumption, results of BLSS will be used.

In place of complete enumeration, pilot sample survey will be conducted in a Dzongkhag, on a pilot basis, to assess if sample surveys can serve the same purpose.

Staff at the centre and at Dzongkhags and Gewogs will be trained further, especially in the survey Dzongkhags.

Data processing capacity will be strengthened with assistance from NSB in organizing training on survey data processing. NSB has shown willingness to help implement this type of tailor-made training, at nominal costs.

Results Chains

Expected Impact

- Enabling environment for annual food supply and food security assessment at the national and sub-national level

Expected outcome

- A workable system for providing reliable data on annual livestock number and production in a timely manner

Expected outputs

- Improved frame for annual livestock data collections
- Sample Survey methodology developed and pilot tested for annual livestock statistics
- More reliable annual livestock statistics (due to improved design and much reduced burden in gathering data)
- Trained Staff (2 at the centre and 1 in each Dzonghag) to ensure sustainability of the Project
- Report on Pilot Livestock Sample Survey conducted in Trashigang or in one of the larger Dzongkhags.

Participants and other stakeholders

Main stakeholders include NSB (for national accounts, frame and data processing) and PPD in the MoAF. The action neither proposes organizational change nor the conceptual framework. No individual/group/organization will be negatively affected by the action.

Potential risks

On operation, there is no potential risk which could hinder the achievement of the expected results. On technical front, in the case of large difference in the complete enumeration and survey estimates, acceptability of the survey results would be difficult. The pilot survey will be an important means in mitigating this risk.

Sustainability of the proposal

As operational cost for DoL's annual survey is embedded into DoL's budget, financial/economic sustainability is automatically ensured. Technological sustainability will be ensured by human resources management, specifically at the sub-national level, and human resources development, including higher level training. TA will contribute towards this; no National Consultant will be hired. See Section 4.6 also.

Synergies with other projects and programs

The proposed action would complement initiatives to be taken under Project 5: Land cover mapping and Project 6: Conduct of a RNR census. For example, Project 4 would provide data on grazing land. Similarly, Project 6 will provide frame and benchmark data for DoL Survey and other RNR surveys. Project 6 will also provide guidance on the data items to be covered in the future DoL Census. It will also provide data needed to improve livestock sample survey designs.

Work Plan

Activity	Time schedule	Responsibility	Remark
2a.Revise questionnaires	March 2015	Consultant 0.5 p/m DoL	
2b. Report on frame and sampling design	March 2015	Consultant 0.5 p/m DoL	
2c. Standardization of livestock products estimation formulae	March 2015	Consultant 1 p/m DoL PPD	
2d. Training of central staff	March 2015	Consultants NSB (data processing)	

2e. Training of field staff	August 2015 and August 2016	DoL	
2f. Conduct Pilot Sample Survey in Trashigang or in one of the larger dzongkhags.	October-November 2015	DoL	
2g. Report on the Pilot Sample Survey	April 2016	DoL Consultant 1 p/m	
2h. Release annual data on livestock	March-April 2016 and March-April 2017	DoL	

Implementation arrangements, budget and monitoring

Overall implementation arrangements are described in Section 4.3 of the proposal. DoL will implement the project. TA of 3 p/m will be needed to implement the project.

Table A2: Estimated total budget of Project 2 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P2. Bring improvement in livestock Statistics	60,000		25,000	5,000	3,500	12,000	105,500	50,000		50,000	155,500

Problem and priority identified in the In-depth Country Assessment

The Country Proposal aims to achieve long-lasting technological sustainability. In this process, there are some problems and issues to be addressed in order for the process to be smooth and the outcomes effective and efficient. The project would seek to resolve the following to exert lasting impact:

- Formulation of Strategic Plan for Renewable Natural Resources Statistics (SP-RNRS)
- Interactive web-based resource that generates time series RNR data at national/sub-national levels
- Strengthen capacity of the stakeholder agencies

The eight key areas identified in the IdCA are:

i)   Development of Strategic Plans for Renewable Natural Resources Statistics (SP-RNRS)

The Global Strategy recognizes that improving agricultural statistics starts with developing SP-RNRS and incorporating such plans into the National Statistical System (NSS)[3]. This activity of Project 3 will be geared towards the formulation of SP-RNRS.

ii)   Foster ICT development

All agencies producing RNR statistics have reasonable number of computers and ICT services in the office. At MoAF the Information and Communication Services (ICS) in the past year published and distributed over 16,500 copies of various RNR newsletters, farmers' newspapers, diaries and magazines. Apart from this, the ICS also disseminated RNR information to the public through various media and aired 32 different RNR programs. The ICS has also been mandated to implement Government to Clients (G2C) Services (e.g. granting timber quota via internet) and 21 services have been identified under this. In a move towards enhancing RNR ICT services, the internet bandwidth has also been upgraded. However, there is a lack of interactive web-based source that generates time series data on RNR at national and sub-national levels. Towards this, this activity will build upon the existing capability of staff and capacity of the office.

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[3] Bhutan Statistical System in the case of Bhutan

### iii)	Consumer price data

Potential sources of consumer price data are Food Corporation of Bhutan (FCB)/Department of Agricultural Marketing and Cooperatives (DAMC) and NSB. The project will assist these agencies to collect, process, analyze and disseminate consumer price data on monthly basis.

