



Enumerator Manual:

Measuring the nexus between
gender and the environment



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1. Introduction

Gender and Environment Surveys are surveys that explore the interactions of women and men with all aspects of the environment. The surveys build on the Model Questionnaire on Measuring the Nexus between Gender and the Environment. This manual was prepared as a reference document for use during data collection for Gender and Environment Surveys, and relevant details about the survey are included here, including information about survey organization. The use of the Sampling Guidelines on Measuring the Nexus between Gender and the Environment is also recommended.

1.1 Rationale of the survey

This section contains an overview of the survey's rationale and objectives. This information is useful for enumerators to encourage participation among target respondents, as they may decide whether to participate or not depending on their perception of importance of survey attributes.

Women and men, in all their diversities, interact with the environment differently. From differentiated access to natural resources, to different levels of vulnerability to the effects of climate change, and to distinct challenges for participation in environmental decision-making, their experiences are diverse. To support national data collection efforts on this topic, the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) collaborated with the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), the International Union for Conservation of Nature (IUCN), the Pacific Community, the United Nations Environment Programme (UNEP), the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the United Nations Office for Disaster Risk Reduction (UNDRR) to develop a Model Questionnaire: Measuring the nexus between gender and environment. The questionnaire includes 10 modules and follows international statistical standards, classifications and practices to the extent possible.

The overall goal of the gender-environment survey is to collect data to assess the connections between environmental issues and gender equality and women's empowerment. This includes

issues around environmental decision-making, ownership of environmental assets, engagement in environmental livelihoods, roles played in environmental conservation and degradation, natural resource management, and risks and vulnerabilities to environment related issues, such as disasters and climate change. The survey aims to capture how women and men interact with the environment in a holistic manner. As such, the scope of the survey goes beyond economic activities to also capture relationships that take place in the context of the household, or for leisure, tradition, religion and other purposes.

1.2 Survey methodology

Technical details of the survey methodology are presented in this section. It provides details on eligible respondents, including the type of respondent who should answer each module.

1.2.1 Eligible respondents

The target respondents for gender-environment surveys are women and men age 15 years or older. Where interviewing minors poses legal or procedural challenges, individuals age 18 years or older can be considered. In households with at least two adults of different sex, there should be at least two respondents per household – one male and one female. The two individuals should be selected at random (e.g. no need for one of them to be the head of the household). In single adult households, only one person will be selected for interview, regardless of their sex. The respondents will be selected either manually or, if using UN Women's pre-programmed survey script, automatically by the application. Manual selection can be done using the Kish grid approach, which supports the manual selection of two individuals at random, preventing the enumerator from influencing the selection. Module 1 from the Model Questionnaire, which is used to construct household rosters (questions 1.1-1.5), provides the list of household members from where the selection should be made.

1.2.2 Survey questionnaire and content

The Model Questionnaire consists of 10 modules: two (2) consist of questions about the household (modules 1 and 2), and eight (8) consist of questions

to be asked to each of the randomly selected respondents (modules 3 to 10):

- Modules 1 and 2 should be answered by only one individual from the household (we will refer to this person as the household informant from here onwards). This individual should be selected at random and is not necessarily the household head.

- Modules 3 to 10 will be answered separately by the two (or more) randomly selected respondents of different sexes within the household. If the household is a single adult household, then only one respondent will respond to modules 3 to 10.

Refer to table 1 for a summary of the respondent type per module.

Table 1: Module Name and Respondent Type

| MODULE NO. | MODULE NAME | TYPE OF MODULE | RESPONDENT |
|------------------|---|----------------|--|
| Module 1 | Household roster | Household | One randomly selected individual answers questions about the whole household |
| Module 2 | Housing characteristics: location, building materials, fuel, water and sanitation | Household | One randomly selected individual answers questions about the whole household |
| Module 3 | Individual characteristics | Individual | Two randomly selected individuals of different sexes per household |
| Module 4 | Disaster exposure, preparedness and consequences | Individual | Two randomly selected individuals of different sexes per household |
| Module 5 | Exposure to, and preparedness for, climate change related effects | Individual | Two randomly selected individuals of different sexes per household |
| Module 6 | Employment in the green economy | Individual | Two randomly selected individuals of different sexes per household |
| Module 7 | Agriculture and land use | Individual | Two randomly selected individuals of different sexes per household |
| Module 8 | Environment-related livelihoods | Individual | Two randomly selected individuals of different sexes per household |
| Module 9 | Asset ownership | Individual | Two randomly selected individuals of different sexes per household |
| Module 10 | Decision-making and mobility | Individual | Two randomly selected individuals of different sexes per household |

2. Guidelines in fieldwork procedure

This section includes general guidelines for the survey's fieldwork, ranging from preparations to interviews and building a rapport with the respondents to obtain their cooperation.

2.1 Ethics and data protection

National statistical offices (NSOs) and various international professional survey and public opinion organizations have adopted ethical guidelines in the conduct of surveys.

In adherence with the United Nations Fundamental Principles of Official Statistics (2013), individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes.

The survey must also be implemented consistent with the principles of the Human Rights Based-Approach to Data (Office of the United Nations High Commissioner for Human Rights, 2019), namely: participation, data disaggregation, self-identification, transparency,

privacy and accountability. Key to this approach is the principle of “do no harm”, which indicates the data collected must be held strictly confidential and should be used exclusively for statistical purposes.

Respondent’s participation in the survey is voluntary, and they have the right not to disclose any personally identifiable information or answer survey questions that may pose risks or harm to them.

For respondents to give their informed consent to participate in the survey, it is critical that the enumerators inform them of the purpose of the survey, how their responses and information will be used, and their rights as respondents, among others, before the start of any interview. Consent also covers the recording of the interview, where needed, and the identification of the household location (either with GPS coordinates or the physical address).

For this survey, respondents should be age 15 years or older, unless legal or administrative burdens make this impractical, in which case respondents should be age 18 years or older. In most countries, the age of 15–17 years is considered the age of minority, in which case the consent of the parents or guardians of the minor respondents must be obtained in addition to the respondent’s consent.

To ensure that the collected survey responses are kept strictly confidential and anonymity of the respondents is maintained, all field personnel must ensure the following:

- All questionnaires and survey materials are kept in order and away from individuals who are not involved in the survey.
- Field personnel must not discuss or disclose with each other the responses or the identities of respondents.
- The interviews are conducted with only the enumerator and respondent present, and this is done in a private space within the household, if available.
- Field personnel must not post or disclose any respondent-related materials, like photos and audio and video recordings of the interview or completed questionnaires, on any social media.

- Field personnel must not disclose on social media or to anyone not involved in the survey of their involvement in the survey project as well as their areas of assignment. If field personnel want to update their personal social media of their activities, they must first ensure that their locations are not divulged by disabling geolocation or geotagging permissions in their devices or apps.

Given that the purpose of this survey is to gather evidence on how women, men, girls and boys use, experience, protect and conserve their environments, survey questions about recent disaster events or other hazards or impacts of climate change could create stress and anxiety for some respondents. To deal with this issue, enumerators must:

- Provide information regarding existing hotlines and other support services, should respondents display signs of stress or anxiety.
- If asked, clarify that the survey results will not necessarily translate into direct post-disaster aid, grants, or other forms of support for the respondents.
- If respondents express distress in connection with recall of disaster experiences, follow protocols for replacement of the sampled respondent. In this regard, the NSOs must prepare in advance a list of alternate households, that may be used only if disaster-related stress is explicitly identified.
- If a sampled household has been destroyed or its members were relocated as a result of climate-related or other hazards, follow protocols to trace the household members to their new temporary or permanent location.
- Ensure that responses are recorded from two household members of different sex, in full privacy (e.g. in a separate room, outside the household, or at a time when other household members are not home). This is important to ensure women and girls are able to openly and candidly express their opinions and share their hazard-related experiences.

