



RENEWABLE NATURAL RESOURCES CENSUS 2019

Enumerators Manual RNR Census 2019

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Ministry of Agriculture and Forests
Royal Government of Bhutan

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CHAPTER 1

INTRODUCTION TO THE RNR CENSUS

About 62% of the total population in Bhutan constitute of the rural households depending on RNR activities. The first RNR Census was conducted in year 2000 followed by the 2nd in 2009. World Programme for the Census of Agriculture 2020 recommends the conduct of agricultural census every 10 years. This is the 3rd RNR Census being conducted. The RNR Census 2019 aims to provide the Royal Government of Bhutan with an updated benchmark of RNR data at the lowest administrative level, which will be useful for the formulation of agricultural and rural development policies and improvement of food security of the population.

The RNR Census 2019 is in conformity with World Programme for the Census of Agriculture (WCA), and covers all aspects specific to the farm holdings and holders, who are actually engaged in agriculture, forestry and livestock including aquaculture. In addition, follow up of uniform concepts would make results comparable at regional and international level. With reduction in sampling and non-sampling errors.

Objectives and Outcome of RNR Census 2019

Objective

To collect a reliable database of its farmers / farm holdings, the role of the RNR Census is of utmost importance, as it prepares list of households and holdings engaged in agriculture as the first step. The objectives of RNR Census 2019 are;

- To establish a statistically sound system of data collection for the RNR sector in the country with an integrated approach of follow up surveys, in conformity with WCA of the FAO of United Nations.
- To meet data requirements of RNR Sector in the country, leading to a farm register & covering structural characteristics of operational holdings in the country.
- To provide baseline data on RNR Sector with timeliness and also to strengthen the statistical system of the country by way of efficient use of the existing facilities, capacity building on human resources, infrastructure, technological innovations etc.

Outcome

The RNR Census will provide a wealth of new and reliable information, with open access of the users to non-confidential data, disseminated via through the MoAF web-site and printed publications and will include:

- structural data on RNR Sector available at spatial and temporal scale for national and international comparisons;
- data on land tenure, land use;
- data on livestock;
- data on characteristics of agricultural holdings;
- data on agricultural employment and farm economy;

- data on agricultural machinery and equipment;
- information on agricultural production methods;
- farm labour and gender statistics on the contribution of women and men to agricultural production and their access to agricultural resources;
- information on rural infrastructure at community level;
- benchmark data for current statistics and baseline data for evaluation of impacts of agriculture and rural development programmes, etc.

Census coverage

The RNR Census will cover all the holdings in the rural and semi-urban area that depend their livelihood from engaging in RNR activities i.e. agriculture, livestock and forestry activities. The enumerators will enumerate every households/holdings as per the frame list.

Enumeration Area

The enumeration area for the RNR census shall be the area covered by the enumerators in a day, in most cases this is a village of their respective Gewog.

Statistical unit of enumeration

The statistical unit is the individual holdings e.g. households, institutions, corporative entities, etc.

Frame list

The WCA 2020 recommends the conduct of RNR census right after the Population and housing census, which took place in Bhutan in 2017. The RNR frame updated the PHCB frame by the RNR extension agents with support from Gewog administrative records.

CHAPTER 2: INSTRUCTION TO THE ENUMERATORS

Enumeration procedure

- Make contact with the Gewog head before approaching the interviewee. The Gewog head will be informed about the RNR census and dates for the data collection.
- The RNR officials from each Gewog in the Dzongkhags will be enumerators and will conduct the questionnaire assigned by their respective Dzongkhag Census Coordinator.
- Enumerators will be provided with a list of holders to cover.
- The enumeration will be done CAPI based, where enumerators will be using the Tablet that they have been provided with to collect the data. Paper questionnaire for backup will be provided.
- The enumerators will revisit those households 3 times that were not available on the day of enumeration or previously for enumeration or the entire data collection period to minimize non-response bias.
- Avoid interviewing in presence of other holders in order to avoid being influenced.
- Try to interview the household head as far as possible, if the household head is unavailable, you may interview another responsible adult member of the household if that person is fully familiar with the agricultural operations.
- Refrain from collecting data from children, neighbours or other persons who are not members of the household. However, you may seek information from such people to help set up an interview with the household.

The community based information will be collected from key respondents such as Gewog officials of the respective Gewog.

General Instruction:

- Always begin the interview by introducing himself/ herself in the best possible manner, always be polite and friendly.
- Explain the purpose and objectives of the census.
- State the confidentiality of their identity provided by the household.
- Ask the questions as stated in the questionnaire and record the answers accurately.
- Avoid paraphrasing questions: if the questionnaire ask, “What is your age?” do not rephrase as “Your age must be 35 years, isn’t it?”
- Refrain from discussing any government and local issues besides your assigned responsibilities (questionnaire).
- Respect the privacy of people.
- Always be in formal dress.
- Thank the respondent/local officials for their co-operation at the end of interview.

Enumerators' Kit

- Tablet
- Charger
- 4-5 copies of census questionnaire (hard copy)
- Enumerators manual
- list of holdings to cover

CHAPTER 3: CONCEPTS AND DEFINITIONS

Q. No	Question Text & Codes for Responses	Concepts/Definitions	Census Reference Time
	<p>Identification and location of the holding. Dzongkhag, Gewog, Chiwog, Village/Town Name, Household_SL_No, Respondent Name, Contact_No and Enumerators Name</p>	<p>“An agricultural holding/ holding is an economic unit under single management comprising all livestock kept and all land used wholly or partly for agriculture production purposes, regardless of the ownership. Single management may be exercised by an individual or household, jointly by two or more individuals or households, by a clan or tribe, or by a juridical person such as a corporation, cooperative or government agency e.g Bhutan Livestock Development Corporation Limited.</p> <p>There are two types of agricultural holdings:</p> <ol style="list-style-type: none"> 1. holdings in the household sector – that is, those operated by household members; and 2. holdings in the non-household sector, such as corporations and government institutions. <p>The majority of agricultural production in Bhutan is in the household sector. The concept of “agricultural holding” is therefore closely related to the concept of “household”.</p> <p>Household</p> <p>“The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either</p> <ol style="list-style-type: none"> a) a one person household, that is to say, a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of a multi-person household, or 	<p>Census Reference Day</p>

	<p>b) a multi-person household, that is to say, a group of two or more persons living together who make common contribution in the production of food or other essentials for living. The persons in the group may pool their resources and may have a common budget; they may be related or unrelated persons, or constitute a combination of persons both related and unrelated”</p> <p>Respondent is the person from whom data are collected about the statistical unit. This item can be used for quality assessments and checks. The respondent should be someone sufficiently knowledgeable to answer the census questions accurately; usually this is the holder or hired manager.</p>	
SECTION A: GENERAL CHARACTERISTICS		
<p>What is the main RNR activity of the holding?</p> <p>1- Crop production; 2- Livestock production; 3- Crop and livestock; 4- Forestry and logging; 5- Fishery and aquaculture</p> <p style="text-align: center;">A1</p>	<p>RNR activities entails agriculture, livestock and forestry activities. This pertains to contribution from RNR activity to holdings’ main livelihood.</p> <p>Crop production: when majority of the total value of the holding’s production in the household comes from crop production.</p> <p>Livestock production: when majority of the total value of the holding’s production in the household comes from livestock production.</p> <p>Crop and livestock: when crop and livestock production in the household has equal value to the holding’s production</p> <p>Forestry and logging: when majority of the total value of the holding’s production in the household comes from engaging in forestry and logging.</p> <p>Fishery and aquaculture: when majority of the total value of the holding’s production in the household comes from engaging in fishery and aquaculture activities.</p> <p>Note: Even if the holding has very less area of land but has high productive and</p>	Census Reference Year

A2	<p>What type of holding is this?</p> <p>1- Household; 2- Private Ltd company 3- Group/cooperative; 4-SOE; 5-Monastery; 6-School; 7-Armed force premise; 8-Kukhor-owned; 9-Others</p>	<p>Household: Individual holdings</p> <p>Private Ltd Company: holdings engaged in large commercial farming owned by an individual with a hired manager.</p> <p>Group/cooperatives: holding operated by a group of individuals (farmers) for commercial purpose e.g. Shershong Cooperative in Mongar a milk processing unit.</p> <p>State Owned Enterprises: a legal entity that is created by a government in order to partake in commercial activities on the government's behalf. It can be either wholly or partially owned by a government and is typically earmarked to participate in specific commercial activities. E.g. Bhutan Livestock Development Corporation Limited.</p> <p>Monastery: a religious institution managing/operating an agriculture or livestock holdings for the institution's consumption.</p> <p>School: schools managing/operating an agriculture or livestock holdings for the school's consumption and some for sale.</p> <p>Armed force premise: holdings operated by the households residing in the armed force premises.</p> <p>Kukhor-owned: holdings owned by the royals managed by the hired managers.</p>	Census Reference Year
A2.H	Name of the Holder	<p>The holder is defined as a person, group of people or juridical person who makes the major decisions regarding the resources used and exercises management control over the holding's operation. The holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities related to day to day work management to a hired manager.</p>	Census Reference Day

A3	<p>What is the main purpose of production?</p> <p>1- Only for own consumption; 2- Mainly for own consumption with some sales; 3- Mainly for sale with some own consumption; 4- Only for sale</p>	<p>Only for own consumption: if the purpose of the holding's production is for self-consumption and not for sale/ If all of the holding's production is for self-consumption and not for commercial purpose</p> <p>Mainly for own consumption with some sales: If the larger portion of the holding's production is for self-consumption and lesser portion for sale of the production for cash or in exchange for other produce/products</p> <p>Mainly for sale with some own consumption: If the larger portion of the holding's production is for sale of the produces for cash or in exchange for other produce/products and lesser portion for self-consumption</p> <p>Only for sale: If all of the holding's production is for commercial purpose and not of consumption</p>	Census Reference Year
A4	<p>What are other economic activities of this household?</p> <p>1- Forestry and logging; 2- Non-wood forest products collection; 3- Fishing and aquaculture; 4- Processing of agricultural products (Agro processing); 5- Handicrafts; 6- Wholesale and retail trade; 7- Hotels and restaurants; 8- Agro-tourism (including homestay); 9- Livestock production; 10- Crop production; 11- Other</p>	<p><i>This relates to other business/ enterprise activities run by the household, not about household members earning income from employment elsewhere. For e.g. if a member worked as cook or waiter in a hotel owned by other people, do not tick the hotels/restaurants.</i></p> <p>A household may be engaged in economic activities other than agricultural production. For example, a household may operate a shop or restaurant, in addition to operating the holding. It does not include paid work as an employee in an agricultural or non-agricultural capacity on the holding itself or for a business not associated with the household.</p>	Census Reference Year