### iv)	Customs data

With proper capacity building and planning, it is possible for Department of Revenue and Customs (DRC) under Ministry of Finance (MoF) to provide detailed information on agriculture trade by commodity and its value on a regular basis. Support will be provided by the project towards this end.

### v)	Auction data

With proper capacity building, it is possible for FCB and DAMC to provide detailed information on auction data (quantity traded and price) from auction yards across the country on a regular basis. Support will be provided by the project towards this end.

### vi)	RNR data use

The purpose of this activity will be to train MoAF staff on the use of existing RNR data for policy, planning and statistical development.

### vii)	Forestry data sets

The responsibility of collection, compilation and processing of current data on forestry rests on DOFPS. Main sources of data on forestry are land cover maps, RNR Census, and administrative data maintained by Department of Forests and Park Services (DoFPS) and Natural Resources Development Corporation Limited (NRDCL). "Forestry Facts and Figures Trends 2012" published by DoFPS provides current data on protected areas, social forestry, and sustainable utilization of forest resources. The project will bring improvement in the timely availability of forestry data sets collected through administrative reporting by providing much needed training and equipment support.

### viii)	Forest resources use

Data collected and produced by NRDCL on the utilization of forest resources fall under administrative reporting. To strengthen its capacity for timely data delivery work, NRDCL require assistance in office and computer equipment, software, training and ICT. This project intends to provide support to NRDCL for these.

Summary of the Proposed Strategy

The SP-RNRS will be an updated version of RSF, which is being finalized. The revised draft of the RSF would include agencies outside MoAF such as NSB, Gross National Happiness Commission (GNHC), DRC, Ministry of Labour and Human Resources (MoLHR) etc. Their inclusion is absolutely necessary for the integration of the RNR Statistics System into the Bhutan Statistical System (BSS) and NSDS. The SP-RNRS will have 2 parts. Updated RSF will be its main part. Its Annex would include information required for SP-RNRS that are not available in the main part.

Three consultants will be hired: (i) a consultant (1 p/m) will assist MoAF and NSB in formulation of SP-RNRS, (ii) a consultant (1 p/m) will assist MoAF in proposing an interactive database and (iii) another consultant (1 p/m) will strengthen capacity of existing staff in analyzing existing data sets for planning and policy purposes.

An interactive database will be established on the basis of existing data sets. Existing, limited capacity of staff will be addressed through appropriate capacity enhancement efforts including training and the transfer of knowledge of relevant FAO technical staff to fill the observed gaps.

There is a need to assess the potential use of 'R' software for data processing and analysis in MoAF. In-country capacity in this area of expertise is very limited. FAO will be contacted for assessing R's appropriateness and its training possibilities.

Results Chains

Describe the results, identified during preliminary analysis, which the proposed action will achieve.

Expected Impact

- A coordinated, sustainable system of RNR statistics for use in interventions in the agricultural sector and beyond, ultimately contributing to eradicate poverty and hunger

Expected outcome

- Institutionalization of RNR statistical activities within the government structure
- Developed ICT
- Elements of SP-RNRS sequenced to be implemented

Expected outputs

- Revised RSF along with SP-RNRS

- Trained staff in various areas (15 in total)

- Monthly consumer prices and auction prices (from Regional office of FCB/DAMC)

- Timely commodity-specific trade data (from DRC)

- Timely forestry and forest resources use data (from DoFPS and NRDCL)

- Policy and planning-oriented outputs from existing data sets

Participants and other stakeholders

All stakeholders will benefit from the proposed action. Some of the stakeholders absolutely trust that this project is most important of all.

Potential risks

There are no potential risks which could hinder the achievement of the expected results.

Sustainability of the proposal

See Section 4.6.

Synergies with other projects and programs

A TCP is being drawn up for consideration of FAO for capacity development of MoAF staff in policy impact studies. Main intended outcomes of the TCP are: (i) 4 policy impact studies conducted (on farm road, farm mechanization, human wildlife conflict interventions and community-based ecotourism) and ii) Increased capacity of PPD in carrying out policy impact studies. Clearly there will be no degree of overlap with the proposed TCP in activities/outputs.

The overall objective of the European Union (EU) project "Technical Cooperation Project in Support of the RNR Sector" is to enable MoAF to achieve the objectives of the RNR 11th Five Year Plan. This project (Project 3) will complement the activities to be undertaken by the EU project, especially in the field of knowledge management and training documentation.

Work Plan

Activity	Time schedule	Responsibility	Remark
3a. Training cum study tour (with field trip) to India (IASRI) to know the agricultural data collection system there	February 2015 (Preparation) July/August 2015 (Implementation)	Consultant PPD NSB FAO Bhutan	10 Participants from various agencies; at least 3 female participants There is a need to have lead time of 6 months to implement this training
3b. On-the-job training of staff from various agencies	March 2015		The topic would include price statistics, supply utilization accounts, food balance sheet
3c. Prepare ICT development proposal for MoAF	March 2015	ICT Consultant MoAF	
3d. Workshop to finalize data to be collected and consolidated	May 2015	PPD and NSB	Participants: All stakeholders
3e. Streamline agriculture in NSDS	January-June 2015	PPD (RNR-SC) and NSB	NSB and PPD
3f. Prepare revised SP-RNRS	On-going	Consultant PPD (RNR-SC) and NSB	The SP-RNRS will be an updated version of RSF which is being finalized

Implementation arrangements, budget and monitoring

The project will be jointly implemented by PPD and NSB. Overall implementation arrangements are described in Section 4.3 of the proposal. FAO Bhutan will assist the project in organizing study tour to India.