2.2 Roles and responsibilities of field personnel, including ethics and data protection

The enumerators should know their roles and responsibilities during fieldwork and appreciate the importance of their role in recording survey responses accurately.

The field personnel for the gender-environment surveys are the enumerators and the supervisors. They play a critical role in the successful implementation of these surveys.

2.2.1 Responsibilities of enumerators

The enumerators are central to the implementation of the survey as they collect the data from the respondents. They must have extensive knowledge of the survey's methodology and protocols as well as the survey questionnaire to ensure that data collected are of the highest quality.

Enumerators may be responsible for the following (upon agreement with their supervisors):

- Preparing the materials needed to conduct interviews, such as the questionnaire and other survey paraphernalia, tablet computers (if survey is administered via tablet), professional identification materials, among others.
- Organizing day-to-day schedule of interviews in coordination with their supervisors.
- Communicating with local authorities about the survey to be conducted in their jurisdiction, including requesting permission to conduct interviews, if necessary.
- Locating the sampled households following the household selection protocol and returning to the household if the respondent is unavailable at first.
- Tracing the new location of sampled households if they are relocated or displaced from their home owing to hazards or disasters.
- Making a complete and accurate listing of eligible members in the sampled households following the established protocol.
- Interviewing eligible household members following the established protocol.

- Implementing the survey to each randomly selected respondent, by asking the questions and recording the responses following the item-by-item instructions.
- Ensuring that the quality control protocols are met in recording the responses:
 - The questionnaire is complete – all relevant question items are answered;
 - The answers are accurate – the respondent's answers are recorded accurately;
 - The answers are consistent/cohesive – relevant questions should be consistent all throughout the questionnaire.
- Ensuring the confidentiality of the respondents and the responses, and protecting the respondent's data privacy.
- Upholding professional ethics in the conduct of the interviews and in survey implementation.
- Completing and submitting all administrative forms or materials required by the survey organization.
- Communicating with the supervisor on any fieldwork concerns or other issues that may affect the data collection.
- Immediately reporting to the supervisors and/or central office any violations of ethics and data protection.

2.2.2 Responsibilities of supervisors

Supervisors are in charge of the overall day-to-day monitoring of the survey implementation. They are expected to have leadership qualities as enumerators will depend on them for guidance and may need to resolve any issues encountered during the fieldwork. Supervisors are also expected to have extensive knowledge of the survey's methodology and protocols as well as the survey questionnaire.

Supervisors are responsible for the following:

- Recruiting qualified enumerators.
- Training the enumerators or assisting in training the enumerators.

- Distributing survey materials to the enumerators to conduct interviews, such as questionnaire and other survey paraphernalia, tablet computers (if survey is administered via tablet), professional identification materials, among others.
- Monitoring and managing the workload of enumerators assigned to them.
- Monitoring and assessing enumerator performance.
- Ensuring that the enumerators adhere to the established survey methodology and interview protocols.
- Ensuring that enumerators meet monitor closely the quality control in recording the responses, including ensuring that:
 - The questionnaire is complete – all relevant question items are answered;
 - The answers are accurate – the respondent’s answers are recorded accurately;
 - The answers are consistent/cohesive – relevant questions should be consistent all throughout the questionnaire.
- Ensuring the confidentiality of the respondents and the responses, and the protection of the respondent’s data privacy.
- Upholding professional ethics in the conduct of the interviews and in survey implementation.
- Completing and submitting all administrative forms or materials required by the survey organization.
- Communicating with the central office on any fieldwork concerns or other issues that may affect the data collection.
- Debriefing enumerators about any fieldwork issues.
- Immediately reporting to the central office any violations of ethics and data protection.

2.3 Preparing for the interviews

Guidelines on preparations needed prior to conducting interviews are discussed here, such as what to bring to fieldwork.

Enumerators are expected to follow and complete the procedures on preparations before each interview.

Before travelling to the area of assignment. Upon receiving their assigned areas, the enumerators must conduct research on the logistics of how to travel to the area, such as travel time and modes of transportation available, and plan their workload accordingly. They must coordinate these with their supervisors, who in turn will plan their quality control monitoring accordingly. As sampled households will be pre-selected, the enumerators must know the location of the selected households or have the means of locating them on maps or GPS apps.

The enumerators must make sure that they have the questionnaire and other survey paraphernalia or aids with them, including:

- For computer-assisted personal interviews (CAPI): tablet computers, including chargers and extra battery packs;
- For pen and paper personal interviews (PAPI): sufficient number of blank questionnaires, including Kish grid tables for the respondent selection;
- Identification items, such as identity cards, introduction letters or proof of employment with the survey organization;
- Ballpens to be used in answering the questionnaire and other forms;
- Enumerator’s manual;
- Any protective covering to weather-proof the questionnaire, the tablets and other survey paraphernalia, such as umbrella or enclosed plastic bags or folders;
- List of assigned areas, including forms needed in quality control monitoring.

Before conducting the interview. Enumerators must be ready to start the interview even before knocking on the household's door or gate. They should look professional and have all relevant materials.

Any methodological information that needs to be entered into a CAPI survey or written into the questionnaire must be completed beforehand. By the time anyone in the household opens the door, the enumerator should be ready to introduce themselves and read the introduction. To gain cooperation from respondents, the enumerator must not keep respondents waiting. Being ready to start the interview will also give an impression of professionalism.

2.4 Obtaining cooperation

Enumerators should be made aware of techniques to obtain cooperation from target respondents to ensure a high response rate.

The successful conduct of interviews is largely dependent on the willingness of respondents to participate in the survey. Enumerators, therefore, must engage respondents and sometimes attempt to deter refusals. Below are some suggestions on how enumerators can achieve this.

- a. Look and act professional. Usually, first impressions are formed based on appearance, grooming or clothing. Enumerators must make an effort to look professional – dress neatly, carry proper identification, speak gently and not look unhurried. Enumerators should also be respectful, not aggressive and well-mannered. It is important that respondents feel comfortable opening their doors to people they do not know and are willing to spend time talking to them.
- b. Be ready to start the interview. The enumerator must be ready to start the interview as soon as a household member opens their door or gate. They should have questionnaire, pens, maps and all other materials needed to begin the interviews readily available. In the case of CAPI surveys, the tablets should be set to the introduction page.
- c. Be knowledgeable of the survey's objectives. Respondents often decide whether or not to participate in interviews based on the information provided by enumerators upon initial contact. Therefore, the enumerator should have extensive knowledge of the rationale for the survey, its objectives and the expected outputs of the research. For gender-environment surveys, the enumerators must convey the objective of measuring how women and men interact with the environment, whether for employment, subsistence, leisure, tradition, religion or other activities. In addition, the enumerator should be able to convey the importance of participation in the survey including because government entities typically use official statistics to inform national policies.
- d. Obtain informed consent. Respondents should be provided relevant information about the survey so they can make an informed choice to participate or not. While the enumerator may attempt to convert a soft refusal into a yes, they should be polite and respectful of the respondent's choice. As a proof of consent, respondents will be asked to affix their signature in the questionnaire. Enumerators must never coerce respondents to participate in the survey. Respondents have the right to refuse to participate or discontinue the interview.
- e. Assure confidentiality of responses and protection of privacy. In keeping with the principle of "first do no harm," respondents must be assured of the confidentiality of their responses and that their privacy will be protected by all people involved in the survey.
- f. Thank the respondent for their time. The enumerator should show their appreciation for the respondent's participation by thanking the respondent on occasion during the interview. This is particularly suggested when the enumerator notices respondent fatigue, or as a way to break the monotony of the interview.