	<p>What percentage of the total household income comes from RNR production?</p> <p>1- 0%- 25%; 2- 26%- 50%; 3- 51%- 75%; 4- 76%- 100%</p>	<p>The extent to which the households rely on their own production for the total household income.</p> <p>0%- 25%: the household's income generation of RNR production from the holding constitutes a quarter of the household's total income.</p> <p>26%- 50%: the household's income generation of RNR production from the holding constitutes a half of the household's total income.</p> <p>51%- 75%: the household's income generation of RNR production from the holding constitutes a half of the household's total income.</p> <p>76%- 100%: the household's income generation of RNR production from the holding constitutes all of the household's total income.</p>	<p>Census Reference Year</p>
<p>SECTION B: HOUSEHOLD MEMBERS DEMOGRAPHY AND WORK</p>			
<p>B1</p>	<p>Name</p>	<p>This question intends to collect details of household members who usually are residents and are sharing meals together in the household.</p>	<p>Census Reference Day</p>
<p>B2</p>	<p>What is the relation of (name) to household head?</p> <p>1- Head; 2- Spouse; 3- Father/Mother; 4-Brother/ Sister; 5- Son/Daughter; 6- Niece/Nephew; 7- Grand Father/ Grand Mother; 8- Grand Son/Grand Daughter; 9- Son-in-law/Daughter-in-law; 10- Father-in-law/</p>	<p>This question intends to collect information on the household member's relationship to the head of the household.</p>	<p>Census Reference Day</p>

B2	<p>Mother-in-law; 11- Brother-in-law/Sister-in-law; 12- Uncle/Aunt; 13- Step father/ Step mother; 14- Adopted/Foster/ Stepchild; 15- Other Family Relatives; 16-Live in Servant</p>		Census Reference Day
B3	<p>What is the sex of (name)? 1=Female; 2=Male</p>	Mention the gender of the resident.	Census Reference Day
B4	<p>What is the age (in completed years) of (name)?</p>	Mention the age (in completed years) of the resident.	Census Reference Day
B5	<p>What is the marital status of (name)? 1- Never married; 2- Living together; 3- Married; 4- Divorced; 5- Separated; 6-Widow/ Widower</p>	<p><i>Only for ages 15 and above</i> Marital status refers to the status of the household member in relation to the marriage laws or customs of the country.</p>	Census Reference Day

	<p>What is the highest education attained by (name)?</p> <p>00-PP; 01-Grade 1; 02-Grade 2; 03-Grade 3; 04-Grade 4; 05-Grade 5; 06-Grade 6; 07-Grade 7; 08-Grade 8; 09-Grade 9; 10-Grade 10; 11-Grade 11; 12-Grade 12; 13-Bachelor's degree; 14-Master's; 15- Ph.D/Doctorate; 16- Diploma; 17- VTI/ TTI/RTI Certificate; 18-BLC(Zherim); 19- PLC (Khakong); 20- ECCD/Daycare; 21- No Schooling; 22- Other</p>	<p><i>Only for ages 15 and above</i></p> <p>Educational attainment refers to the highest grade of formal education completed or attended by a household member.</p>	<p>Census Reference Day</p>
<p>B7</p>	<p>What is the main occupation of (name)?</p>	<p>If the member is spending more work time outside of the holding then what other activities are they engaged in.</p> <p>This question is to determine what other activities are the household member is engaged in, if the household member spent more time outside the holding.</p>	<p>Census Reference Year</p>
<p>SECTION C: HOLDING AREA, LANDUSE AND IRRIGATION</p>			
<p>C1</p>	<p>Does your holding have land, either owned or leased-in from others, in this gewog where you reside? Yes/No</p>	<p><i>This question intends to collect data on the ownership of the land in the household's/holding's respective Gewog.</i></p>	<p>Census Reference Day</p>

C2	<p>If yes, please select the land types - by legal definition, and not to be confused with actual land use.</p> <p>A- Chhuzhing; B- Kamzhing; C- Khimsa; D- Ngulthodumra</p>	<p><i>This question intends to collect data of the types of land operated/managed by the household/holding.</i></p> <p>Chhuzhing: An area, which has access to naturally or artificially provided irrigation to grow crops. There are rain fed wetlands too but terraced.</p> <p>Kamzhing: Agricultural land where crops are grown without irrigation.</p> <p>Khimsa: A piece of plot on which a mixed variety of crops are grown around the house mostly for self-consumption.</p> <p>Ngulthodumra: A land on which fruits are grown in compact plantation.</p> <p>Note: Categories of land types by legal definition, and not to be confused with the actual land use. For e.g. orchard does not necessarily mean land having fruit trees, but simply how a land is registered in the thram.</p>	Census Reference Day
C4	<p>How many acres of C2 do you own in this Gewog?</p>	<p>This question intends to collect data of C2 type of land area the household own in the Gewog they are currently residing in.</p> <p>Note: Area should be reported as per the actual physical area on the ground operated, which can be more (or sometimes even less) than the registered lag-thram.</p>	Census Reference Day
C5	<p>How many acres of C2 are you leasing in, from others in this Gewog?</p>	<p>This question intends to collect the data on the C2 type of land area the household have leased in from others in this Gewog they are currently residing in.</p>	Census Reference Day
C6	<p>From whom are you leasing in the C2 from?</p> <p>1- Others farmers; 2- Dratshang/monastery; 3- Community; 4- Government</p>	<p>If the household has leased in land, this question intends to collect data from whom the household have leased in the land from.</p>	Census Reference Day
C7	<p>Of the total C2 you own, how many acres are you leasing out?</p>	<p>This question intends to collect data on the area the household has leased out to others from the total area they own.</p>	Census Reference Day

C8	Of the total C2 you own, how many acres are you leaving fallow?	This question intends to collect data on the land area the household has left <i>fallow</i> (land left uncultivated) of the total land area.	Census Reference Day
C9	<p>What is the main reason for leaving the C2 land fallow.</p> <p>1- As part of crop rotation practice; 2- Want to convert to other land type; 3- Irrigation problems; 4- Wildlife damage; 5- Labor shortage; 6- Low soil fertility; 7- Too far from home;</p> <p>8-Other reasons</p>	This question intends to collect data on the reason for leaving the C2 land fallow.	Census Reference Day
C10	So your operational C2 area is as shown below, right?	This question intends to collect data on the total land operated by the household for the purpose of agriculture production. <i>Operational Land:</i> is the total land area owned and leased in minus the total land area leased out and left fallow.	Census Reference Day
C_FB	Of the total operational C2 area, how much area (in acres) is occupied by farm buildings and farmyards (e.g. animal sheds, barns, store house etc)?	This question intends to collect data on the total area covered by structural entities like farm buildings and farmyards (e.g. animal sheds, barns, store houses, etc) on the holding.	Census Reference Day

C11	Of the total operational C2 area, how much area (in acres) is under orchard (fruit trees in compact plantation)	<p>This question intends to collect data on the total area under orchard, containing permanent crops.</p> <p>Permanent Crops: crops with a more than one-year growing cycle (e.g fruits, cardamom, etc)</p> <p>Temporary crops: crops with a less than one-year growing cycle (e.g vegetables, tubers, etc)</p> <p>Compact Plantation includes plants, trees and shrubs planted in a regular and systematic manner, such as in an orchard.</p> <p><i>Note: Fruit trees planted here and there in scattered manner; or on land predominantly used for temporary crops, should not be considered as orchard.</i></p>	Census Reference Day
C12	Of the total operational C2 area, how much area (in acres) is under temporary meadows and pastures?	<p>This question intends to collect data on the total area under temporary meadows and pastures.</p> <p>Temporary meadows and pastures are those that grow herbaceous forage crop, through cultivation or naturally grown which has been less than 5 years old after its establishment.</p>	Census Reference Day
C13	Of the total operational C2 area, how much area (in acres) is under permanent meadows and pastures?	<p>This question intends to collect data on the total area under Permanent meadows and pastures.</p> <p>Permanent meadows and pastures are those that grow herbaceous forage crop, through cultivation or naturally grown which has been more than 5 years old after its establishment.</p>	Census Reference Day
C14	Of the total operational C2 area, how much area (in acres) is under forests and other woods?	<p>This question intends to collect data on the total area under forests and other woods operated by the household. If a farmer has fallow land over grown with trees/shrubs, he/she may wrongly double count it as forest/woods. Therefore be careful.</p>	Census Reference Day

C15	Does your holding have land, either owned or leased-in from others, in another gewog? Yes / No	This question intends to collect data on the ownership of the land in other Gewog. For e.g. Some Bumthang farmer may own land in Mongar, Trongsa, etc. If the various parts of land located in different Gewogs share the same labour/inputs, they should be considered as a part of the holding.	Census Reference Day
C16	If yes, which Dzongkhag	This question intends to collect data on the location of the land in other Dzongkhag other than the current one.	Census Reference Day
C17	Which Gewog?	This question intends to collect data on the location of the land in other Gewog other than the current one.	Census Reference Day
C18	What type of land do you operate there?	This question intends to collect data of the types of land operated/managed by the household/holding in other place other than the current one.	Census Reference Day
C20	How many acres of C18 do you own in that Gewog?	This question intends to collect data of C18 type of land area the household own in the other Gewog. (Area should be reported as per the actual physical area on the ground operated, which can be more (or sometimes even less) than the registered lag-thram.)	Census Reference Day
C21	How many acres of C18 are you leasing in, in that Gewog?	This question intends to collect the data on the C18 type of land area the household have leased in from others in the other Gewog.	Census Reference Day
C22	From whom are you leasing in the C18? 1- Others farmers; 2- Dratshang/monastery; 3- Community; 4- Government	If the household has leased in land, this question intends to collect data from whom the household have leased in the land from.	Census Reference Day

C23	Of the total C18 you own, how many acres are you leasing out?	This question intends to collect data on the area the household has leased out to others from the total area they own in the other Gewog.	Census Reference Day
C24	Of the total C18 you own, how many acres are you leaving fallow?	This question intends to collect data on the land area the household has left <i>fallow</i> (land left uncultivated) of the total land area in the other Gewog.	Census Reference Day
C25	What is the main reason for leaving the C18 land fallow. 1- As part of crop rotation practice; 2- Want to convert to other land type; 3- Irrigation problems; 4- Wildlife damage; 5- Labor shortage; 6- Low soil fertility; 7- Too far from home; 8-Other reasons	This question intends to collect data on the reason for leaving the C18 land fallow.	Census Reference Day
C26	So your operational C18 area is as shown below, right?	This question intends to collect data on the total land operated by the household for the purpose of agriculture production.	Census Reference Day
C₋ FB2	Of the total operational C18 area, how much area (in acres) is occupied by farm buildings and farmyards (e.g. animal sheds, barns, store house etc)?	This question intends to collect data on the total area covered by structural entities like farm buildings and farmyards (e.g. animal sheds, barns, store houses, etc) on the holding in the other Gewog.	Census Reference Day

C27	Of the total operational C18 area, how much area (in acres) is under permanent crops, e.g. fruit trees in compact plantation/ orchard?	This question intends to collect data on the total area under permanent crops cultivation.	Census Reference Day
C28	Of the total operational C18 area, how much area (in acres) is under temporary meadows and pastures?	This question intends to collect data on the total area under temporary meadows and pastures.	Census Reference Day
C29	Of the total operational C18 area, how much area (in acres) is under permanent meadows and pastures?	This question intends to collect data on the total area under Permanent meadows and pastures.	Census Reference Day
C30	Of the total operational C18 area, how much area (in acres) is under forests and other woods?	This question intends to collect data on the total area under forests and other woods operated by the household.	Census Reference Day
C31	Does your holding have land, either owned or leased-in from others, in yet another Gewog? Yes / No	This question intends to collect data on the ownership of the land in other Gewog.	Census Reference Day
C32	If yes, which Dzongkhag	This question intends to collect data on the location of the land in other Dzongkhag other than the current one.	Census Reference Day