Estimated budget of Project 3 is given in Table A3. In this table, TA consists of SPARS (1 p/m), other areas (1 p/m) and ICT (1 p/m).

Table A3: Estimated total budget of Project 3 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P3. Increase institutional and HR capacity	60,000		110,000	14,000	5,500	24,000	213,500	300,000		300,000	513,500

Problem and priority identified in the In-depth Country Assessment

Sectoral plans in Bhutan are guided by four pillars of Gross National Happiness (GNH): (i) promotion of equitable and socioeconomic development, (ii) preservation and promotion of cultural values, (iii) conservation of the natural environment and (iv) good governance. Usefulness of data on environment is obvious, particularly for the third pillar.

The IdCA reported that out migration from rural areas and rapid urbanization are causing profound impact on land use and land development, causing adverse effect on environment. As regards this, central focus of NEC has been on data on land and agriculture, forests, air and climate, energy and minerals, biodiversity, water resources, natural disasters, and waste.

Following IdCA, emerging data requirements on environment include updated map and data on land cover (wet land, dry land and Tseri etc.), water and forest. Updated assessment of GHG emissions is also required. Other main requirements are data that are needed for production of Bhutan Environment Outlook (State of Environment Report).

Summary of the Proposed Strategy

As sources of environment statistics are dispersed over a variety of data producers, available data on environment will be consolidated and assessed by NEC and such data will be disseminated to the all types of users via web-based systems.

For this workshops and meetings will be held with the participation of institutions and Dzongkhags

Data on land cover, water and forest are included in Project 5: Land cover mapping. Such data will be outside the scope of the current project.

Assessment of GHG emissions will be undertaken via other means; it will be outside the scope of the current project.

Further enhancement of the capacity of the users and technical capacity of staff will be continued.

A consultant for development of data dissemination system will be hired; on-the-job training will be organized for 4 staff by the consultant.

Results Chains

Expected Impact

- Enabling environment for guiding environmental and forest policy, programs and plans

Expected outcome

- Given the institutional arrangements (see Section 4.3, and A4.9 below), main outcome will be institutional capacity development in the Government in the production and use of environmental data.

Expected outputs

- Assessment of National inventories of agriculture, land use, forestry and water
- Data required for Statement of Environment
- Web-based information system on environment
- Increased capability of 4 staff

Participants and other stakeholders

The proposed action would complement and benefit the initiatives to be taken by others on land cover mapping, GHS emission assessment, and collection of forest data sets. No stakeholder will be negatively affected by the proposed action.

Potential risks

There are no potential risks which could hinder the achievement of the expected results.

Sustainability of the proposal

Salient features of the sustainability in the action include capacity development and environmental sustainability. Technological sustainability will be ensured by Technical Assistance and staff training. In addition, given the implementation arrangement (Section A4.9) institutional sustainability of the results after completion of this project will be ensured by the institutional partners that will contribute towards this action. See Section 4.6 also.

Synergies with other projects and programs

The proposed action would complement and benefit the initiatives to be taken by land cover mapping and forest and GHG emission data sets collection.

Work Plan

Activity	Time schedule	Responsibility	Remark
4a. Prepare format for information collection	July-August 2015	Consultant MoAF NEC	Data format will have to be agreed on the information collection
4b.Train Local staff and institutional staff	October-November, 2015	MoAF NEC	
4c. Data Processing and data assessment	March-June 2016	MoAF NEC	
4d. Consultant for development of dissemination system	July 2015 May 2016	MoAF NEC	
4e.Train staff in use of dissemination system	October 2015 May-June 2016	MoAF NEC	
4f. Assess and process collected data	March-April 2016 March-April 2017	MoAF NEC	
4g. Reporting and dissemination	April 2016 April 2017	MoAF NEC	

Implementation arrangements, budget and monitoring

A proper framework to guide development, coordination and organization of environment statistics is already in place in the country. Main stakeholders in the case of environment statistics are National Environment Commission Secretariat, National Soil Services Centre (NSSC) of DoA, Biodiversity Centre, PPD and DoFPS in MoAF, GNHC, National Land Commission (NLC) and Ministry of Economic Affairs' (MoEA) Department of Geology and Mines (DGM), Hydro-Met Services Department and Department of Renewable Energy). The NEC will be the main implementer of this project.

The estimated total budget of Project 4 is given below. Further details on the budget can be found in Annex II. Briefly, TA, training and funding for studies will be needed to enhance the institutional arrangement for environment information and data.

Table A4: Estimated total budget of Project 4 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P4. Gather updated environmental data	40,000	40,000	50,000	8,000	21,000	21,000	180,000	20,000		20,000	200,000

Project 5: Land cover mapping

Problem and priority identified in the In-depth Country Assessment

The IdCA emphasized that the updated map and data on land cover can be used as reliable decision making tools for a sustainable use of RNR. Such data are also needed for updated description, study and assessment of environment.