3. Guidelines for standardized interviewing

To promote comparability across countries, the questionnaire should be implemented in a standardized way across multi-country contexts and in various languages.

3.1 Guidelines for a successful interview

Standard guidelines for a successful interview include how to handle interviews and how to probe for more information.

1 Making introductions

Making introductions is important for persuading respondents to answer the survey. When making introductions, the enumerators must be friendly and speak clearly. They must be prepared with their interviewing kits, and must be knowledgeable of the rationale for the survey, its objectives and the expected outputs of the research.

The questionnaire includes an introduction statement, which the enumerator must read word for word. After reading the introduction, the enumerator may provide additional information about the survey.

2 Turning refusals into “yes”

When respondents do not wish to participate in surveys, enumerators must know how to convert a soft “no” into a “yes”. Below are some techniques for refusal turnaround:

- Mention to the respondents how important their participation in the survey is and that the information they provide may one day contribute to informing policymaking in the area of natural resource management, disaster risk reduction, preparedness to deal with the effects of climate change and other topics. Emphasize that their responses can make a difference for the whole country.
- Show appreciation for the time the respondent spends to answer the survey.

- Assure them of the confidentiality of the survey, as some respondents may be wary of providing personal information.

Be assertive in convincing the respondent to participate, but do not force them. If they are already firm in their decision not to participate in the survey, the enumerator must thank the respondent for their time and continue with the survey in another household.

3 Reading verbatim

Enumerators must always read the question items and response categories verbatim, or word for word. They should not add, delete from or paraphrase any of the questions.

Making changes to the question items would often result in the respondent having a different understanding or comprehension of the question, which would affect how they answer.

Also, enumerators must not explain a question or concepts, or interpret any terms on their own. If the respondent has difficulty understanding, the enumerators must re-read the question or follow the specific instructions provided in this manual. Some questions include additional information in blue colour and in brackets. In these cases, the enumerator can read the additional information in brackets if asked for clarification. For additional clarification regarding some concepts, the enumerator may also refer to the information included in the relevant question section of the present Enumerators Manual. If the respondent still does not understand, then this can be coded as “don’t know”.

4 Read the entire question and response categories

Enumerators are instructed to read the entire question and response categories before they accept an answer unless there are specific instructions otherwise. This is to ensure that the respondent is informed of the possible response categories before they give an answer.

5 Remain neutral

Enumerators must never share their thoughts or views or even their reactions with the respondents for the duration of the interview. Enumerators must remain neutral. Sharing their views or even showing a reaction may induce bias on how the respondent will answer the questions.

6 Probing

Respondents might give vague answers or provide answers that cannot be classified into the response categories provided. In these instances, enumerators must probe for an answer to the question based on what is intended to be measured. Enumerators must probe in a neutral manner. For instance, they may repeat the question and all the response categories to remind the respondent of the choices offered.

3.2 General characteristics of the questionnaire

Enumerators should be aware of the general characteristics of the survey questionnaire and familiarize themselves with how to implement each question type and instructions in a standard manner across respondents. Special notations and markings, such as colour-coded instructions, should be discussed.

1 Formatting conventions

Enumerators and supervisors should be aware of the standard formatting and coding used in the questionnaires.

Text in blue: These are either instructions for the enumerator or should be answered (coded) by the enumerator based on their observation. These questions/ statements should not be read out loud to the respondent.

| | |
|---|--------------------------|
| <p>2.1 Main type of material used for the construction of the walls of the dwelling (Do not ask. Record material based on enumerator's observation)</p> <p>Refers to the material that covers the largest part of the wall. The quality of the material does not matter.</p> | Natural walls |
| | No walls |
| | Cane / Palm / Trunks |
| | Dirt |
| | Rudimentary walls |
| | Bamboo with mud |
| Stone with mud | |
| Uncovered adobe | |

Text in (parenthesis): Items in (parenthesis) are often examples or short clarifications or instructions to enumerators. As a rule, all texts in (parenthesis) should not be read aloud by the enumerator, **unless instructed otherwise.**

In this questionnaire, examples are provided for some of the questions. These are usually in blue font in parenthesis: (e.g. casual, part-time, odd jobs). Enumerators may read this text to the respondents.

| | |
|---|--|
| <p>6.3 What are the main (products/animals) that you are working on? (WRITE MAIN GOODS –e.g. (maize, rice, apples, oranges, cattle, sheep, fresh water fish))</p> | |
| <p>6.4 Last week, from (DAY) to (DAY), did you ...?</p> | <p>Do any (other) work to generate an income, even for 1 hour (e.g. casual, part-time, odd jobs, making things to sell, offering services for pay)</p> <p>Have a paid job or business activity, but (were/was) temporarily absent</p> <p>Help without pay in a family business</p> <p>Did not contribute to any income generating activity (for myself or for others), not even for one hour</p> |

Text in [SQUARE BRACKET]: If implementing PAPI surveys, enumerators must fill in some information when reading a question item or an introduction. This information is pre-filled in CAPI surveys.

Hello, my name is
and I am calling on behalf of the [INTRODUCE EXACT NAME AND ACRONYM OF THE NATIONAL STATISTICS OFFICE].

| | | |
|---|--|--|
| 1.2. What is [NAME]'s relationship to household head? | 1.3 What is the sex of [NAME], as recorded at birth? | 1.4 How does [NAME] record their gender? |
|---|--|--|

Text in UPPER CASE: This text indicates that the enumerator read a particular word with emphasis. It is usually used in questions in which the respondent is required to provide ONLY ONE response.

6.1 Which of the following best describes what you are MAINLY doing at present...?

| | |
|---|--|
| <p>7.2 Was farming MAINLY performed...?</p> | For own use/consumption of the household |
| | For sale/ profit |
| | Wage work |
| | Leisure, tradition, religion or other |

2 Question types

The following are the types of questions in the questionnaire.

- a. Closed-ended questions:** These are questions with response categories, each of which is pre-coded with numeric codes. In CAPI surveys, only the text of the categories will be shown. In PAPI surveys, the codes are shown, and enumerators must circle the code that corresponds to the respondent's answer.

| | |
|---|--|
| 7.1 In the past 12 months, did YOU personally operate any land (including orchards and kitchen gardens) for agricultural purposes or raise or tend any livestock (e.g., fish, shrimp, cattle, goats, chickens, etc.)? | Yes No |
| 7.2 Was farming MAINLY performed...? | For own use/consumption of the household For sale/ profit Wage work Leisure, tradition, religion or other |
| 7.3 In the past 12 months, did you individually make any income/monetary gains from agricultural activities related to farming, raising animals? | Yes No |

Some closed-ended questions have a generic "other" response category. As a rule, if a respondent mentions an answer that is not in the response categories provided, the enumerator must probe to clarify which of the categories provided is the best fit for the respondent's answer. The category "other" should only be selected if none of the remaining categories applies.

| | |
|--|---|
| 7.5 In the past three years, have you experienced any of the following soil degradation threats on the land you operate? | Soil erosion (loss of topsoil through wind or water erosion) Reduction of soil fertility Waterlogging, including by floods Salinization Pollution or chemical spill Other None of the above |
|--|---|

Non-responses, or cases in which the respondent does not know how to answer or refuses to answer, should be coded as "don't know" (code -98). As a rule, enumerators should record "don't know" (code -98) ONLY if the respondent volunteers "I don't know". Otherwise, enumerators must probe to clarify if the respondent's answer is within any of the categories provided.

| | |
|--|---|
| 7.10 Are you observing any reduction in the availability of water from your preferred irrigation source? | No, water is always available in sufficient quantity when I need it Yes, water from my preferred source is progressively going down/getting scarcer Yes, water is increasingly polluted I don't know |
| 7.11 Are there organizations dealing with water allocation in the area where this land is located? | Yes, and they are working well Yes, but they are not working well No, there are none I don't know |

- b. Open-ended questions:** There are questions that do not offer respondents any pre-coded response. These are either questions that ask for verbatim responses or for numeric answers.