C33	Which Gewog?	This question intends to collect data on the location of the land in other Gewog other than the current one.	Census Reference Day
RES_THARM_YN	<p>If the total land holding from all the locations is greater than 0 i.e. sum of C4+C20+C36>0:</p> <p>Asked To Respondent</p> <p>Is your name (respondent) listed as an owner on one or more Thrams? Yes No Don't know</p>	<p>This question intends to ask the respondent their legal land rights, which gives the holder the right to determine the nature and extent of the use of the land, listed as an owner on one or more tharms.</p>	Census Reference Day
RES_THARM_TYPW	<p>If yes, What type of tharms is it?</p> <p>Ownership Type/ Tenure Type: Single name, Individual ownership (rang chang); Single name, Family ownership (Za tshang); Multiple names, Joint ownership (Chhi ruub)</p>	<p>This question intends to collect data on the type of ownership the respondent has.</p> <p>Single name, Individual ownership (Rang chang): Land owned by a sole person where only his name is recorded as the owner of the land.</p> <p>Single name, Family ownership (Za tshang): Land owned by the family but is registered in the name of the head of household.</p> <p>Multiple names, Joint ownership (Chhi ruub): Land owned by multiple people where everyone's name is registered as the owner of the land.</p>	Census Reference Day

RES_THARM_FAM	<p>If no, are you a family member for a tharm for a family ownership? Yes / No</p>	<p>If the respondent's name is not listed as the owner of any land holding then this question intends to ask if they are a member of the family registered as a family ownership.</p>	Census Reference Day
RAND_THARM_YN	<p>Asked About randomly selected household member (RSHM) other than respondent: Is X (RSHM) listed as an owner on one or more tharms? Yes No Don't know</p>	<p>This question intends to ask a randomly selected member of the household their legal land rights, which gives the holder the right to determine the nature and extent of the use of the land, listed as an owner on one or more tharms. Here the CAPI will automatically randomly select the member of the household to whom this question is to be asked. However, if the selected member of the family is not present then the enumerator has to ask the respondent in their stead.</p>	Census Reference Day
RAND_THARM_TYPW	<p>If yes, What type of tharms is it? Codes/ Ownership Type/ Tenure Type: Single name, Individual ownership (rang chang); Single name, Family ownership (Za tshang); Multiple names, Joint ownership (Chhi ruub)</p>	<p>This question intends to collect data on the type of ownership the member has.</p>	Census Reference Day

RAND_THARM_FAM	If no, Is X a family member for a tharm with family ownership? Yes No Don't know	If the respondent's name is not listed as the owner of any land holding then this question intends to ask if they are a member of the family registered as a family ownership.	Census Reference Day
RAND_PRESENT	Was X present when RAND_THARM_YN questions were asked? Yes / No	This question intends to ask if the randomly selected member was present when the RAND_THARM_YN was asked.	Census Reference Day
C47	Did this holding irrigate any land in 2018? Yes / No	This question intends to collect data on the availability of irrigation at least once during the census reference year, regardless of whether the quantity of water was sufficient. Irrigation refers to purposely providing land with water, other than rain, for improving pastures or crop production.	Census Reference Year
C48	If yes, how many acres (in acres) were irrigated??	This question intends to collect data on the total area irrigated at least once during the census reference year.	Census Reference Year

	<p>What was the main method of irrigation?</p> <p>1- Surface Irrigation; 2- Sprinkler irrigation; 3- Localized Irrigation (Drip irrigation, micro irrigation)</p>	<p>This question intends to collect the main method used for irrigating the fields on their holding.</p> <p>Surface Irrigation: is where water is applied and distributed over and across the field/surface of the field by gravity.</p> <p>Sprinkler irrigation refers to pipe networks through which water moves under pressure before being delivered to the crop via sprinkler nozzles.</p> <p>Localized irrigation: is a system whereby water is distributed under low pressure through a piped network, in a pre-determined pattern, and applied as a small discharge to each plant. E.g. drip and micro irrigation.</p>	<p>Census Reference Year</p>
<p>C49</p>	<p>Select the main source of irrigation water.</p> <p>1- Surface water; 2- Ground water; 3- Mixed Surface water and Ground water; 4- Municipal water supply</p>	<p>This question intends to collect data on the type of sources the irrigation water was supplied from.</p> <p>Surface water is water found on the earth's surface that is naturally open to the atmosphere, in streams, rivers, ponds, lakes, wetlands or oceans.</p> <p>Groundwater is water stored underground in aquifers – i.e., water in soil in the saturated zone beneath the water table, where the soil voids are filled with water. It is usually pumped from wells.</p> <p>Mixed Surface water and Ground water is irrigation water supplied both from the earth's surface and pumped from underground.</p> <p>Municipal water supply is a source of water withdrawn from the public piped distribution network.</p>	<p>Census Reference Year</p>
<p>SECTION D. CROPS</p>			
<p>D1</p>	<p>Did the holding grow any cereals in 2018? Yes / No</p>	<p>This question intends to collect data on the cultivation of cereals in 2018.</p>	<p>Census Reference Year</p>

D1_01	What cereals did you grow in 2018?	This question intends to collect data on the types of cereals grown in 2018 by the household. ** List attached on the annexure.	Census Reference Year
D1_03	How many times grown in 2018? 1- Once; 2- Twice; 3- Thrice	This question intends to collect data on the number of times the cereal was grown in 2018 by the household.	Census Reference Year
D1_04	Area harvested (acres)	This question intends to collect data on the area the cereal was harvested in 2018 by the household. If the crop is sown more than once, then the total area from each harvest should be recorded.	Census Reference Year
D1_05	Production (kg)	This question intends to collect data on the total quantity of cereal produced (this includes the production of cereal from all the frequency of cultivation) in 2018 by the household.	Census Reference Year
D1_06REV	Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide	This question intends to collect data on the type of inputs applied on the cereal by the household. Chemical Fertilizer: Manufactured chemical compounds such as phosphate, potassium, nitrogen and other mixed and complex fertilizers applied to soil to enhance or improve production. Manure: fertilizer prepared from organic material (e.g. animal excreta, vegetable wastes, etc) Pesticides: materials intended to mitigate, control or eliminate pests in plants or animals, or to control the behaviour or physiology of pests or crops during production or storage (E.g. butachlor, chlorpyrifos, mancozeb, etc)	Census Reference Year

D2	Did the holding grow any OILDSEEDS/ LEGUMES in 2018? Yes / No	This question intends to collect data on the cultivation of Oilseeds/Legumes in 2018.	Census Reference Year
D2_01	What OILDSEEDS/ LEGUMES did you grow in 2018?	This question intends to collect data on the types of Oilseeds/Legumes grown in 2018 by the household. ** List attached on the annexure.	Census Reference Year
D2_03	How many times grown in 2018? 1- Once; 2- Twice; 3- Thrice	This question intends to collect data on the number of times the Oilseeds/Legumes was grown in 2018 by the household.	Census Reference Year
D2_04	Area harvested (acres)	This question intends to collect data on the area the Oilseeds/Legumes was harvested in 2018 by the household. If the crop is sown more than once, then the total area from each harvest should be recorded.	Census Reference Year
D2_05	Production (kg)	This question intends to collect data on the total quantity of Oilseeds/Legumes produced (this includes the production of Oilseeds/Legumes from all the frequency of cultivation) in 2018 by the household.	Census Reference Year

D2_06REV	<p>Which of the following inputs were used? Please select all that apply.</p> <p>1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide</p>	<p>This question intends to collect data on the type of inputs applied on the cereal by the household.</p> <p>Chemical Fertilizer: Manufactured chemical compounds such as phosphate, potassium, nitrogen and other mixed and complex fertilizers applied to soil to enhance or improve production.</p> <p>Manure: fertilizer prepared from organic material (e.g. animal excreta, vegetable wastes, etc)</p> <p>Pesticides: materials intended to mitigate, control or eliminate pests in plants or animals, or to control the behaviour or physiology of pests or crops during production or storage (E.g. butachlor, chlorpyrifos, mancozeb, etc)</p>	Census Reference Year
D3	<p>Did the holding grow any VEGETABLES in 2018? Yes / No</p>	<p>This question intends to collect data on the cultivation of Vegetables in 2018.</p>	Census Reference Year
D3_01	<p>What VEGETABLES did you grow in 2018?</p>	<p>This question intends to collect data on the types of Vegetables grown in 2018 by the household.</p> <p>** List attached on the annexure.</p>	Census Reference Year
D3_03	<p>How many times grown in 2018? 1- Once; 2- Twice; 3- Thrice</p>	<p>This question intends to collect data on the number of times the Vegetables was grown in 2018 by the household.</p>	Census Reference Year
D3_04	<p>Area harvested (acres)</p>	<p>This question intends to collect data on the area the Vegetables was harvested in 2018 by the household.</p> <p>If the crop is sown more than once, then the total area from each harvest should be recorded.</p>	Census Reference Year

D3_05	Production (kg)	This question intends to collect data on the total quantity the Vegetables produced (this includes the production of Vegetables from all the frequency of cultivation) in 2018 by the household.	Census Reference Year
D3_06REV	Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide	This question intends to collect data on the type of inputs applied on the vegetables by the household. Chemical Fertilizer: Manufactured chemical compounds such as phosphate, potassium, nitrogen and other mixed and complex fertilizers applied to soil to enhance or improve production. Manure: fertilizer prepared from organic material (e.g. animal excreta, vegetable wastes, etc) Pesticides: materials intended to mitigate, control or eliminate pests in plants or animals, or to control the behaviour or physiology of pests or crops during production or storage (E.g. butachlor, chlorpyrifos, mancozeb, etc)	Census Reference Year
D4	Did the holding grow any MUSHROOMS in 2018? Yes / No	This question intends to collect data on the cultivation of Mushrooms in 2018.	Census Reference Year
D4_01	If yes, what type of mushroom? A-Oyster; B-Shitake; C-Button; D-Others	This question intends to collect data on the types of Mushrooms grown in 2018 by the household. ** List attached on the annexure.	Census Reference Year
D4_02	How much quantity of mushroom was produced in 2018?	This question intends to collect data on the total quantity the Mushrooms produced in 2018 by the household.	Census Reference Year