Land Cover Maps for Bhutan, which uses updated digital image, are available for 2010. Rapid migration from rural to urban areas, farm labor shortage in rural areas, absenteeism from the holding, and rapid urbanization have caused more and more land fallow (or put into use for non-agricultural purposes). Existing land cover would not be mirrored correctly in the five year old land cover map and data.

Summary of the Proposed Strategy

The strategy is to use FAO's Land Cover Classification System (LCCS), which is recognized worldwide as a very 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 classifying agriculture land cover by type (wet land, dry land and Tseri), agro-ecological stratification and area sampling, all of which can improve reliability of RNR statistics. Technical Assistance as regards LCCS will be sought from Global Land Cover Network of FAO. High quality image resolution (5 m spatial resolution) will be needed to capture small holdings with scattered and varied crops.

Overall strategy will be to develop capacity of national staff in land cover mapping.

Results Chains

The results which the proposed action will achieve are summarized below:

Expected Impact

- There will be powerful and lasting impact on formulation of evidence-based policy and in sustainable management and utilization of land, water and forest resources.

Expected outcome

- Sustainable capacity development in remote sensing and land cover mapping.

Expected outputs

- Latest land-cover map and data
- Updated, reliable agricultural land-cover statistics (wetland, dry land and Tseri etc.)
- 7 trained staff in remote sensing and land cover mapping in DoA, DoFPS and PPD who will assist in preparing the land cover maps and data

Participants and other stakeholders

None of the stakeholders will be negatively affected by proposed action

Potential risks

Given earlier experience of MoAF in land cover mapping, there are no potential risks which could hinder the achievement of the expected results.

Sustainability of the proposal

As regards financial/economic sustainability, similar action may be needed only after 5 years. Technological sustainability of results after completion will be ensured by developing a cadre of trained staff in land cover mapping in DoA, DoFPS and PPD. These offices will contribute towards further use and sustainability of the results. See Section 4.6 also.

Synergies with other projects and programs

The proposed action is a perfect complement to Project 4: Gather updated environmental data.

Work Plan

Activity	Time schedule	Responsibility	Remark
5a. Digital map acquisition	July 2015 – March 2016	MoAF	Lead role PPD
5b. Training of staff in GIS and mapping	March-September 2016	Consultant MoAF	Lead role PPD
5c. Analysis of the maps and data	July 2016 – March 2017	MoAF	Lead role PPD
5d. Production of maps and land cover (RNR) data	June 2017	Consultant MoAF	Lead role PPD

Implementation arrangements, budget and monitoring

Overall implementation arrangements are described in Section 4.3 of the proposal. In 2008 Land Cover Mapping Project (LCMP) was set up with the financial support of Nu. 7 million from the GEF/WB funded Sustainable Land Management Project. On operational front, similar arrangement will be put into place for this project at PPD and the project will be implemented by PPD.

Table A5: Estimated total budget of Project 5 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P5. Land cover mapping	200,000	100,000	30,000	89,000	429,000	110,000	958,000	50,000	50,000	100,000	1,058,000

Problem and priority identified in the In-depth Country Assessment

Both MoAF and NSB lack monetary resources, skills, sustainable supervisory network, mobility and other facilities at the centre and in the field. It is therefore clear that maintaining quality, frequency, consistency, timeliness and reliability of agricultural data is difficult. Another constraint has been non-availability of reliable frames for the conduct of a RNR Census.

The first RNR census was carried out in 2000. The last RNR census was conducted in 2009 by PPD. There is a lack of comprehensive structural data on RNR and proper frame for the conduct of RNR sample surveys. Conduct of a RNR census will provide such data and frame for the conduct of RNR sample surveys.

Summary of the Proposed Strategy

Some questions will be added in the 2015 Population and Housing Census questionnaires to prepare frames for RNR Census and annual sample surveys. Among other benefits, this will ensure proper linkage of RNR surveys conducted by MoAF with NSB survey. This action will also increase reliability of the results of the RNR surveys.

The data items to be covered in the 2016 RNR Census will be similar to the 2009 RNR Census. However, in line with FAO's recommendations, main emphasis this time will be laid on "structural" RNR data that do not change in a short period. Recommended, standard definitions and classifications will be followed as far as possible. Collection of data on fast changing indicators will be kept to a minimum. Data processing will be done in collaboration with NSB, for which MoAF staff will be trained. Database will be well maintained for the future access and use.

Results Chains

Describe the results, identified during preliminary analysis, which the proposed action will achieve.

Expected Impact

- Further development of domestic capacity for evidence-based policymaking in land cover, land tenure, crop intensification and diversification. It will exert impact also on planning enabling environment, both at national and smallest sub-national level.

- Increased reliability of the results provided by RNR and other socioeconomic surveys

Expected outcome

- Institutional development by setting a good example of streamlining agriculture data collection into the national system.
- Better linkage of Population census and RNR census

Expected outputs

- Improved frame for conducting RNR census and probability surveys
- Benchmark data for RNR policy and planning that can be typically used for 10 years
- Solid basis (household data) for the conduct of annual surveys (both for increasing efficiency of sampling design and for estimating optimal sample size required)
- 5 trained staff in MoAF for census and survey data processing

Participants and other stakeholders

All stakeholders in RNR Statistical Framework will benefit from the proposed action. There will be no stakeholder that would be negatively affected by the proposed action.