In the verbatim open-ended questions, the enumerator must record the verbatim or actual answer of the respondent. Enumerators may use probing techniques to prompt a specific answer or to ensure that the responses are relevant or related to the question.

| | |
|---|---|
| 6.5 What kind of work do you do in your main job/business? (Write the occupation title and main tasks and duties – e.g. (Cattle farmer –breed, raise, sell cattle; Policeman –patrol the streets; Primary school teacher –teach children to read, write)) | Occupation title: Main tasks/duties: |
| 6.6 What is the main activity of the place where you work? (Write the main activity of the establishment and main products or services provided – e.g. (Police Department –public safety; Restaurant –preparing and serving meals; Transport company –long distance transport of goods)) | Occupation title: Main tasks/duties: |

Numeric open-ended questions usually ask about income, proportion of income, land areas or age. For these types of questions, enumerators must ensure that only numeric responses are provided and the responses correspond to the unit of measurement indicated.

| | |
|--|--|
| 7.4 What is the approximate share of your individual income that came from Agriculture? (include income from selling, trading and handling these materials) | Indicate percentage [] |
| 9.7 What is the size of the total agricultural land you own? If less than 1, record "00". If unknown, record "98". Use km2 or measure most suitable in country | Alone: (Specify unit) (.....) Amount [] Jointly: (Specify unit) (.....) Amount [] |

- c. Question styles:** There are single-item questions and batteries of questions.

Single-item questions offer response categories or ask for verbatim responses. These questions are either stand-alone/terminal questions (in which case the enumerator must ask the succeeding questions) or filter questions (in which case the enumerator must follow the skip instructions).

| | |
|---|---|
| 7.2 Was farming MAINLY performed...? | For own use/consumption of the household For sale/ profit Wage work Leisure, tradition, religion or other |
| 7.3 In the past 12 months, did you individually make any income/monetary gains from agricultural activities related to farming, raising animals? | Yes No |
| 7.4 What is the approximate share of your individual income that came from Agriculture? (include income from selling, trading and handling these materials) | Indicate percentage [] |
| 7.5 In the past three years, have you experienced any of the following soil degradation threats on the land you operate? | Soil erosion (loss of topsoil through wind or water erosion) Reduction of soil fertility Waterlogging, including by floods Salinization Pollution or chemical spill Other None of the above |

Batteries of questions have a stem question with several response items and identical response categories (usually yes or no). In implementing this style of questions, the enumerator must read the stem question as often as necessary, or before designated response items, to ensure that the respondent is still fully engaged in answering and is not merely satisficing or anchoring.

I would now like to understand if you have experienced extreme weather events, natural hazards, or other disaster situations in the past 12 months, and how you reacted at the time. For each event you have experienced, I will ask a series of questions. First, let's begin by understanding if you can remember being in a place (city, village, municipality field) where you witnessed the following events:

| | | | |
|----|---|-----|---|
| 01 | Drought | Yes | 1 |
| | | No | 0 |
| 02 | Flood (including mud, riverine, flash flood, flood, ground water flood, seawall flood, surface water flooding, etc) | Yes | 1 |
| | | No | 0 |
| 03 | Storm surge, storm tides | Yes | 1 |
| | | No | 0 |
| 04 | Cyclone/Hurricane/Typhoon/Depression (see previous slide) | Yes | 1 |
| | | No | 0 |
| 05 | Tornado | Yes | 1 |
| | | No | 0 |
| 06 | Extreme wind episode (e.g. winds, strong gale, squall) | Yes | 1 |
| | | No | 0 |
| 07 | Hailstorm, ice storm, freezing rain, blizzard, severe gale | Yes | 1 |
| | | No | 0 |
| 08 | Severe thunderstorm, downburst, lightning | Yes | 1 |
| | | No | 0 |

| | | | |
|---|-----------------------------|---------------------------|---|
| 4.5 Did you personally take any of the following precautionary measures? (Check all measures taken by the respondent and not other household members) | f. Harvested or store crops | Yes | 1 |
| | | No | 0 |
| | | I don't have crops | 5 |
| g. Move livestock to safe place | Yes | 1 | |
| | | No | 0 |
| | | I don't have livestock | 5 |
| h. Covered/straw crops | Yes | 1 | |
| | | No | 0 |
| | | I don't have a garden | 5 |
| i. Build barrier | Yes | 1 | |
| | | No | 0 |
| j. Take refuge in designated shelter | Yes | 1 | |
| | | No | 0 |
| | | No shelter was designated | 5 |
| k. Inside indoors | Yes | 1 | |
| | | No | 0 |

d. Modified yes/no questions: One particular question style used in this questionnaire is a modified yes/no question.

Some questions have a wording or syntax that simply asks for an answer of either yes or no.

| | |
|---|-----|
| 7.1 In the past 12 months, did YOU personally operate any land (including orchards and kitchen gardens) for agricultural purposes or raise or tend any livestock (e.g., fish, shrimp, cattle, goats, chickens, etc.)? | Yes |
| | No |

Modified yes/no questions have wording that triggers a yes/no response, but the response options offered include the reasons for either yes or no. If a respondent gives a generic yes or no, then the enumerators must probe for a specific answer.

| | |
|--|---|
| 7.10 Are you observing any reduction in the availability of water from your preferred irrigation source? | No, water is always available in sufficient quantity when I need it |
| | Yes, water from my preferred source is progressively going down/getting scarcer |
| | Yes, water is increasingly polluted |
| | I don't know |
| 7.11 Are there organizations dealing with water allocation in the area where this land is located? | Yes, and they are working well |
| | Yes, but they are not working well |
| | No, there are none |
| | I don't know |
| 7.24 During the last 12 months, did the land produce crops / livestock that are certified organic or undergoing organic certification process? | Yes, only crops |
| | Yes, only livestock |
| | Yes, both crops and livestock |
| | No |
| | Do not know |

4. Questionnaire implementation

For each survey question item, the following information is presented: measurement goal or the purpose of asking the question, filtering questions or respondent universe and general instructions for implementation (which may include clarification on terminologies or concepts). For items that are procedural in nature, such as household selection and selection of the respondents within the household, step-by-step instruction are provided.

PSU number segment: _____

Dwelling unit number: _____

Type of selection:

Random adult 1

Random adult and spouse/partner (c) 2

Province: _____

District municipality: _____

Local municipality: _____

Assignment number: _____

Household number for this household [1A] _____

1A-1. Household identification _____

1A-2. Total number of households at selected dwelling _____

1A-3. Physical identification of dwelling unit:

1A-4. GPS coordinates of dwelling:
LAT _____
LONG _____

1A-5. Were you able to locate the household members for interview in their mapped location?

Yes 1 → 1A-8

No 0 → 1A-6

4.1 Household selection

The following details should be filled out by the enumerator BEFORE the start of the interview.