D5	Did the holding grow any ROOTS/TUBERS in 2018? Yes / No	This question intends to collect data on the cultivation of Roots/Tubers in 2018.	Census Reference Year
D5_01	What ROOTS/TUBERS did you grow in 2018?	This question intends to collect data on the types of Roots/Tubers grown in 2018 by the household. ** List attached on the annexure.	Census Reference Year
D5_03	How many times grown in 2018? 1- Once; 2- Twice; 3- Thrice	This question intends to collect data on the number of times the Roots/Tubers was grown in 2018 by the household.	Census Reference Year
D5_04	Area harvested (acres)	This question intends to collect data on the area the Roots/Tubers was harvested in 2018 by the household.	Census Reference Year
D5_05	Production (kg)	This question intends to collect data on the total quantity the Roots/Tubers produced (this includes the production of Roots/Tubers from all the frequency of cultivation) in 2018 by the household.	Census Reference Year
D5_06REV	Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide	This question intends to collect data on the type of inputs applied on the roots/tubers by the household. Chemical Fertilizer: Manufactured chemical compounds such as phosphate, potassium, nitrogen and other mixed and complex fertilizers applied to soil to enhance or improve production. Manure: fertilizer prepared from organic material (e.g. animal excreta, vegetable wastes, etc) Pesticides: materials intended to mitigate, control or eliminate pests in plants or animals, or to control the behaviour or physiology of pests or crops during production or storage (E.g. butachlor, chlorpyrifos, mancozeb, etc)	Census Reference Year

D6	Did the holding grow any PERMANENT CROPS (fruit crops including coffee) in 2018? Yes / No	This question intends to collect data on the Fruits/ Permanent Crop grown in 2018 by the household.	Census Reference Year
D6_01	What Fruits/ Permanent Crop did you grow in 2018?	This question intends to collect data on the types of Fruits/ Permanent Crop grown in 2018 by the household. ** List attached on the annexure.	Census Reference Year
D6_03	Total tree number	This question intends to collect data on the total number of Fruits/ Permanent Crop trees grown in 2018 by the household.	Census Reference Year
D6_04	Of which how many are fruit bearing trees?	This question intends to collect data on the total number of bearing Fruits/ Permanent Crop trees out of the total number of trees harvested in 2018 by the household.	Census Reference Year
D6_05	Production (kg)	This question intends to collect data on the total quantity the Fruits/ Permanent Crop produced in 2018 by the household.	Census Reference Year
D6_06REV	Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide	This question intends to collect data on the type of inputs applied on the permanent crops by the household. Chemical Fertilizer: Manufactured chemical compounds such as phosphate, potassium, nitrogen and other mixed and complex fertilizers applied to soil to enhance or improve production. Manure: fertilizer prepared from organic material (e.g. animal excreta, vegetable wastes, etc) Pesticides: materials intended to mitigate, control or eliminate pests in plants or animals, or to control the behaviour or physiology of pests or crops during production or storage (E.g. butachlor, chlorpyrifos, mancozeb, etc)	Census Reference Year

			Census Reference Year
D ₁ OPC	Did the holding grow any other PERMANENT CROPS in 2018? Yes / No	This question intends to collect data on the cultivation of any other PERMANENT CROPS like Cardamom/pineapple/ sugarcane in 2018.	Census Reference Year
D ₁ OPC1	Area under x (acres)	This question intends to collect data on the total area of any other PERMANENT CROPS like Cardamom/pineapple/ sugarcane harvested in 2018 by the household.	Census Reference Year
D ₁ OPC2	Production (kg)	This question intends to collect data on the total quantity of any other PERMANENT CROPS like Cardamom/pineapple/ sugarcane produced in 2018 by the household.	Census Reference Year
D ₁ OPC3	Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide	This question intends to collect data on the type of inputs applied on other permanent crops by the household. Chemical Fertilizer: Manufactured chemical compounds such as phosphate, potassium, nitrogen and other mixed and complex fertilizers applied to soil to enhance or improve production. Manure: fertilizer prepared from organic material (e.g. animal excreta, vegetable wastes, etc) Pesticides: materials intended to mitigate, control or eliminate pests in plants or animals, or to control the behaviour or physiology of pests or crops during production or storage (E.g. butachlor, chlorpyrifos, mancozeb, etc)	Census Reference Year
D7	Did you have some cropped land under protective cover (e.g. plastic or glass house) on your holding in 2018? Yes / No	This question refers to whether some area of the holding was used for growing crops under protective cover in 2018. Protective cover: roof of glass, plastic or other material over a permanent structure, used for protecting crops against the weather, pests or diseases. ** Note: Not to be confused with structures like farm buildings/yards.	Census Reference Year
D8	If yes, what area of your land was under protective cover?	This question intends to collect data on the total area of land under protective cover.	Census Reference Year

SECTION E: LIVESTOCK

E1	Do you have large bovine animals (e.g. cattle, buffaloes, yaks, zoms etc) on this day? Yes / No If yes, select from list.	This question intends to collect data on the large bovine animals that are being raised on the holding.	Census Reference Day
E2		This question intends to collect data on the list of different kinds of large bovine animals raised by the household on the holding.	Census Reference Day
E4	How many E2 do you have on this day?	This question intends to collect data on the total number of E2 raised by the household on the holding on the day of enumeration.	Census Reference Day
E4-FA	How many total female E2 do you have on this day?	This question intends to collect data on the total number of females of E2 raised by the household on the holding on the day of enumeration.	Census Reference Day
E6	What feeding system do you practice with your cattle? 1- Grazing system; 2- Mixed system; 3- Industrial system	<p>This question intends to collect data on the main practice of feeding the bovine animals raised by the holding.</p> <p>Grazing system: is a system where a farmer leave their cattle to feed on the leaves and shoots of grass and other short plants.</p> <p>Industrial system: refers to intensive livestock-raising methods in which at least 90 percent of the dry matter of the animal feed is produced off-farm. E.g. Karma feed for cattle and piggery.</p> <p>Mixed System: means a combination of grazing and industrial system.</p>	Census Reference Year

E7	<p>If grazing system is practiced, what type?</p> <p>1- Sedentary pastoral or ranching; 2- Semi-nomadic, semi-pastoral or transhumant; 3- Nomadic or totally pastoral</p>	<p>This question intends to collect data on the type of grazing system the holding practices.</p> <p>Nomadic or totally pastoral: refers to livestock raised, where the holder has no permanent place of residence and does not practise regular cultivation. Livestock moves from place to place with the holder and his/her household, depending on the season and the availability of feed or water.</p> <p>Semi-nomadic, semi-pastoral or transhumant: refers to livestock raised by holders who live a semi-nomadic life. Typically, the holder has a permanent residence to which he/she returns for several months of the year according to seasonal factors. For semi-nomadic and semi-pastoral systems, the holder establishes a semi-permanent home for several months or years and may cultivate crops as a supplementary food source.</p> <p>Sedentary pastoral refers to livestock raised by holders who have a permanent residence.</p> <p>Ranching refers to large-scale livestock activities carried out on large areas of land set aside for extensive grazing, where livestock graze mainly on grasses and other plants.</p>	Census Reference Day
E8	<p>Do you have any OTHER LIVESTOCK on this day? Yes / No</p>	<p>This question intends to collect data on livestock raised on the holding other than the large bovine animals.</p>	Census Reference Day
E9	<p>If yes, what are they – select from the list? ** List attached on the annexure.</p>	<p>This question intends to collect data on the list of other livestock raised on the holding other than the large bovine animals.</p>	Census Reference Day
E11	<p>How many E9 do you have on this day?</p>	<p>This question intends to collect data on the total number of E9 raised by the household on the holding on the day of enumeration.</p>	Census Reference Day
E11-FA	<p>How many total female E9 do you have on this day?</p>	<p>This question intends to collect data on the total number of females of E9 raised by the household on the holding on the day of enumeration.</p>	Census Reference Day

E13	Do you have bee hives? Yes / No	This question intends to collect data on bees raised by the household on the holding.	Census Reference Day
E14	How many hives?	This question intends to collect data on the total number of bee hives raised by the household on the holding on the day of enumeration.	Census Reference Day
E15	What type of bees are they? Local / Improved	This question intends to collect data on the type of bees raised on the holding. If the bees raised are local or improved.	Census Reference Day
E16	Do you rear fish in ponds? Yes / No	For the purpose collecting frame item, this question intends to collect data on fishes reared in the ponds on their holding.	Census Reference Day
SECTION F: FARM MECHANISATION			
F1	In 2018, what kind of equipment/ machinery was used on the holding? Tick the ones that were used. ** List attached on the annexure.	This question focuses on identifying machinery and equipment used on the holding for in 2018. This includes everything from simple hand tools, such as a hoe, to complex machinery, such as a combine harvester.	Census Reference Year

	Source 1-Own, 2-Hired from FMCL; 3- Hired from others (Non-FMCL) 4- Hired from Government, 5-Other	This question intends to collect data on the source of equipment/ machinery used on the holding. Own: owned by the household/holding. Hired from others: hired by the household/holding from other relatives or neighbors, etc. Government provided: hired from Gewog centers for subsidized rate. FMCL (Farm Machinery Corporation Limited): hired from state owned enterprise which cater farm machinery at subsidized rate. Others: hired from other entities mentioned other than those mentioned above.	Census Reference Year
F3			
F4	During 2018, what was the main source of power for land tillage on this holding? 1- Animal power; 2- Machine power; 3- Manual power	This question intends to collect data on the main source of power source of power for land tillage used on this holding. Tillage refers to the preparation of soil for the purpose of crop production by using methods such as digging, stirring and overturning of the soil. Animal power refers to using oxen to till the land. Machine power refers to using farm machines such as power tiller to till the land. Manual power refers to manually tilling the land using hoes, spades, etc.	Census Reference Year
SECTION G: SERVICES FOR AGRICULTURE			
G1	In 2018, did you avail any credit for purposes related to the operation of the holding? Yes / No	Credit for agricultural purposes refers to any type of credit availed for purposes related to the operations of the agricultural holding. This includes credit for purchasing crop and livestock inputs, constructing farm buildings and purchasing farm machinery. Credit not related to agricultural operations, such as for construction of the holder's house, for other family businesses or for consumption expenditure, should be excluded.	Census Reference Year

G2	<p>Select the source of credit.</p> <p>1- Commercial bank; 2- Agricultural development bank (e.g. BDBL); 3- Cooperative credit society; 4- Money lender; 5- Input supplier; 6- Self-help group; 7- Family or friends; 8- Government; 9- REDCL; 10-NGO (e.g. Tarayana)</p>	<p>This question intends to collect data on the source of credit received/availed from.</p> <p>Commercial bank e.g. Bank of Bhutan, etc</p> <p>Agricultural development bank refers to financial institution dedicated to help farmers avail credit services at subsidized interest. e.g. Bhutan Development Bank Limited</p> <p>Cooperative credit society: is a member owned financial group where it is controlled by the members of the group and operated for the purpose of providing financial services to its members.</p> <p>Money lender: credit availed from other people</p> <p>Self- help group: Family or friends: Government:</p> <p>REDCL(Rural Enterprise Corporation Limited): is a state owned enterprise which gives credit services to the rural population for the operation of agricultural purposes</p> <p>NGO (Non-profit Government Organization): to improve the livelihood of the rural population the non-profit Government Organization provide credit facility at a subsidized rate.</p>	Census Reference Year
SECTION H: WORK ON THE HOLDING			
H1	<p>Did the holding employ a hired manager to run the holding in 2018? Yes / No</p>	<p>This question intends ask if the holding was managed by a hired manager employed by the holding.</p>	Census Reference Year
H2	<p>What is the sex of the hired manager? 1- male; 2- female</p>	<p>This question intends collect data on the gender of the hired manager employed on the holding.</p>	Census Reference Day