Potential risks

The RNR Census should be conducted together with or soon after the Population and Housing Census. For frame-related issues a consultant (1 p/m) will be needed when the questionnaire for the Population and Housing Census will be finalized. As regards this time needed to mobilize international resources is already tight. Similarly, time needed to mobilize national and international resources for enumeration work is a potential risk.

Sustainability of the proposal

Technological sustainability of the results after completion can be ensured. For financial sustainability there will be considerable "Government Contribution" for this project. See Section 4.6 also.

Synergies with other projects and programs

This project would complement RNR related projects/programs. It would benefit and build on existing related initiatives such as annual crop survey and livestock census led by DoA and DoL.

Work Plan

Activity	Time schedule	Responsibility	Remark
6a. Phrase "Questions" for RNR frame for their inclusion in the Population and Housing Census	March 2015	Consultant MoAF, NSB	
6b. Design RNR Census questionnaire	April 2015	Consultant, MoAF, NSB, RNR-SSC	
6c. Make provision to link two censuses	May 2015	Consultant, NSB, MoAF	
6d. Training of staff on RNR census enumeration and supervision	September 2015	Consultant, MoAF, NSB	
6e. Training on RNR Census data processing	January-February 2016	NSB	
6f. RNR census data processing	February-August 2016	MoAF, NSB	
6g. Census enumeration	January 2016	MoAF, NSB	
6h. Report on RNR Census	June 2017	Consultant, MoAF, NSB RNR-SSC	

Implementation arrangements, budget and monitoring

The project will be implemented by MoAF. Its implementation schedule would depend on the time schedule of the conduct of Population and Housing Census.

Table A6: Estimated total budget of Project 6 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P6. Conduct of a RNR census	260,000	700,000	60,000	47,000	39,500	144,000	1,250,500	83,300	250,000	333,300	1,583,800

The split of the requirements of consultants ($20,000 per month) is as follows:

Design questions for the population census questionnaire (for RNR frames/linking) 1 p/m
Linking two censuses   *1 p/m*
RNR questionnaire design and tabulation plan   *2 p/m*
RNR Census data processing   *9 p/m*

Project 7: Support to Bhutan Living Standard Survey

Problem and priority identified in the In-depth Country Assessment

Bhutan Living Standard Survey (BLSS) 2012 was commissioned by NSB. The sample size in BLSS 2012 is 8,968 households, which represents a total of 127,942 households with 581,257 persons.

BLSS is an important source of information for many users including MoAF. It is the main source of reliable data and indicators needed for monitoring and evaluation of the international and regional commitments such as Millennium Development Goals (MDG) and South Asian Association for Regional Cooperation (SAARC) Development Goals (SDG). Crucial RNR-related data provided by this survey include most updated household level information on composition, demographics, employment (in farming), asset ownership (of land and livestock), sources of income, and food consumption in minute details. Bhutan Poverty Analysis 2012 and Bhutan Poverty Assessment 2014 are predominantly based on BLSS data. Data on composition and demography are available from the Population and Housing Census and updated data on employment are available from Labour Force Surveys (LFS) also. However, BLSS is the most comprehensive and comparable source of data on household food security and poverty.

The IdCA mission noted that NSB has a very good technical capacity to undertake probability sample surveys and to process and analyze their data. Its human resources constraint can be addressed because it is more of manpower not technical.

All BLSS (2003, 2007 and 2012) were entirely funded by Asian Development Bank (ADB). For sustainability government-funded BLSS is a necessity now.

Summary of the Proposed Strategy

In 2017 will be conducted as a regular program of NSB. Entirely Government-funded BLSS will be recurring every five year.

Results Chains

The proposed action will achieve the following results:

Expected Impact

- Enabling environment to inform and advocate for improved policies and programs on food security, poverty, livelihood, employment, and social capital.

- Enabling environment for household food security and livelihood assessment, monitoring and evaluation

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Expected outcome

- Capacity of NSB further strengthened to carry out reliable, timely and regular production of poverty, nutrition and livelihood data and their analysis

- Institutional strengthening at the Dzongkhag level to carry out poverty, livelihood and food security monitoring

Expected outputs (main)

- BLSS Survey Report
- Poverty Analysis and Poverty Assessment Reports (based on data from BLSS)
- Sampled households' data on:
- Commodity-specific food consumption
- Income earned from cereal, fruits, vegetables, meat, dairy products, eggs, forest wood products, forest non-wood products

- Poverty for MDG evaluation and other uses
- Social capital
- Data items sex (for the data items collected in BLSS "by sex").

Participants and other stakeholders

BLSS is the sole source of reliable and comparable information and data on food security, poverty, health, education, livelihood, asset ownership, remittances, credits, employment, and social capital. Hence, stakeholders benefiting from the proposed action are many. Other sources of some of these data include the Population and Housing Census (on composition and demography) and LFS (employment). However, no agency or individual is going to be adversely affected by the proposed project. The stakeholders will make sure that there will be no duplication of efforts.

Potential risks

Given the experience NSB has gained over the years, potential risks which could hinder the achievement of the expected results are none.