For CAPI: some information may be pre-filled in the program.

For PAPI: the enumerator must fill out the details manually, or by hand.

1A-6. Were you able to track and locate the selected household members in their new location?

Yes1

No0

1A-7. GPS coordinates of new dwelling:

LAT _____

LONG _____

1A-8. Main language spoken at home: _____

1A-9. Language of interview: _____

1A-10. Date of interview: _____

Staff details

Supervisor:

Assignment No. _____

Date checked _____

Quality control:

Assignment No. _____

Date checked _____

Survey/field officer:

Name _____

Remarks by survey officer _____

Remarks by supervisor _____

4.2 Introduction and consent

Hello, my name is _____ and I am calling/coming on behalf of the [INTRODUCE EXACT NAME AND ACRONYM OF THE NATIONAL STATISTICS OFFICE].

We are conducting a survey about environmental issues, which will help the government plan related policies. Your household was selected for the survey, so I would like to ask you some questions.

The questions usually take about [ENTER NUMBER OF MINUTES DEPENDING ON MODULES IMPLEMENTED] minutes.

All your answers will be kept confidential and won't be shared with anyone besides the survey team. Data analysts will not be able to see your name or identify your responses in any way.

We hope you will agree to answer these questions, as your views are very important. If I ask a question you don't want to answer, please let me know and we can skip to the next question.

- a. Measurement goals:** This introduction aims to provide information to the respondent on what the survey is about and why their participation is important. It also contains assurance of the confidentiality of their responses as well as the protection of their privacy.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Enumerators should read the introduction verbatim. It must be read slowly and clearly.

The enumerator must use this opportunity to convince the respondent to participate in the survey. Often, respondents agree to participate based on the information provided to them as well as how the enumerator relayed this to them.

It is possible that the respondent would ask for more information about the survey, so the enumerator must be familiar with the survey

background. For instance, the enumerator must be able to convey that the survey aims to measure all human interactions with the environment, whether for employment, subsistence, leisure, tradition, religion or other. Should the respondent ask if they will receive any benefit or compensation for responding to the survey, the enumerator must explain that no compensation will be provided, but that the survey is expected to help the government to plan environment-related policy in the medium and long term.

If the respondent agrees to participate in the survey, they will be asked to affix their signature and the date of the interview.

Do you agree to begin the interview now?

- a. Measurement goal:** This question is intended to gain the respondent's explicit consent to be interviewed for the survey.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** If the respondent agrees to be interviewed, the interview will continue. If the respondent refuses to be interviewed, the interview will end.

1A-8. RECORD THE TIME.

Hours _____
Minutes _____

- a. Measurement goal:** This question will record the start time of the interview, or the time at which the respondent refused to be interviewed.
- b. Filtering questions/respondent universe:** Applies to all respondents.
- c. Instructions:** This question should not be asked to the respondent.

If PAPI: the enumerator must record the time, whether the respondent agrees or refuses to be interviewed. The time must be written in this format: HH:MM.

If CAPI: the program will automatically capture the time at which the respondent refuses to be interviewed, and the interview will end.

4.3 | Module 1 Household roster

Only one member of each household should be selected to respond to these questions. This module helps register data on the age, sex and gender of all household members, as well as information on the relationship between themselves, and whether they operate any land or raise any livestock, including fish farming (for identification of agricultural households).

As this section gathers personally identifiable data, the household key informant may be hesitant to provide the answer or answer honestly. Enumerators may repeatedly assure the informant that the survey will protect the confidentiality of the responses and data provided.

| RESPONDENT ID | 1.1 Please provide the names of all the people who usually live in this household. Name yourself first and name the remaining members from oldest to youngest. <i>Please list the names of all people who stayed in this household at least four nights per week for the last four weeks. Order from eldest to youngest.</i> | 1.2. What is [NAME]'s relationship to household head? | | | | | 1.3 What is the sex of [NAME], as recorded at birth? | | 1.4 How does [NAME] record their gender? <i>[Gender refers to current gender, which may be different from sex recorded at birth and may be different to what is indicated on legal documents]</i> | | 1.5. What is [NAME]'s date of birth? | 1.5.a How old is [NAME] in complete years? <i>Confirm the number you entered by checking the respondent's birthday against the date of interview.</i> |
|---------------|---|---|------------------|-------|----------------|-----------------------------|--|--------------------------------|--|-------------|--------------------------------------|--|
| | | Head | Spouse / Partner | Child | Other relative | Non-relative | Male 1 | Female 2 | Male 1 | Female 2 | (insert in format dd/mm/yyyy) | (number of years) |
| | | | | | | Intersex or non-binary 3 | | Intersex or non-binary 3 | | | | |
| | | | | | | | | They use a different term 4 | | | | |
| | | | | | | | | Don't know 5 | | | | |
| 1 | Respondent's name | | | | | | | | | | | |
| 2 | HH member 1 | | | | | | | | | | | |
| 3 | HH member 2 | | | | | | | | | | | |
| 4 | etc | | | | | | | | | | | |

(Introduction) To begin, I would like to understand how many people live in this household and how they are related to you. Please provide these details to the best of your knowledge

- Measurement goal:** This introduction statement is intended to inform the respondent that personal data about the household members must be provided to the enumerator.
- Filtering questions/respondent universe:** All households. Only one member of each household should be selected to respond to these questions.
- Instructions:** The enumerator must reassure the respondents of the confidentiality of the survey and that the personally identifiable data about each household member will be protected according to data privacy regulations.

A household, according to the United Nations (1973), is a socioeconomic unit, consisting of individuals who live together:

“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: (a) a one-person household, that is, a person who makes provision for his own food or other essentials for living without combining with any other person to form part of a multi-person household; or (b) a multi-person household, that is, a group of two or more persons who make common provision for food or other essentials for living. The persons in the group may pool their incomes and have a common budget to a greater or lesser extent; they may be related or unrelated persons, or a combination of both.”

It is possible that NSOs have their own simplified definition of household, or they may use a time period of domicile for an individual to be considered a member of a household (e.g. a household member may be someone who resides in a household for most days within a 12-month period). In such cases, NSOs have the option to add a country-specific definition in the question wording.

1.1 Please provide the names of all the people who usually live in this household. Name yourself first and name the remaining members from oldest to youngest.

Please list the names of all people who stayed in this household at least four nights per week for the past four weeks. Order from oldest to youngest.

- a. Measurement goal:** The aim of this question is to make a census or a complete list of the individuals who are connected to the household, which includes household members and guests who stayed at least four nights per week for the past four weeks.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Note that, in addition to the household members, the roster will include guests of the household who stayed in the dwelling unit within the period indicated. This may differ from the practice used for existing rosters from other surveys. The enumerator should probe for household members or guests who stayed in the household at least four nights per week for the past four weeks. As a result, the roster may include individuals who are not related to the household members.

In this household roster, the enumerator should list the household informant first before any other members. After the household informant, the listing of the rest of the household members should be ordered from oldest to youngest.

1.2 What is [NAME]'s relationship to household head?

- a. Measurement goal:** The aim of this question is to determine the relationship of the household members and guests to the household head.
- b. Filtering questions/respondent universe:** For each household member and guest identified in Q1.1.
- c. Instructions:** The “household head” is an adult member of the household who is responsible for the organization and care of the household. He or she must be recognized as the head of the household by other members. “Household

head” is not automatically the father or mother, or the oldest, or the household’s main wage earner. The household head is not necessarily the household informant or key informant for the household module.

Ask for EACH household member or guest identified in Q1.1.