H3	What is the age of the hired manager?	This question intends collect data on the age in completed years of the hired manager employed on the holding.	Census Reference Day
H4	In 2018, did you hire workers on the holding, on casual basis (as and when required)? Yes / No	This question intends collect data on the total number of people employed on the holding in 2018. This does not include household members that work on the holding. ** Note: a person who worked on the holding several times in different time intervals during the reference year is counted only once.	Census Reference Year
H5	On how many occasions did you hire casual workers in 2018?	This question intends to collect data on the different number of times the workers were hired on the holding. i.e. the holding may not hire workers for the entire year but during the peak season they will be hired due to the requirement of manpower.	Census Reference Year
H6	In total how many man-days were worked?	This question intends to collect data on the number of man-days worked by the casual workers on different occasions. <i>Man-days</i> : a day regarded in terms of the amount of work that can be done by one person within this period.	Census Reference Year
H7	How many different individuals were involved for the said number of man-days?	This question intends to collect data on the total head count of casual workers that worked on the holding, not the cumulative total count.	Census Reference Year
H8	Of which how many were female workers?	This question intends to collect data on the total head count of female workers out of the total casual workers that worked on the holding, not the cumulative total count.	Census Reference Year

H9	<p>What was the main form of payment for casual workers? Form of payment: 1-Cash only; 2-Cash plus meals; 3-Farm produce; 4-Exchange of labour; 5-Other forms of in-kind payment</p>	It refers to the main form or forms of payment used on the holding during the reference year.	Census Reference Year
HFT	Did you employ any worker on long-term basis?	This question intends to collect data on the workers who worked <i>Long-term basis</i> are those that are employed throughout the year or major months of the year, those workers who do not share meal and not a resident of the household.	Census Reference Year
HFT NUM	How many workers were employed on long-term basis?	This question intends to collect data on the total head count of long-term workers that worked on the holding.	Census Reference Year
HFT FEM	Of which, how many were females?	This question intends to collect data on the total head count of female workers out of the total long-term workers that worked on the holding.	Census Reference Year
MAINACT	Is the work on the holding the main activity of [Name]? Yes / No Only for ages 15 and above	This question intends to ask if the household member's work on the holding is the main activity, i.e. if the household member works from morning till evening on the holding.	Census Reference Year

HH WORKTIME	For how long did [Name] work on this holding in 2018? 1- 0 - 10 Man-Days; 2- 11 - 20 Man-Days; 3- 21 - 31 Man-Days; 4- 1 - 3 months; 5- 3 - 6 months; 6- 7 or more months	This question intends to collect data on the number of man-days worked by the household member on the holding.	Census Reference Year
H10	Did you face any constraints/situation in 2018 that affected your RNR productions or assets? Yes / No	This question refers to the problems faced by the household that affected the agricultural production.	Census Reference Year
H11	If Yes, Tick 3 most important constraints faced by your household/ holding in 2018. ** List attached on the annexure.	This question intends to collect data on the three most problems faced by the holding.	Census Reference Year
H12	Was your household able to meet all food requirement for all of 2018? (Only for household) Yes / No	Was the agricultural production sufficient to meet your household food requirement for all of 2018? (this includes sales of crops or livestock products or purchase of food items) Only for households.	Census Reference Year

SECTION I: FORESTRY

I1	<p>Did your household collect Wood or Non Wood Forest Products in 2018 for consumption or sale? Yes / No</p>	<p>This question intends to ask if any of the household member is engaged in collecting wood or non-wood forest products for the purpose of own consumption or sales.</p>	<p>Census Reference Year</p>
I2	<p>Tick the Wood or Non Wood Forest Products collected in 2018. **List attached on the annexure</p>	<p>This question intends to collect data on different types of Wood or Non Wood Forest Products collected by the household.</p>	<p>Census Reference Year</p>

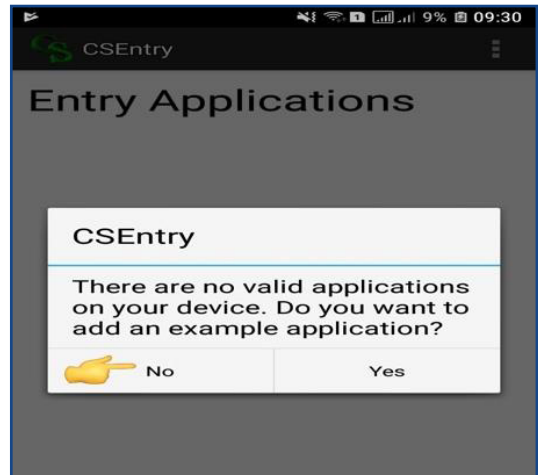
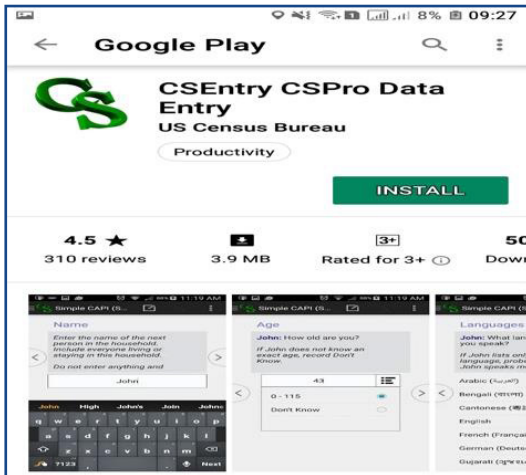
GLOBAL POSITIONING SYSTEM

J1	<p>Get GPS reading of the holding? 1- Get GPS; 0- No need (coordinates will be captured in LATITUDE and LONGITUDE)</p>	<p>Global positioning system of the location of the holding</p>	<p>Census Reference Day</p>
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THE END

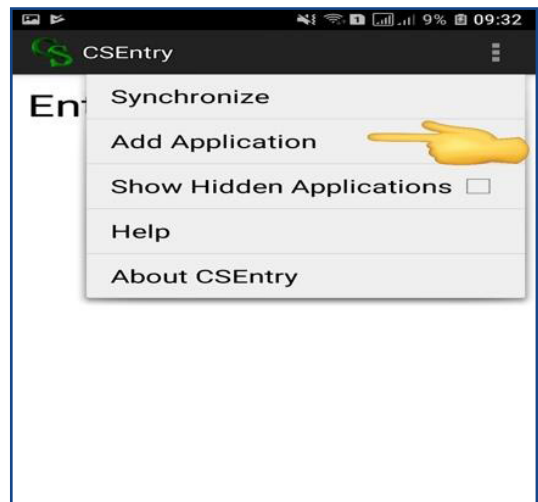
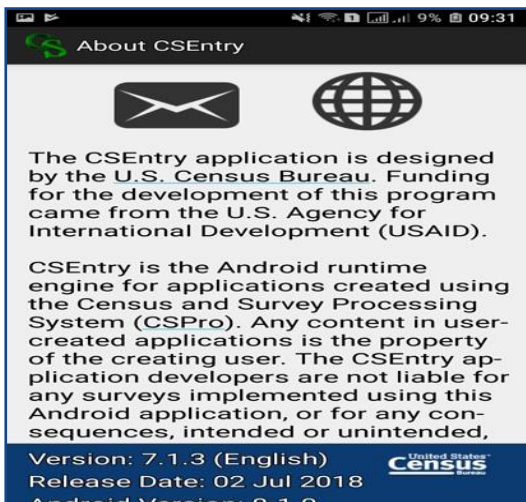
CHAPTER 4: INSTRUCTIONS TO DOWNLOAD THE CSENTRY APPLICATION AND DOWNLOADING THE CAPI BASED QUESTIONNAIRE.


Steps in Csentry applications




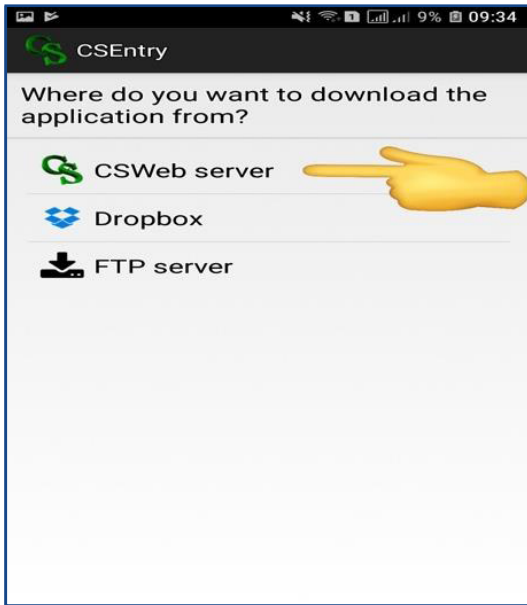
To add application from CsWeb server to your **CSENTRY APP**.

1. Install csentry application from Playstore.



3. Click on Back button of your phone () when you see following screen and you will see ENTRY Applications window

4. Navigate to three dots() and click on add application button.



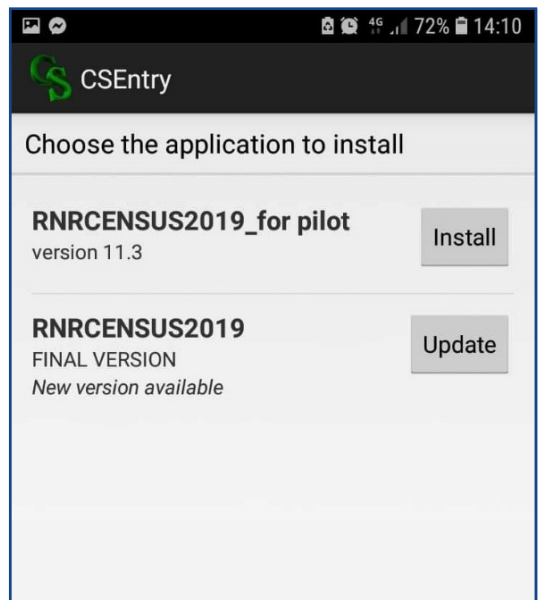
5. Click on CSWeb Server



6. Enter URL for csweb server (<http://csweb.moaf.gov.bt/csweb/api>) and click on connect.



7. Enter Username and Password;
Username: datauser
Password: cspro@2019



8. Install csenry application in the server (e.g. RNRCENSUS2019).
 9. You have added csenry application successfully.

To **SYNCHRONIZE** entered data to cswb server

1. Click on Synchronize button inside particular csendry application
2. You will get message saying “successfully synced”
3. You are done with synchronization.

Note: You need internet connection during adding and syncing to cswb server

ANNEXURE

ANNEXURE 1: RNR CENSUS QUESTIONNAIRE

RENEWABLE NATURAL RESOURCES CENSUS 2019



RNR Statistics Division

Ministry of Agriculture and Forests

Royal Government of Bhutan

IDENTIFICATION

Identification and location of the holder E F

Dzongkhag	Gewog	Chiwog	Village	Household s.no	Respondent's Name	Contact No	Enumerator's Name

Note: **Village/ Town Area: If it's a holding in town area, please add the word 'town' after name, e.g. MONGAR TOWN.