Sustainability of the proposal

Funds for carrying out BLSS 2017 would be possible to acquire from the Government resources. The NSB and its partners are confident that the action will be able to ensure capacity development and technological sustainability. Similarly, current situation suggests that

financial/economic sustainability for carrying out BLSS on a quinquennial basis would also be possible to achieve. See Section 4.6 also.

Synergies with other projects and programs

The proposed action would complement the following:

- Existing initiatives taken by MoAF in gathering crop and livestock production data
- Existing initiatives taken by MoLHR in gathering employment and labour data

Work Plan

This project will support the conduct of BLSS in 2017. For this there is already a well-established system at NSB.

Activity	Time schedule	Responsibility	Remark
7a. Revision of 2012 BLSS questionnaire	January-March 2017	NSB and stakeholders	
7b. Hiring and training of enumerators and supervisors	March-April 2017	NSB	
7c. Enumeration and supervision	March-April 2017	NSB	
7d. Conduct of BLSS	April-May 2017	NSB	
7e. Data processing and reporting	June-December 2017	NSB	

Implementation arrangements, budget and monitoring

The institutional arrangement made at NSB for the conduct of the 2012 BLSS was proper, so it will be given continuity.

Table A7: Estimated total budget of Project 7 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P7. Bhutan Living Standard Survey								10,000	145,000	155,000	155,000

The responsibility of monitoring and progress reporting will rest upon NSB. Of the three rounds (2003, 2007 and 2012) of the BLSS conducted so far, the BLSS 2007 and 2012 rounds are most important sources of indicators for assessing the government's 2008–2013 five-year plan. ADB always provided funding for the conduct of this survey. The Government will provide funds for

the conduct of the next round of BLSS in 2017, after which this activity will be implemented in a program mode.

Project 8: Support to the conduct of Labor Force Survey

Problem and priority identified in the In-depth Country Assessment

The tenth Labor Force Survey was conducted by MoLHR in March and April, 2012. The survey provides useful information on the size, composition and economic characteristics of the urban and rural population. In addition, data on labor and human resources are also available by sex, age, occupation, location, industry, employment, nature of employment, and labor force participation. Such data are essential for macroeconomic policy and planning.

The Labor Force Survey was initiated first time in 1998. From 2003, it has become a regular activity of MoLHR. The Department of Employment aims to conduct the Labor Force Survey annually to enable the Ministry to assess the current and emerging labor situation in the country. MoLHR's capacity needs to be increased in sampling frame preparation and in survey data processing. NSB is in the best position to organize tailor made local training on these subjects. Given this the training cost, part of which will be allotted from Project 3, is adjudged nominal.

Summary of the Proposed Strategy

The strategy is to promote existing approach by upgrading capacity of MoLHR by training 6 of its staff members in survey data processing (4) and ICT development (2). in order to (i) gain knowledge of NSB sampling frame, (ii) speed-up the survey data processing and (iii) satiate emerging data on employment and labor use (in RNR-Sector). Training of 2 staff on ICT development will be required also.

Currently LFS is conducted annually. Given the data demand intended strategy will be to conduct it on quarterly or half-yearly basis, if resources permit.

Results Chains

The results identified during IdCA, which the proposed action will achieve, are summarized below:

Expected Impact

- Through the provision of timely data there will be more enabling environment for policy formulation on labor and employment use in RNR Sector.

Expected outcome

- Capacity development at MoLHR for Labor Force Survey sampling design, data processing and reporting

Expected outputs

- 4 well trained staff on the use of sampling frame (of NSB), on sampling design and on survey data processing
- 2 staff trained in ICT development
- Timely, gender-specific data on employment and labour use by sex, age, occupation, location, employment, nature of employment, and labour force participation in RNR sector
- Survey Report that includes results and technical aspects

Participants and other stakeholders

Stakeholders benefiting from proposed action include line ministries, NSB and ILO because the action will enable MoLHR to provide required data to their users on a timely manner. No stakeholder will be negatively affected by the proposed action.

Potential risks

Possible turn-over of the trained staff could hinder the achievement of the expected results. However, this risk is adjudged to be medium. Towards this practical mitigating measure to be adopted includes organization of training for 4 professionals.

Sustainability of the proposal

Amount of the assistance to be provided by a donor is none. Given this, sustainability of results after completion of the project will be easier. See Section 4.6 also.

Synergies with other projects and programs

The frame used by MoLHR comes from NSB and replicated household data sets of NSB and MoLHR can be linked. Given this, firstly, proposed action would complement socioeconomic data (e.g. BLSS) and other survey data gathered by NSB. Secondly, MoLHR will have to update its sampling frame after the frame from next Population and Housing Census would be available from the NSB.

Work Plan

Activity	Time schedule	Responsibility	Remark
8a. Training of enumerators	January 2015	MoLHR NSB	
8b. Conduct of Labor Force Survey	March-April 2015	MoLHR	
8c. Prepare proposal for data processing training for consideration of NSB	March 2015	MoLHR	
8d. Organization of training on data processing	April 2015	MoLHR	
8e. Process and Publish LFS Report	April-December 2015	MoLHR	

Implementation arrangements, budget and monitoring

The institutional arrangement made at MoLHR for the conduct of the 2012 was proper. It will be given continuity. Accordingly, Labour Market Information & Research Division (LMIRD) of the Department of Employment, MoLHR will take a lead in technical matters. The NSB will provide technical assistance in frame, training (in data processing), data processing, and analysis. Other line agencies and administrations at the central and sub-national levels will assume supporting roles.