1.3 What is the sex of [NAME], as recorded at birth?

- a. Measurement goal:** The aim of this question is to determine the sex at birth of the household member or guest.
- b. Filtering questions/respondent universe:** For each household member and guest identified in Q1.1.
- c. Instructions:** Sex refers to the different biological and physiological characteristics of females, males and intersex persons, such as chromosomes, hormones and reproductive organs (WHO, 2022). An individual’s sex is assigned at birth and can be changed.

“Sex at birth” refers to the sex that was assigned to the respondent at the time of birth. If sex-change surgery has taken place since, the respondent’s sex at birth will not align with their current sex.

This question should be asked and should not be based on an enumerator’s observation.

Ask for EACH household member or guest identified in Q1.1.

1.4 How does [NAME] record their gender?

- a. Measurement goal:** The aim of this question is to determine the self-identified gender of the household member or guest.
- b. Filtering questions/respondent universe:** For each household member and guest identified in Q1.1.
- c. Instructions:** Gender refers to the characteristics of women, men, girls and boys that are socially constructed. This includes norms, behaviours and roles associated with being a woman, man, girl, or boy, as well as relationships with each other (WHO, 2022a).

Gender refers to current gender, which may be different from sex recorded at birth and may be different to what is indicated on legal documents. For example, a respondent who was assigned male sex at birth may identify its gender as a male, female or other.

There is NO consistency check between Q1.3 and Q1.4 for the same respondent.

Ask for EACH household member or guest identified in Q1.1.

1.5 What is [NAME]'s date of birth?

- a. **Measurement goal:** The aim of this question is to determine the date of birth of the household member or guest.
- b. **Filtering questions/respondent universe:** For each household member and guest identified in Q1.1.
- c. **Instructions:** The date of birth should be captured in this format:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| D | D | M | M | Y | Y | Y | Y |
|---|---|---|---|---|---|---|---|

For example, February 28, 1980:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| D | D | M | M | Y | Y | Y | Y |
| 2 | 8 | 0 | 2 | 1 | 9 | 8 | 0 |

Ask for EACH household member or guest identified in Q1.1.

1.5.a How old is [NAME] in complete years?

- a. **Measurement goal:** The aim of this question is to determine the years of age of every household member or guest.
- b. **Filtering questions/respondent universe:** For each household member and guest identified in Q1.1.
- c. **Instructions:** The age should be as of the day of the interview. Even if the birthday falls on the day after the interview, the age should not be adjusted.

The age should be consistent with the birthday entered in Q1.5. Enumerators must confirm the age by checking the respondent's birthday against the date of interview.

Ask for EACH household member or guest identified in Q1.1.

1.6 Recovery question:

- (a) Are there any other persons such as small children or infants that we have not listed?
- (b) Are there any other people who stayed in this household for at least four nights per week for the past four weeks?
- (c) Are there any domestic workers who usually live in the household/at least four nights per week for the past four weeks?

- a. **Measurement goal:** These questions are aimed to ensure that the household key informant has included all individuals connected to the household in the roster.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** For each "yes" answer, the enumerator must add the individual to the household roster and administer Q1.1 to Q1.5.a.

Once all household members are listed in the roster, the interview will proceed.

1.7 In the past 12 months, did this household (or any of its members) operate any land (including orchards and kitchen gardens) for agricultural purposes?

- a. **Measurement goal:** The aim of this question is to determine if the household or any of its members operate any land for agricultural purposes.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Agricultural land operation may be for own use/consumption of the household or for profit or for both.

The land may be owned by the household or any of its members or owned by other individuals

connected or not with the household or any of its members.

“Operate” refers to having management control over growing crops or other activities on the land. Thus, it includes farming or planting, raising animals or other farming operations, or making decisions on farming operations.

“Farming” is not limited to crops. It may include orchards (flowers or ornamental plants) and kitchen gardens (vegetables or herbs).

The time reference is within the **past 12 months** from the date of the interview. For example, September 2021 to September 2022.

1.8 Was farming performed...? Indicate (check) ALL that apply

a. Measurement goal: The aim of this question is to determine the purpose of farming done by the household or its members, including whether or not economic gain was obtained.

b. Filtering questions/respondent universe: Ask if the household or any of its members operate any land for agriculture.

(Ask if Q1.7=1)

c. Instructions: Multiple responses are allowed.

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for final use by the producer, their household and/or their family. If some goods or services are sold but the main purpose of production is for own consumption, this should still be considered as own use/consumption of the household (ILO, 2022a). Farming for own use/household consumption is known as subsistence farming.

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment or contributing family worker.

“Wage work” is when an individual is in employment or performs activities for another

individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

“Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

1.9 In the past 12 months, did this household (or any of its members) raise or tend to any livestock (e.g. cattle, goats, chicken, etc.)?

a. Measurement goal: The aim of this question is to determine if the household or any of its members are involved in livestock raising. Tending to livestock does not necessarily imply direct ownership of livestock.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: The livestock activity may be for own use/consumption of the household, for profit, for leisure, tradition, religion or for all of them.

Livestock are domesticated terrestrial animals that are raised to provide a diverse array of goods and services such as traction, meat, milk, eggs, hides, fibres and feathers (FAO, 2022e).

“Livestock” include poultry such as ducks, chickens, turkeys, fowl, geese, quail and ostriches. Examples of livestock are pigs, cows/cattle, horses, sheep, buffaloes and goats (FAO, 2022e).

The livestock may be owned by the household or any of its members or owned by other individuals connected or not connected with the household or any of its members.

1.10 Was raising/tending livestock performed...? Indicate (check) ALL that apply

a. Measurement goal: The aim of this question is to determine the purpose of livestock farming done by the household or its members, including whether or not economic gain was obtained.

b. Filtering questions/respondent universe: Ask if the household or any of its members are involved in livestock farming.

(Ask if Q1.9=1)

- c. Instructions:** Multiple responses are allowed.

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for final use by the producer, their household and/or their family. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a). Livestock raising activities for own use/household consumption are known as subsistence livestock raising.

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

“Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

1.11 Is the household an agricultural household? [To be answered by enumerator/CAPI script]

A household is classified as an agricultural household if:

- (a) Q1.7=1 and Q1.8=1 or 2.
OR
(b) Q1.9=1 and Q1.10=1 or 2.

- a. Measurement goal:** This is a compound variable that will determine if the household is an agricultural household.
- b. Filtering questions/respondent universe:** Applies to all respondents.
- c. Instructions:** In PAPI surveys: this will be answered by the enumerator. DO NOT ASK THE RESPONDENT.

In CAPI surveys: the script will automatically fill this information based on the responses in Q1.7 and 1.8 OR Q1.9 and Q1.10.

A household is considered an “agricultural household” when a member or members of the household operated land for agricultural purposes or raised livestock over the past 12 months regardless of the final purpose of production; or at least one member of the household operated land for agricultural purposes or raised livestock as an own-account worker (United Nations Statistics Division, 2022).

1.12 In the past 12 months, was this household (or any of its members) involved in any fishing or fish farming (in ocean, rivers, own pond, etc.)?

- a. Measurement goal:** The aim of this question is to determine if the household or any of its members are involved in fishing (including all forms of marine harvesting, such as catching sea cucumbers, crabs, or others) or fish farming, including shrimp farming, seaweed farming or raising of crustaceans.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Fishing or fish farming may be for own use/consumption of the household, for profit or for leisure, tradition, religion or other purpose.