SECTION A: GENERAL CHARACTERISTICS

A1. What is the main RNR activity on the holding? (If in doubt, please refer your enumerator's manual for concepts and definitions of the following terms before making a selection.)

1-Crop production; 2- Livestock production; 3- Crop and livestock; 4- Forestry and logging; 5- Fishery and aquaculture

A2. What type of holding is this?

1- Household; 2- Private Ltd company; 3- Group/cooperative; 4- SOE; 5- Monastery; 6- School; 7- Armed force premise; 8-Kukhor-owned; 9- Others

A2.H. Name of holder..... If the holding in question A2 is 1-Household, please write the name of the head of household; else write the name of manager or caretaker.

If A2 is a holding other than the household type, then else skip to section C, C1

A3. What is the main purpose of production? E F

1- Only for own consumption; 2- Mainly for own consumption with some sales; 3- Mainly for sale with some own consumption; 4- Only for sale

A4. What are other economic activities of this household? E F. (Select all that apply. If in doubt, please refer your enumerator's manual for concepts and definitions of the following terms before making a selection.)

	Tick Below
Forestry and logging	
Non-wood forest products collection	
Fishing and aquaculture	
Processing of agricultural products (Agro processing)	
Handicrafts	
Wholesale and retail trade	
Hotels and restaurants	
Agro-tourism (including homestay)	

Livestock production	
Crop production	
Other	

A4_OTHER. If other, please specify.....

A5. What percentage of the total household income comes from RNR production? (Only for household type holdings)

1- 0% - 25%; 2- 26% - 50%; 3- 51% - 75%; 4- 76% - 100%

SECTION B: HOUSEHOLD MEMBERS DEMOGRAPHY

Details of household members who are usually resident in the household, sharing meals together. Please start with the household head. This information will help understand the labour force situation in the farming sector. (Only for household type holdings)

B1. Name (Please type the name of the person, starting with the respondent.)	B2. What is the relation of (name) to household head?	B3. What is the sex of (name)? (Code) (1=Female; 2=Male)	B4. What is the age (in completed years) of (name)? Skip to next member if age<15	B5. What is the marital status of (name)? Only for ages 15 and above	B6. What is the highest education attained by (name)? Only for ages 15 and above	B7. What is the main occupation of (name)? Only for ages 15 and above

Relation to Head: 1-Head; 2-Spouse; 3- Father/Mother; 4-Brother/Sister; 5-Son/Daughter; 6-Neice/Nephew; 7-GrandFather/ Grand Mother; 8- Grand Son/Grand Daughter; 9-Son-in-law/ Daughter-in-law 10. Father-in-law/Mother-in-law 11. Brother-in-law/Sister-in-law 12. Uncle/ Aunt 13. Step father/Step mother 14. Adopted/Foster/Stepchild 15. Other Family Relatives 16. Live in Servant

Marital Status: 1-Never Married; 2. Living Together; 3. Married; 4. Divorced; 5. Separated; 6. Widow/Widower

Education: 00-PP; 01-Grade 1; 02-Grade 2; 03-Grade 3; 04-Grade 4; 05-Grade 5; 06-Grade 6; 07-Grade 7; 08-Grade 8; 09-Grade 9; 10-Grade 10; 11-Grade 11; 12-Grade 12; 13-Bachelor's

degree; 14-Master's; 15- Ph.D/Doctorate; 16- Diploma; 17- VTI/TTI/RTI Certificate; 18-BLC(Zherim); 19- PLC (Khakong); 20- ECCD/Daycare; 21- No Schooling; 22- Other

SECTION C: HOLDING AREA, LANDUSE AND IRRIGATION

C1. Does your holding have land, either owned or leased-in from others, in this Gewog where you reside? Yes/No

C2. If yes, please select the land types - by legal definition, and not to be confused with actual land use. (The below categories are land types by legal definition, and not to be confused with actual landuse. For e.g. Ngulthodumra does not necessarily mean land having fruit trees, but simply how a land is registered in the thram.)

	C3. Yes/ No	C4. TOTAL AREA owned	C5. AREA leased- in	C6. Leased from?	C7. AREA leased- out	C8. AREA left fallow	C9. Reason fallow	C10. Op land (Total owned+ LI-LO- Fa)	C_FB. Farm building, farm yards	C11. Permanent crops	C12. Temporary meadows & pasture	C13. Permanent meadows & Pasture	C14. Forest- wooded
Chhuzhing													
Kamzhing													
Khimsa													
Ngulthodumra													

Codes for fallow reason: 1- As part of crop rotation practice; **2-** Want to convert to other land type; **3-** Irrigation problems; **4-** Wildlife damage; **5-** Labor shortage; **6-** Low soil fertility; **7-** Too far from home; **8-** Other reasons

Note to follow for all Land holdings:

- ** TOTAL AREA owned:** Area should be reported as per actual physical area on the ground, which can be more (or sometimes even less) than is registered in thram.
- ** AREA leased-out:** Please note area leased out cannot exceed area owned. If no land is leased out, please write 0.
- ** AREA left fallow:** Please note area left fallow cannot exceed area owned. If no land is left fallow, please write 0.
- ** Op land (Total owned+ LI-LO-Fa):** Operational area = Total area of own land - area leased out from own land - area left fallow from own land + area leased-in. If the operational area figure seems unreasonable, please go back and recheck. Otherwise move on to next question

**** Farm building, farm yards:** If the holder's house, including the yard around it, is also on this land, it should be included here as part of the farm buildings, otherwise if it is somewhere separately from the holding, exclude.

**** Permanent crops:** Fruit trees planted here and there in scattered manner, or on land predominantly used for temporary crops, should not be considered as land under permanent crop. If none, write 0.

**** Temporary meadows & pasture:** Temporary meadows and pastures are those which are less than 5 years old after establishment. If none, write 0.

**** Permanent meadows & Pasture:** Permanent meadows and pastures are those which are more than 5 years old after establishment. If none, write 0.

**** Forest-wooded:** Trees found here and there in scattered manner on the holding should not be considered as forests/woods. If none, write 0. Also ensure that the farmer is not referring to fallow land overgrown with trees which he may have already mentioned before and was subtracted from own land to arrive at operational land, in which case it will be double counting.

C15. Does your holding have land, either owned or leased-in from others, in another Gewog? Yes- 1 | No-0 If No, skip to **RES_THRAM_YN**

C16. If yes, which dzongkhag?

C17. Which Gewog?

C18. What type of land do you operate there? Tick the ones which apply: Chuzhing/ Kamzhing/ Khimsa/ Ngulthodumra

	C19. Yes/ No	C20. TOTAL AREA owned	C21. AREA leased- in	C22. Leased from?	C23. AREA leased- out	C24. AREA left fallow	C25. Reason fallow	C26. Op land (Total owned+ LI-LO-Fa)	C_FB_2. Farm building, farm yards	C27. Permanent crops	C28. Temporary meadows & pasture	C29. Permanent meadows & Pasture	C30. Forest- wooded
Chhuzhing													
Kamzhing													
Khimsa													
Ngulthodumra													

C31. Does your holding have land, either owned or leased-in from others, in yet another Gewog? Yes- 1 | No- 0 If No, skip to **RES_THRAM_YN**

C32. If yes, which dzongkhag?

C33. Which Gewog?

C34. What type of land do you operate? Tick the ones which apply: Chuzhing/ Kamzhing/ Khimsa/ Ngulthodumra

	C35. Yes/ No	C36. TOTAL AREA owned	C37. AREA leased-in	C38. Leased from?	C39. AREA leased-out	C40. AREA left fallow	C41. Reason fallow	C42. Op land (Total owned+ LI-LO-Fa)	C_FB_3. Farm building, farm yards	C43. Permanent crops	C44. Temporary meadows & pasture	C45. Permanent meadows & Pasture	C46. Forest-wooded
Chuzhing													
Kamzhing													
Khimsa													
Ngulthodumra													

LAND OWNERSHIP & GENDER

If the total land holding from all the locations is greater than 0 i.e. $sum\ of\ C4+C20+C36 > 0$:

Asked To Respondent

RES_THRAM_YN: Is your name (respondent) listed as an owner on one or more Thrams? 1- Yes| 0- No| 2- Don't know

RES_THRAM_TYPW: If yes, what type of Thram is it? 1-Individual ownership 2-Joint ownership 3-Family ownership; 3-Family ownership 4-More than one of the above

RES_THRAM_FAM: If no, are you a family member for a Thram for a family ownership? 1- Yes| 0- No

Asked About randomly selected household member (RSHM) other than respondent:

RAND_THRAM_YN: Is X (RSHM) listed as an owner on one or more Thram? 1- Yes| 0- No (Please ask the following question to the randomly selected member of the household. If not present, the respondent may answer on his/her behalf.)

RAND_THRAM_TYPW: If yes, what type of Thram is it? 1-Individual ownership 2-Joint ownership 3-Family ownership; 3-Family ownership 4-More than one of the above

RAND_THRAM_FAM: If no, is X a family member for a Thram with family ownership? 1- Yes| 0- No

RAND_PRESENT: Was X present when C**2 questions were asked? 1- Yes| 0- No

C47. Did this holding irrigate any land in 2018? Yes-1; No-0 If Yes go to **C48**, If No skip to **D1**

C48. How many acres (in acres) were irrigated?

C49. What was the main method of irrigation? (If in doubt, please refer your enumerator’s manual for concepts and definitions of the following terms before making a selection.)

1- Surface Irrigation 2- Sprinkler irrigation; 3 Localized Irrigation (Drip irrigation, micro irrigation)

C50. Select the main source of irrigation water. (If in doubt, please refer your enumerator’s manual for concepts and definitions of the following terms before making a selection.)

1. Surface water 2. Ground water 3. Mixed Surface water and Ground water 4. Municipal water supply

SECTION D. CROPS

D1. Did the holding grow any CEREALS in 2018? Yes- 1| No- 0 (if No, skip to D2)

(No need to select a crop if the area grown was negligible, e.g. 1 decimal or less.)

D1_01. What cereals did you have in 2018?	D1_03. How many times grown in 2018?	D1_04. Area harvested (Acres)	D1_05. Production (Kg)	D1_06REV. Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide
Paddy (Irrigated)				
Paddy (Upland)				
Maize				
Wheat				
Barley				
Millet				
Sweet Buckwheat				
Bitter Buckwheat				
Amaranthus				
Quinoa				

Note for all the crops:

- ** How many times grown in 2018? (This refers to whether the farm did double or triple cropping of this crop in 2018.)
- ** Area harvested (Acres) (If done double or triple cropping, then area from each harvest should be summed up to give total.)
- ** Production (Kg) (If harvested twice or thrice, then production from each harvest should be summed up to give total)

D2. Did the holding grow any OILDSEEDS/LEGUMES in 2018? Yes- 1 | No- 0 (if no, skip to D3)

(No need to select a crop if the area grown was negligible, e.g. 1 decimal or less.)