Table A8: Estimated total budget of Project 8 (US$)

Project/Action Plan	Technical Assistance (Consultant)	Temporary Assistance	Training	GOE	Other Expenses	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P8. Labor Force Survey								50,000	90,000	140,000	140,000

Precise details on the budget can be found in Annex II. The project will be monitored by MoLHR. The responsibility of monitoring and progress reporting will rest upon Labor Market Information & Research Division (LMIRD) of the Department of Employment, Ministry of Labour and Human Resources (MoLHR).

Annex II: Budget

Annex IIa: Budget Summary (US$)

Project/Action Plan (in order of priority)	Technical Assistance (Consultant)	Temporary Assistance	Training	Travel	Expendable	Non-Expendable	TSS	GOE	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P1. Bring improvement in crop statistics	60,000		30,000	5,000	10,000		1,000	8,000	15,000	129,000	50,000		50,000	179,000
P2. Bring improvement in livestock Statistics	60,000		25,000	2,500			1,000	5,000	12,000	105,500	50,000		50,000	155,500
P3. Increase institutional and HR capacity	60,000		110,000	2,500		2,000	1,000	14,000	24,000	213,500	300,000		300,000	513,500
P4. Gather updated environmental data	40,000	40,000	50,000	20,000			1,000	8,000	21,000	180,000	20,000		20,000	200,000
P5. Land cover mapping	200,000	100,000	30,000	25,000	400,000		4,000	89,000	110,000	958,000	50,000	50,000	100,000	1,058,000
P6. Conduct of a RNR census	260,000	700,000	60,000	32,500			7,000	47,000	144,000	1,250,500	83,300	250,000	333,300	1,583,800
P7. Bhutan Living Standard Survey											10,000	145,000	155,000	155,000
P8. Labor Force Survey											50,000	90,000	140,000	140,000
Overall	**680,000**	**840,000**	**305,000**	**87,500**	**410,000**	**2,000**	**15,000**	**171,000**	**326,000**	**2,836,500**	**613,300**	**535,000**	**1,148,300**	**3,984,800**

Annex IIb: Budget Summary (Nu.)

$ to Nu. Ex-Rate 60

Project/Action Plan (in order of priority)	Technical Assistance	Temporary Assistance	Training	Travel	Expendable	Non-Expendable	TSS	GOE	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
P1. Bring improvement in crop statistics	3,600,000		1,800,000	300,000	600,000		60,000	480,000	900,000	7,740,000	3,000,000		3,000,000	10,740,000
P2. Bring improvement in livestock Statistics	3,600,000		1,500,000	150,000			60,000	300,000	720,000	6,330,000	3,000,000		3,000,000	9,330,000
P3. Increase institutional and HR capacity	3,600,000		6,600,000	150,000		120,000	60,000	840,000	1,440,000	12,810,000	18,000,000		18,000,000	30,810,000
P4. Gather updated environmental data	2,400,000	2,400,000	3,000,000	1,200,000			60,000	480,000	1,260,000	10,800,000	1,200,000		1,200,000	12,000,000
P5. Land cover mapping	12,000,000	6,000,000	1,800,000	1,500,000	24,000,000		240,000	5,340,000	6,600,000	57,480,000	3,000,000	3,000,000	6,000,000	63,480,000
P6. Conduct of a RNR census	15,600,000	42,000,000	3,600,000	1,950,000			420,000	2,820,000	8,640,000	75,030,000	4,998,000	15,000,000	19,998,000	95,028,000
P7. Bhutan Living Standard Survey											600,000	8,700,000	9,300,000	9,300,000
P8. Labor Force Survey											3,000,000	5,400,000	8,400,000	8,400,000
Overall	**40,800,000**	**50,400,000**	**18,300,000**	**5,250,000**	**24,600,000**	**120,000**	**900,000**	**10,260,000**	**19,560,000**	**170,190,000**	**36,798,000**	**32,100,000**	**68,898,000**	**239,088,000**

Annex IIc: Cost breakdown in the case of Institutional and HR capacity (US$)

Activities	Technical Assistance	Temporary Assistance	Training	Travel	Expendable	Non-Expendable	TSS	GOE	PSC	Sub-total Donor	Government Contribution (Equipment)	Government Contribution (Operational)	Sub-total Government Contribution	Total Project Cost
1. Formulation of SPARS and overall aspects	40,000					2,000			5,000	47,000				47,000
2. Support to ICT development	20,000		30,000	2,500			1,000	5,000	8,000	66,500	50,000		50,000	116,500
3. Consumer price data			10,000					1,000	1,000	12,000	40,000		40,000	52,000
4. Customs data			25,000					3,000	5,000	33,000	70,000		70,000	103,000
5. Auction data			10,000					1,000	1,000	12,000	70,000		70,000	82,000
6. RNR data use			15,000					2,000	2,000	19,000	20,000		20,000	39,000
7. Forestry data sets			10,000					1,000	1,000	12,000	30,000		30,000	42,000
8. Forest resources use			10,000					1,000	1,000	12,000	20,000		20,000	32,000
Sub-total	**60,000**		**110,000**	**2,500**		**2,000**	**1,000**	**14,000**	**24,000**	**213,500**	**300,000**		**300,000**	**513,500**