“Fishing” or “fish farming” may be done in a pond, in rivers, lakes or oceans. These activities include coastal harvesting as well as deep sea fishing. Therefore, any individual engaged in harvesting crustaceans, sea cucumbers and other shoreline marine life will also be considered to engage in fishing. Similarly, individuals farming shrimp, clams, oysters, eels, or other forms of marine or freshwater animals will all be considered to engage in fish farming. Recreational fishing, including catch and release, should also be considered as engagement in fishing.

1.13 Was fishing performed...? Indicate (check) ALL that apply.

- a. Measurement goal:** The aim of this question is to determine the purpose of fishing or fish farming done by the household or its

members, including whether or not economic gain was obtained.

- b. Filtering questions/respondent universe:** Ask if the household or any of its members are involved in fishing or fish farming.

(Ask if Q1.12=1)

- c. Instructions:** Multiple responses are allowed.

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a). Fishing activities done for own use/household consumption are known as subsistence fishing.

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

“Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

4.4 | Module 2 Housing characteristics – location, building materials, energy, water and sanitation

This module enables the collection of data on the characteristics of the dwelling, including condition of walls, roof, floor, land or plot, number of sleeping rooms and location near environmentally hazardous triggers.

Furthermore, it helps gather information on energy-related matters, such as source of electricity, type of cooking fuel or energy source, factors affecting indoor air quality and person in charge of cooking and gathering cooking fuels, type of heating and cooling systems and household appliances (including type of cooking stove). Water and sanitation variables in this module include the source of drinking water and its location, time to water source, availability and quality of water, toilet facility type, location and disposal system, hand-washing information and safety-related questions associated with the use of sanitation facilities, such as illumination, locks and sharing practices. As the responses to the questions in this module should not differ between household members, the responses of only one household member are sufficient.

Some of the questions in this module were adapted from already existing standardized survey programmes, such as Demographic and Health Surveys (DHS) and UNICEF Multiple Indicator Cluster Surveys (MICS), thus it builds on internationally agreed and tested methodologies. Hence, discussions on implementation of some items were adapted from the manuals produced for these surveys.

(Introduction) I will now proceed to ask some questions about your dwelling unit and its characteristics and any nearby land you use for production or own consumption, such as a garden.

- a. Measurement goal:** This introduction statement is intended to inform the respondent that the questions in this module are about the characteristics of their dwelling unit.
- b. Filtering questions/respondent universe:** All households. Only one member of each household should be selected to respond to these questions.
- c. Instructions:** A “dwelling unit” refers to the structure (building or house) that is used by a household or several households for residence.

2.1 Main type of material used for the construction of the walls of the dwelling

- a. Measurement goal:** The enumerator will identify the main type of material covering the exterior wall of the dwelling.

- b. Filtering questions/respondent universe:** Applies to all respondents.

- c. Instructions:** Do not ask the question.

Enumerators should record the type of material of the wall based on their observation, which can be done from the dwelling's exterior. If the wall is made of different materials, or there are one or more wall materials in different parts of the dwelling, the enumerator should only record the main material, or the material that covers the largest part of the wall.

2.2 Main type of material used for construction of the roof

- a. Measurement goal:** The enumerator will identify the main type of material of the dwelling's roof.

"Main type" refers to the material that covers the largest part of the roof. The quality of the material does not matter.

- b. Filtering questions/respondent universe:** Applies to all respondents.

- c. Instructions:** Do not ask the question.

Enumerators should record the type of material of the roof based on their observation, which can be done from the dwelling's exterior. If the roof is made of different materials, or there are one or more roof materials in different parts of the dwelling, the enumerator should only record the main material, or the material that covers the largest amount of roof space.

In dwellings located in multi-story buildings, the roof shall be the roof at the top of the building.

2.3 Main type of material used for construction of the floor

- a. Measurement goal:** The enumerator will identify the main type of material of the dwelling's floor.

"Main type" refers to the material that covers the largest part of the floor. The quality of the material does not matter.

- b. Filtering questions/respondent universe:** Applies to all respondents.

- c. Instructions:** Do not ask the question.

Enumerators should record the type of material of the floor based on their observation. If the floor is made of different materials, or there are one or more floor materials in different parts of the dwelling, the enumerator should only record the main material, or the material that covers the largest amount of floor space.

2.4 Is your household, dwelling unit, or land (including any land you may use for production or own consumption) located near (within 2 km/30 minute walk) any of the following?

- a. Measurement goal:** The aim of this question is to determine the proximity of the household, dwelling unit, or land they used for production or own consumption to natural geological features, such as volcanoes, lake- or seashores, or man-made facilities, such as dumping sites, that may pose hazardous risks.

- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** Read out **each item** and record the code corresponding to the answer given for **each item**. Record either "yes" (code 1) or "no" (code 2). Record "don't know" (code -98) ONLY if the respondent volunteers "I don't know".

"Near" refers to proximity measured either by **distance** - within 2 kilometres (km) - or **by walking time (in minutes)** - 30 minutes. If the respondent notes that the specific site is either close in distance or close in time, mark as "yes". It doesn't necessarily need to be close in both distance and time.

If the respondent has multiple households or dwelling units or land, record "yes" if **any** of them is located near the hazardous sites.

The enumerator should read the stem question before the first item (seashore), after that the stem question may be re-read as needed.

Definitions for each of the geographical features are as follows:

- **Sea shore:** area with sand, stone or other land bordering the sea.

- **Industrial production facilities:** structures used for manufacturing, processing, or assembling products.
- **Craft/artisanal production facilities** that use dyes, paints, polishes, or chemicals: facilities that involve the production of arts, crafts and cultural materials that may use dyes, paints, polishes, flame retardants and other harmful chemicals.
- **Fracking locations:** places where liquid is injected at high pressure into subterranean rocks/land to force open existing fissures and extract oil or gas.
- **Extractive sites** (e.g. mines, oil pumps, etc.): these may be pits, quarries, deposits, oil pumps, mines and other areas where mining and pumping is performed, including contiguous areas.
- **High vehicle traffic area** (e.g. highway, main thoroughfare): highways or large roadways designed for high and typically fast traffic. They may have entrances and exits, driving sections, and they usually have traffic flowing in both directions with two or more lanes.
- **Dumping sites:** Areas where refuse/garbage is discarded, whether these have been designated by authorities or created organically from human behaviour.
- **Brownfield land:** previously developed land (previously used for industrial purposes) that is not currently in use and may be contaminated by concentrations of hazardous chemicals or other materials.
- **Powerplant or high-voltage power lines:** an installation where electrical power is generated for distribution.
- **Burning/cremation facilities:** Locations where burning is consistently performed. This typically refers to venues where the dead are cremated, or where garbage or other materials are burned.
- **Open defecation area:** locations where human faeces are disposed. These could be fields, forests, roadsides, beaches or open bodies of water, for instance.
- **Medium to large agricultural plot (with use of pesticides):** land devoted to agriculture, typically for profit and operated by a business, where pesticides are used consistently.
- **Communal septic systems:** decentralized wastewater treatment systems that collect wastewater from multiple dwellings.
- **Underground storage tanks/underground waste storage:** locations where wastewater or other refuse is stored below the ground.
- **Industrial-level animal production facility:** agricultural facility where animals are confined and fed or maintained, or any other large form of animal raising operation.
- **Storage facility (for chemicals, batteries, paint or other potentially harmful items):** reservoir or surface facilities used for storing harmful materials, such as chemicals, dyes, batteries, paint, explosives, gases, flammable liquids or solids, cleaning products, toxic and infectious substances (such as lab animals, virus and other medical related biohazard materials), radioactive materials, corrosives or other miscellaneous dangerous goods.
- **Lowlands, swamps, or other flood-prone area:** flat land that is at sea level or slightly above, or any other area that is prone to flooding, such as riverbanks or swampy areas that are covered by water during time intervals.
- **Active volcano:** Volcano that is either erupting or likely to erupt in the future. In other words, seismic activity is either detected or expected in the coming years. The volcano may or may not show signs of unrest (such as smoke, rocks, or trembling), but authorities would typically monitor active volcanos and inform citizens of upcoming activity, if any.
- **Fault line/earthquake prone area:** fault lines are long cracks in the rock that forms the surface of the earth, which typically makes the area earthquake prone.
- **Cyclone/hurricane/high wind vulnerable area:** areas where low-pressure driven

storms form and hit frequently (at least once every 20 to 30 years) or areas exposed to frequent high velocity wind powers.