D2_01. What oilseeds and leguminous crops did you grow in 2018?	D2_03. How many times grown in 2018?	D2_04. Area harvested (Acres)	D2_05. Production (Kg)	D2_06REV. Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide
Mustard				
Sunflower				
Soya bean				
Sesame				
Groundnut				
Beans				
Broad beans				
Chickpeas				
Cowpeas				
Lentil				
Lupins				
Peas				

D3. Did the holding grow any VEGETABLES in 2018? Yes- 1 | No- 0 (if No, skip to D4)

(No need to select a crop if the area grown was negligible, e.g. 1 decimal or less.)

D3_01. What vegetable crops did you grow in 2018?	D3_03. How many times grown in 2018?	D3_04. Area harvested (Acres)	D3_05. Production (Kg)	D3_06REV. Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide
Asparagus				
Broccoli				
Cabbages				
Cauliflower				
Chili				
Spinaches and sags				
Onion (inc. shallots)				
Ginger				
Turmeric				
Garlic				
Coriander				
Eggplant/ aubergine/ brinjal				
Okra/ ladies' finger				
Tomato				
Cucumber				
Pumpkins, squash and gourds				
Carrot				
Radish				
Turnip				
Watermelon				

D4. Did the holding grow any MUSHROOMS in 2018? Yes- 1 | No- 0 If No, skip to **D5**

D4_01. If yes, what type of mushroom?

A-Oyster; B-Shitake; C-Button; D-Others

D4_02. How much quantity (in KG) of mushroom was produced in 2018?.....

D5. Did the holding grow any ROOTS/TUBERS in 2018? Yes- 1 | No- 0 If No, skip to **D6**

(No need to select a crop if the area grown was negligible, e.g. 1 decimal or less.)

D5_01. What roots/ tuber crops did you grow in 2018?	D5_03. How many times grown in 2018?	D5_04. Area harvested (Acres)	D5_05. Production (Kg)	D5_06REV. Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide
Potato				
Sweet Potato				
Cassava				
Yams				
Taro				
Yautia				
Other roots and tubers n.e.c				

D6. Did you have any PERMANENT CROPS (fruit crops including coffee) in 2018? Yes- 1 | No- 0 If No skip to D7

For each permanent crop grown, ask the total number of trees and bearing trees, and production.

D6_01. What permanent crops did you grow in 2018?	D6_03. Total tree number	D6_04. Of which how many are fruit bearing trees	D6_05. Production (Kg)	D6_06REV. Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide
Apple				
Pear				
Peach				
Plum				
Apricot				
Persimmon				
Date-plum (gendum)				
Walnut				
Hazelnut				
Areca nut				
Mandarin				
Lemons and limes				
Mango				
Guava				
Pomegranate				
Avocado				
Litchi				
Jackfruit				
Banana				

Tree tomato (Tamarillo)				
Dragon fruit				
Kiwi				
Papaya				
Coffee				
Tea				

....any other permanent crops, such as cardamom, pineapple and sugarcane? (No need to select a crop if the area grown was negligible, e.g. 1 decimal or less.)

	D_OPC1. Area under x (Acres)	D_OPC2. Production (Kg)	D_OPC3REV. Which of the following inputs were used? Please select all that apply. 1- chemical fertilizer; 2- manure/ compost; 3- chemical pesticide; 4- non-chemical pesticide
Cardamom			
Pineapple			
Sugarcane			

D7. Did you have some cropped land under protective cover (e.g. plastic or glass house) on your holding in 2018? Yes- 1 | No- 0

If No skip to **E1**

(Not to be confused with structures like farm buildings, store house etc.)

D8. If yes, what area of your land was under protective cover?

SECTION E: LIVESTOCK

E1. Do you have large bovine animals (e.g. cattle, buffaloes, yaks, zoms etc) **on this day?** Yes- 1 | No- 0 If No skip to **E8**
For the selected, details

E2. Tick the ones raised on this day.	E4. Total number of animals	E4_FA. Total female animals
Jersey pure breeds		
Jersey cross breeds		
Brown swiss pure breeds		
Brown swiss cross breeds		
Holstein-Fresian breeds		
Mithun pure breeds		
Jatsa-jatsams		
Yanku-yankums		
Doeb-doebums		
Doethra-doethrams		
Nublang-thrabams		
Jabas		
Buffaloes		
Yaks		
Zo-zoms		
Golengs		

E6. What feeding system do you practice with your cattle? (If in doubt, please refer your enumerator's manual for concepts and definitions of the following terms before making a selection.)

1. Grazing system; 2- Mixed system; 3- Industrial system

E7. If grazing system is practiced, what type? (If in doubt, please refer your enumerator's manual for concepts and definitions of the following terms before making a selection.)

2. Nomadic or totally pastoral; 2- Semi-nomadic, semi-pastoral or transhumant; 3- Sedentary pastoral or ranching

E8. Do you have any OTHER LIVESTOCK on this day? Yes- 1 | No- 0 If No skip to **E13**
For the selected ones, ask details for each.

E9. Tick the ones raised on this day.	E11. Total number of animals	E11_FA. Total female animals
Horses		
Asses		
Mules and hinnies		
Sheep		
Goats		
Local pigs		
Improved pigs		
Chickens – layers		
Chickens - broilers		
Chickens - local		
Turkeys		
Geese		
Ducks		
Guinea fowls		
Utility dogs		

E13. Do you have bee hives? Yes- 1| No- 0

E14. How many hives? If No skip to **E16**

E15. What type of bees are they? Local/Improved

E16. Do you rear fish in ponds? Yes- 1 | No- 0

SECTION F: FARM MECHANISATION

F1. In 2018, what kind of equipment/ machinery was used on the holding? Select the ones that apply. Tick the ones that were used.

Type of Machinery & Equipment	Tick	F3. Source (Select from below) 1-Own, 2-Hired from FMCL; 3- Hired from others (Non-FMCL); 4- Hired from Government, 5-Other
Manually operated thresher		
Power thresher		
Manually operated sprayer		
Power sprayer		
Transplanter		
Tractor		
Power tiller		
Power reaper		
Brush cutter		
Combine harvester		
Rotary paddy weeder		
Potato harvester		
Sorter and graders		
Maize sheller		
Cornflake(tengma) machine		
Vegetable/ fruit drier		

Chainsaw		
Milking machine		
Power cream separator		
Water pump		
Milling machine		
Chaff cutter		

F4. During 2018, what was the main source of power for land tillage on this holding?

1- Animal power; 2- Machine power; 3- Manual power

SECTION G: CREDIT (Only for household type holdings)

G1. In 2018, did you avail any credit for purposes related to the operation of the holding?

Yes- 1| No- 0 If No skip to **H1**

G2. Select the source of credit.

Source of credit	G3. Availed from (Yes/No)
Commercial bank	
Agricultural development bank (e.g. BDBL)	
Cooperative credit society	
Money lender	
Input supplier	
Self-help group	
Family or friends	
Government	
REDCL	
NGO (e.g. Tarayana)	

SECTION H: WORK ON THE HOLDING

- H1.** Did the holding employ a hired manager to run the holding in 2018? (Institutional type holdings may usually employ hired manager/ caretaker, so if this is the case for this holding, 'Yes' should be selected.) Yes- 1| No- 0 If No skip to **H4**
- H2.** What is the sex of the hired manager (1- Male; 2- Female)
- H3.** What is the age of the hired manager?.....
- H4.** In 2018, did you hire workers on the holding, on casual basis (as and when required)? Yes- 1| No- 0 If No skip to **HFT**
- H5.** On how many occasions did you hire casual workers in 2018?
- H6.** In total how many man-days were worked? (To calculate total man-days, let us illustrate by an example. Suppose a holding had hired workers on 3 occasions. In the 1st occasion 5 workers came to work for 2 days, in the 2nd occasion 3 workers came and worked for 3 days and in the 3rd occasion 10 workers came to work for 1 day. Therefore total man-days is calculated as: $(5 \times 2) + (3 \times 3) + (10 \times 1) = 29$ man-days.)
- H7.** How many different individuals were involved for the said number of man-days? (For example, the 29 man-days were done by 10 different individuals, some coming once, some twice and some thrice but counted only once.)
- H8.** Of which how many were female workers?
- H9.** What was the main form of payment for casual workers?
1-Cash only; 2-Cash plus meals; 3-Farm produce; 4-Exchange of labour; 5-Other forms of in-kind payment
- HFT.** Did you employ any worker on long-term basis? (Example, a dairy farm may employ a worker on full-time basis, for a few months or all year round.)
Yes- 1| No- 0 If No skip to **MAINACT**
- H_FT_NUM** How many workers were employed on long-term basis?
- H_FT_FEM** Of which, how many were females?

WORK ON THE HOLDING BY FAMILY WORKERS (Only for household type holdings)

MAINACT. Is the work on the holding the main activity of [name]? Yes- 1 No- 0 If No skip to H10 Copy household member names from the demography table, only for those aged 15 and over.	HH_WORKTIME. For how long did [name] work on this holding in 2018? 1- 0 - 10 Man-Days; 2- 11 - 20 Man-Days; 3- 21 – 31 Man-Days; 4- 1 - 3 months; 5- 3 – 6 months; 6- 7 or more months

H10: Did you face any constraints/situation in 2018 that affected your RNR productions or assets? (Only for household type holdings)
Yes- 1| No- 0 If No skip to **H12**

H11. If Yes, tick 3 most important constraints from below faced by your household/holding in 2018. (Only for household type holdings)

	Tick
Irrigation problem	
Unproductive land	
Labour shortage	
High labour wages	
Crop damage by wild animals	
Crop damage by insects /diseases	
Drought	
Excessive rain	
Hailstorm / wind	
Landslides / soil erosion	

Livestock depredation by wild animals	
Livestock diseases	
Lack of feed and fodder supply	
Shortage of land	
Limited access to market	
Difficulty in getting loans	
Difficulty in getting farm machinery	

H12. Was your household able to meet all food requirement for all of 2018? (Only for household) Yes- | No- 0

SECTION I: FORESTRY

11. Did your household collect Wood or Non Wood Forest Products in 2018 for consumptions or sales? (Only for household type holdings)
Yes- 1 | No- 0 If No skip to **J1**

Tick the NWFPP(s) collected in 2018 (Only for household type holdings)

	Tick	Tick
Wood for Dhapa and other cups		
Firewood		Cane (for making bang chu, baskets, ropes)
Mushroom (Wild)		Cane shoot (patsa for curry)
Wild Orchid flowers		Bamboo shoots (for curry)
Illicium fruits / Star anis		Fern shoots (Naakey)
Walnut (wild)		Damru
Hazel nut / Chest nut		Satuwa (<i>Paris polliphyla</i>)
Rubiaceoidifolia (Soe / Laneru / Majeto) Dyes		Paan/betel leaves
Chirata		Incense leaves/ plant (sang-zey)
Pipla		Oil seeds/nuts (e.g pangtse makhu)
Resin		Daphne bark
Lemon grass		Shilajit
		Cordyceps

J1. GPS READING OF THE HOLDING

To get GPS make sure the location function of your device is turned on. GPS location of the holdings will enable MoAF to understand the spatial distribution of the holdings across the country for better landuse planning. If you do not intend to capture GPS, you must note the reason (click on Note icon and type the reason) before selecting 'No need'.