Annex III: Work Plan (2015 –2017)

Project / Activity	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
1 Bring improvement in crop statistics										
1a. Revise questionnaire and survey design	X									
1b. Development of online database for survey data entry	X									
1c. On-the-job training of DoA staff	X									
1d. Training of DoA staff on frame and data processing	X			X						
1e. A Report on the methodology						X				
1f. Publish results based on the improved survey						X				X
2 Bring improvement in livestock Statistics										
2a. Revise questionnaires	X									
2b. Report on frame and sampling design	X									
2c. Development of estimation methods of livestock products	X									
2d. Training of central staff	X									
2e. Training of field staff			X				X			
2f. Conduct Pilot Sample Survey in a large Dzongkhags				X						
2g. Report on the Pilot Sample Survey						X				
2h. Release annual data on livestock						X				X
3 Increase institutional and HR capacity										
3a. Training cum study tour (with field trip) to India (IASRI)	X	X	X							
3b. On-the-job training of staff from various agencies	X									
3c. Prepare ICT development proposal for MoAF		X								
3d. Workshop to finalize data to be collected and consolidated		X								
3e. Streamline agriculture in NSDS	X	X								
3f. Prepare revised SPARS (SP-RNRS)		X	X	X	X	X	X	X		

Project/ Activity	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
4 Gather and publish updated environmental data										
4a. Prepare format for information collection			X							
4b.Train Local staff and institutional staff				X						
4c. Data Processing and data assessment						X	X			
4d. Consultant for development of dissemination system			X				X			
4e.Train staff in use of dissemination system				X			X			
4f. Assess and process collected data					X	X			X	X
4g. Reporting and dissemination						X				X
5 Land cover mapping										
5a. Digital map acquisition			X	X	X					
5b. Training of staff in GIS and mapping					X	X	X			
5c. Analysis of the maps and data							X	X	X	
5d. Production of maps and land cover (RNR) data										X
6 Conduct of a RNR census										
6a. Phrase "Questions" for RNR statistical frame	X	X								
6b. Design RNR Census questionnaire		X								
6c. Make provision to link two censuses		X								
6d. Training on RNR census enumeration and supervision			X							
6e. Training on RNR Census data processing					X					
6f. RNR census data processing					X	X				
6g. Census enumeration					X					
6h. Report on RNR Census										X
7 Support to BLSS 2017										
7a. Revision of BLSS questionnaire									X	
7b. Hiring and training of enumerators and supervisors									X	X
7c. Enumeration and supervision training									X	X
7d. Conduct of BLSS										X
7e. Data processing and reporting (Goes beyond)									X	X

Project / Activity	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
8 Conduct of Labor Force Survey	**X**	**X**								
8a. Training of enumerators	X	X								
8b. Prepare a proposal for data processing training	X									
8c. Organization of training on data processing		X								
8d. Process and Publish LFS Report		X	X	X	X	X	X	X	X	X

Annex IV: List of participating individuals in the finalization of the Country Proposal

SN	Name	Agency
1	Mr. Dawa Zangpo	Policy and Planning Division, Ministry of Agriculture & Forests
2	Mr. Tsheten	Department of Livestock, Ministry of Agriculture & Forests
3	Mr. Karma Tenzin	Information & Communication Services, Ministry of Agriculture & Forests
4	Mr. Tashi Namgay	Department of Revenue & Customs, Ministry of Finance
5	Mr. Rinzin Namgay	National Environment Commission
6	Mr. Sonam Penjor	Policy and Planning Division, Ministry of Agriculture & Forests
7	Mr. Sangay Chophel	Policy and Planning Division, Ministry of Agriculture & Forests
8	Dr. Kuenga Namgay	Policy and Planning Division, Ministry of Agriculture & Forests
9	Mr. Phub Sangay (Chair)	National Statistics Bureau
10	Mr. TN. Acharya	Council for RNR Research of Bhutan, Ministry of Agriculture & Forests
11	Mr. Karpo Dukpa	Policy and Planning Division, Ministry of Agriculture & Forests
12	Mr. Jamyang Kunzang	Department of Agriculture, Ministry of Agriculture & Forests
13	Ms. Namgay Bidha	Department of Forests & Park Services, Ministry of Agriculture & Forests
14	Ms. Sangay Choden	DAMC, Ministry of Agriculture & Forests
15	Ms. Kuenga Wangmo	Policy and Planning Division, Ministry of Agriculture & Forests
16	Mr. Nima P Sherpa	Policy and Planning Division, Ministry of Agriculture & Forests
17	Mr. Dawa	National Statistics Bureau
18	Mr. Chadho Tenzin	FAO Country Office Bhutan
19	Mr. Yagyash Gautam	FAO's International Consultant
20	Mr. Allan Nicholls	FAO, Asia-Pacific Region, Bangkok, Thailand

Contact:

Policy and Planning Division, Ministry of Agriculture and Forests
Thimphu, Bhutan
Tel: 975 02 323745, Fax: 975 02 323748

Related publication:

In-depth Country Assessment of the National Renewable Natural Resources Statistics in Bhutan
(An implementation of Global Strategy to Improve Agricultural and Rural Statistics)
www.countrystat.org/home.aspx?c=BTN.