If GPS coordinates could not be acquired upon clicking 'Get GPS' and waiting for 60 seconds, just type 0 (zero) in the LATITUDE AND LONGITUDE items to end the questionnaire.

1-Get GPS; 0-No need (coordinates will be captured in LATITUDE and LONGITUDE

THE END

ANNEXURE 2: CONVERSION TABLE

Land categories		
Local Term	English	English
Chhuzhing	Wetland	Kitchen garden
Kamzhing	Dry land	Residential area
Ngulthog Dumra	Orchard	Pasture
Local Term	English	Local Term
	Tsoesa / Tsoezhi	
	Khimisa	
	Tsamdrog	

Measures of surface		
Name	Area	Name
1 hectare	2.471 acres	1 Acre
Dry land		Wetland
1 Langdo (1 day plough)	34 dec = 0.34 acre	1 Langdo (1 day plough)
3 Langdo	1 acre	4 Langdo
1 Dromo (1 morning plough)	17 dec = 0.17 acre	1 Dromo (1 morning plough)
1 Haal	34 dec = 0.34 acre	1 Haal
		25 dec = 0.25 acre
		1 acre
		13 dec = 0.13 acre
		25 dec = 0.25 acre

Measures of grain volume: From local measurement units to kilograms				
Commodities	Drey / Bray / Khaw	Ba-drey / Tho-drey / Wong-drey	Pathi	Phita / Lamshu / Mana
Paddy	1.2	1.9	2.9	0.3
Rice	1.7	2.2	3.7	0.4
Maize	1.7	2.1	3.5	0.4
Wheat	1.5	2.3	3.1	0.4
Barley	1.4	2.5	3.3	0.4
Buckwheat	1.3	1.8	3.0	0.3
Millet	1.4	1.9	2.8	0.3

Mustard	1.3	1.5	3.1	0.3
Sesame	1.1	1.2	3.1	0.3
Soya bean	1.4	1.8	3.7	0.4
Beans	1.5	1.8	3.4	0.4
White Dal	1.7	2.3	3.3	0.4
Black Dal	1.7	2.2	3.4	0.4
Peas	1.4	2.2	3.5	0.4

Conversion various commodities volume from different units to kilograms

Items	Local units	In kgs	Items	Local units	In kgs
Vegetables					
Spinach	Bundle	0.4	Apple	Number	0.24 kg (1 box = 18 kgs)
Mushroom	Drey	0.1	Mandarin	Number	0.15 kg (1 box = 15 kgs)
Onion shoot	Bundle	0.2	Areca nut	Number	0.05 kg (1 pon = 4 kgs)
Garlic shoot	Bundle	0.3	Walnut	Number	0.0
Coriander	Bundle	0.1	Lemon	Number	0.1
Broccoli	Bundle	0.3	Guava	Number	0.2
Asparagus	Bundle	0.3	Pomegranate	Number	0.8
Garlic (bulb)	Phita / Lamshu / Mana	0.1	Banana	Number	0.2
Fresh chilli	Drey	0.3	Mango	Number	0.2
Dry chilli	Drey	0.2	Pear	Number	0.1
			Groundnut	Phita / Lamshu / Mana	0.3

ANNEXURE 3: List.

Crops					
Cereal	Leguminous	Vegetables	Roots / Tubers	PERMANENT CROPS	
Paddy (irrigated, local)	Mustard	Asparagus	Potato	Apple	
Paddy (irrigated, improved)	Sunflower	Broccoli	Sweet Potato	Pear	
Paddy (upland, local)	Soya bean	Cabbages	Cassava	Peach	
Paddy (upland, improved)	Sesame	Cauliflower	Yams	Plum	
Maize	Groundnut	Chili	Taro	Apricot	
Wheat	Beans	Spinaches and sags	Yautia	Persimmon	
Barley	Broad beans	Onion (inc. shallots)	Other roots and tubers n.e.c	Date-plum (gendum)	
Millet	Chickpeas	Ginger		Walnut	
Sweet buckwheat	Cowpeas	Turmeric		Hazelnut	
Bitter buckwheat	Lentil	Garlic		Areca nut	
Amaranthus	Lupins	Coriander		Mandarin	
Quinoa	Peas	Eggplant/ aubergine/ brinjal		Lemons and limes	
		Okra/ ladies' finger		Mango	
		Tomato		Guava	
		Cucumber		Pomegranate	
		Pumpkins, squash and gourds		Avocado	
		Carrot		Litchi	
		Radish		Jackfruit	
		Turnip		Banana	
		Watermelon		Tree tomato (tamarillo)	

		Mushroom			Dragon fruit
		Oyster			Kiwi
		Shitake			Papaya
		Button			Coffee
		Others			Tea

Livestock					
Large Bovine Animals/ Cattle					
Jersey pure breeds				Other Livestock	Horses
Jersey cross breeds					Asses
Brown swiss pure breeds					Mules and hinnies
Brown swiss cross breeds					Sheep
Holstein-Fresian breeds					Goats
Mithun pure breeds					Local pigs
Jatsa-jatsams					Improved pigs
Yanku-yankums					Chickens – layers
Doeb-doebums					Chickens - broilers
Doethra-doethrams					Chickens - local
Nublang-thrabams					Turkeys
Jabas					Geese
Buffaloes					Ducks
Yaks					Guinea fowls
Zo-zoms					Utility dogs
Golengs					

Farm Machinery and Equipments	Constraints Faced	NWFP
Manually operated thresher	Irrigation problem	Wood for Dhapa and other cups
Power thresher	Unproductive land	Firewood
Manually operated sprayer	Labour shortage	Mushroom (Wild)
Power sprayer	High labour wages	Wild Orchid flowers
Transplanter	Crop damage by wild animals	Illicium fruits / Star anis
Tractor	Crop damage by insects /diseases	Walnut (wild)
Power tiller	Drought	Hazel nut / Chest nut
Power reaper	Excessive rain	Rubiacordifolia (Soe / Laneru / Majeto) Dyes
Brush cutter	Hailstorm / wind	Chirata
Combine harvester	Landslides / soil erosion	Pipla
Rotary paddy weeder	Livestock depredation by wild animals	Resin
Potato harvester	Livestock diseases	Lemon grass
Sorter and graders	Lack of feed and fodder supply	Cane (for making bangchu, baskets, ropes)
Maize sheller	Shortage of land	Cane shoot (patsa for curry)
Cornflake(tengma) machine	Limited access to market	Bamboo shoots (for curry)
Vegetable/ fruit drier	Difficulty in getting loans	Fern shoots (Naakey)
Chainsaw	Difficulty in getting farm machinery	Damru
Milking machine		Satuwa (Paris polliphyla)
Power cream separator		Paan/betel leaves
Water pump		Incense leaves/ plant (sang-zey)
Milling machine		Oil seeds/nuts (e.g pangtse makhu)
Chaff cutter		Daphne bark
		Shilajit
		Cordyceps

ANNEXURE 4: Age Conversion in Bhutanese Calendar

Lopta Conversion

ཇི་བ། Rat	སྐང་། Bull	ཐྲ་མ། Tiger	ལོ་ལ། Rabbit	འབྲུག་། Dragon	སྐྱུ་ལ། Snake	རྒྱ་ལ། Horse	ལུག་། Sheep	སྐྱོལ་ལ། Monkey	ཅ། Bird	ཐི། Dog	ཕག་། Pig
11	10	9	8	7	6	5	4	3	2	1	0
23	22	21	20	19	18	17	16	15	14	13	12
35	34	33	32	31	30	29	28	27	26	25	24
47	46	45	44	43	42	41	40	39	38	37	36
59	58	57	56	55	54	53	52	51	50	49	48
71	70	69	68	67	66	65	64	63	62	61	60
83	82	81	80	79	78	77	76	75	74	73	72
95	94	93	92	91	90	89	88	87	86	85	84
107	106	105	104	103	102	101	100	99	98	97	96
119	118	117	116	115	114	113	112	111	110	109	108

ANNEXURE 5: Months in Bhutanese and Nepali Calendar

AGE CONVERSION IN LHOTSHAM YEAR						
Lhotsham Year	English Calendar	Age of Persons	Lhotsham Year	English Calendar	Age of Persons	
2076	2019	0	2030	1973	46	
2075	2018	1	2029	1972	47	
2074	2017	2	2028	1971	48	
2073	2016	3	2027	1970	49	
2072	2015	4	2026	1969	50	
2071	2014	5	2025	1968	51	
2070	2013	6	2024	1967	52	
2069	2012	7	2023	1966	53	
2068	2011	8	2022	1965	54	
2067	2010	9	2021	1964	55	
2066	2009	10	2020	1963	56	
2065	2008	11	2019	1962	57	
2064	2007	12	2018	1961	58	
2063	2006	13	2017	1960	59	
2062	2005	14	2016	1959	60	
2061	2004	15	2015	1958	61	
2060	2003	16	2014	1957	62	
2059	2002	17	2013	1956	63	

2058	2001	18		2012	1955	64
2057	2000	19		2011	1954	65
2056	1999	20		2010	1953	66
2055	1998	21		2009	1952	67
2054	1997	22		2008	1951	68
2053	1996	23		2007	1950	69
2052	1995	24		2006	1949	70
2051	1994	25		2005	1948	71
2050	1993	26		2004	1947	72
2049	1992	27		2003	1946	73
2048	1991	28		2002	1945	74
2047	1990	29		2001	1944	75
2046	1989	30		2000	1943	76
2045	1988	31		1999	1942	77
2044	1987	32		1998	1941	78
2043	1986	33		1997	1940	79
2042	1985	34		1996	1939	80
2041	1984	35		1995	1938	81
2040	1983	36		1994	1937	82
2039	1982	37		1993	1936	83
2038	1981	38		1992	1935	84
2037	1980	39		1991	1934	85

2036	1979	40	1990	1933	86
2035	1978	41	1989	1932	87
2034	1977	42	1988	1931	88
2033	1976	43	1987	1930	89
2032	1975	44	1986	1929	90
2031	1974	45	1985	1928	91
Lhotsham	English	Age of	Lhotsham	English	Age of
Year	Calendar	Persons	Year	Calendar	Persons
1984	1927	92	1957	1900	119
1983	1926	93	1956	1899	120
1982	1925	94	1955	1898	121
1981	1924	95	1954	1897	122
1980	1923	96	1953	1896	123
1979	1922	97	1952	1895	124
1978	1921	98	1951	1894	125
1977	1920	99	1950	1893	126
1976	1919	100	1949	1892	127
1975	1918	101	1948	1891	128
1974	1917	102	1947	1890	129
1973	1916	103	1946	1889	130
1972	1915	104	1945	1888	131

1971	1914	105		1944	1887	132
1970	1913	106		1943	1886	133
1969	1912	107		1942	1885	134
1968	1911	108		1941	1884	135
1967	1910	109		1940	1883	136
1966	1909	110		1939	1882	137
1965	1908	111		1938	1881	138
1964	1907	112		1937	1880	139
1963	1906	113		1936	1879	140
1962	1905	114		1935	1878	141
1961	1904	115		1934	1876	142
1960	1903	116		1933	1875	143
1959	1902	117		1932	1874	144
1958	1901	118		1931	1873	145