- **Deviated river land:** Land located where a river used to flow, after its diversion.
- **Riverbank:** Land at the edge of a river, or basin of a river where all surface run-off flow.
- **Lake shore:** Area along the edge of a lake and contiguous areas.
- **Deforested areas or other areas prone to drought:** area that suffers from decrease in forest density, variety or complete depletion. Many deforested areas are the result of land transition (forest clearing for agricultural or industrial purposes).
- **Protected area:** locations which receive protection through rules and regulations because of their recognized natural, ecological, or cultural value. These include national parks and national marine reserves, among others.

2.5 How many rooms in this household are used for sleeping?

- Measurement goal:** The aim of this question is to determine whether the household is crowded or not by asking how many rooms are specifically used by the household members **for sleeping**.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** A room refers to an area with a permanent partition. A dwelling unit occupied by a household may have several rooms.

“Rooms used for sleeping” refer to rooms that are specifically meant to be used for sleeping by the household members, which includes any room with a permanent partition and not only those referred to as “bedroom”. For instance, a kitchen area with a permanent participation wall may be regularly used as a sleeping area by household members at night can be counted as a room (UNICEF, 2021).

A studio apartment is a dwelling unit (single-room unit) without permanent partition, where

the room serves as living room, sleeping area and kitchen combined.

Record the **actual number of rooms** used for sleeping by household members. If the unit is a studio unit, record zero “0”.

2.6 What is the source of electricity in your household?

- Measurement goal:** The aim of this question is to determine the source of electricity in the household.
- Filtering questions/respondent universe:** Ask if household has electricity.
- Instructions:** “Grid” refers to electrical grid, or an interconnected network in which electricity is delivered from power generation producers to consumers.

A household that is “off-grid” means it is not physically connected to an electrical grid for electricity. Households that are off-grid rely on their own electricity source, such as generators, which may or may not be renewable energy sources (e.g. gas-powered generators, solar powered generators).

Record one answer only. If the household has multiple electricity sources, the enumerator should probe to determine the main source or the source they use most often. If the household has no electricity (including no generators) record code 0.

2.7 Does your household have?

- Measurement goal:** The aim of this question is to determine whether the household has certain household appliance items and utilities. Some of these appliances may be useful for early warning purposes in the context of disasters, others may be helpful to cope with the effects of climate change, or to use as collateral if the respondent needed to ask for a loan or borrow some money.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** Read out **each item** and record the code corresponding to the answer **given**

for each item. Record either “yes” (code 1) or “no” (code 0).

If a particular household item is broken or not working, the enumerator should verify how long it has been broken and whether this can still be fixed. If it is broken temporarily, such as, scheduled for repair, record “yes” (code 1); otherwise, record “no” (code 0).

- **Water dispenser, pump, radio, etc.** Water dispensers are home appliances or machines that are used to store and dispense water. Water dispensers may be directly connected to a piped water source or are stand-alone containers.
- **Water pump.** Water pumps are devices used to move water from one place to another, such as draining water from a flood area or fill a pool. It is also often used in agriculture, such as in bringing irrigation water from a source to the farm through pipes. Water pumps may also be used to pump ground water into households.
- **Oven.** An oven is a device that is used to heat materials, such as food, in a controlled manner. Ovens are mostly used for cooking and heating food. Ovens are made of various materials, from traditional clay or stone or earthenware, to manufacture such as gas, electric or baking ovens. Microwaves are also a type of oven.

It also has industrial uses, such as in drying ceramics or cement (kiln), or to heat metals (furnace).

- **Radio.** Radio is a device used to receive audio signals transmitted from other sources, such as broadcast stations. Radios are often used by households to listen to news or radio programs. Radios are typically powered by electricity or battery-operated.
- **Television.** Television is a device used to receive both audio and moving images signals transmitted from broadcast stations. Television signals could be delivered by traditional broadcast, cable, or satellite television. Televisions are used primarily for entertainment and to gather information or news. They are either powered by electricity or are battery-operated.

- **Landline.** Landline is a type of phone in which signals (or calls) are transmitted using wires or fibre-optic lines (as compared to cell phones or mobile phones, which do not use wires to function). Landlines are most commonly used in households.

Note that there are landline phone units that are called “wireless” when the speaker piece is not connected to the phone body using wires. Even though these are “wireless”, these still need to be put in a receptacle that holds the wires or fibre-optic lines.

- **Refrigerator.** A refrigerator is a cooling unit used for storage of food, water, medicine, or other perishable goods. Refrigerators typically run-on electricity. Coolers that aren’t energy-operated (e.g. require adding ice or other cooling sources manually) should not be considered refrigerators.
- **Electric fan.** An electric fan is an electric-powered device that is primarily used for cooling or ventilation
- **Air conditioner.** An air conditioner is a device that is used to cool an enclosed space such as a room, buildings, or vehicles (cars, buses, vans). Air conditioners may be built into walls or ceilings, or they may be stand-alone units.
- **Washing/drying machine.** A washing machine is an appliance used to wash laundry at home. Washing machines are typically connected to water supply sources, and to the household’s electricity source. Some washing machines have dryers, which is used to dry the clothes.
- **Working Internet connection.** A working Internet connection means the household is able to access the Internet using their computers, tablet computers or cell phones. Access to the Internet may be through fibre-optic lines, satellite, or mobile (wireless) connection.

2.8 What type of cook stove is mainly used for cooking in this household?

- a. **Measurement goal:** The aim of this question is to determine the type of stove mainly used for

cooking in the household. The use of different cooking stoves and technologies can have important effects on household air quality and therefore the health of the cooks and other household members.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: Cookstoves are appliances or heating systems designed for cooking food. The combination of fuels and technologies (e.g. gas or kerosene with a type of burner, for instance) determines whether cooking practices may result in clean or compromised air quality within households.

If the household uses multiple types of cookstoves, determine the type they use most often.

Descriptions, including illustrations, of cookstoves are provided below (WHO and UNICEF, 2016):

- **Electric stove.** Electricity operated stoves, such as electric burners, vitroc ceramic stoves, induction burners and other stoves that use electricity (code 1) (figure 3).
- **Solar cooker.** Devices which use the energy of direct sunlight to heat, cook or pasteurize (code 2) (figure 2).
- **Liquefied Petroleum Gas (LPG)/Cooking gas stove.** Stoves fuelled by combustible commercial gas such as propane, butane or liquefied petroleum gas (LPG) (code 3) (figure 4).
- **Piped natural gas stove.** Stoves that are connected to gas supply infrastructure

and utilize natural gas to heat or cook food (code 4) (figure 1).

- **Biogas stove.** Appliances similar to commercial gas stoves that instead utilize biogas. These are typically one or two burner stoves, though not always (code 5) (figure 5).
- **Liquid fuel stove.** Stoves that burn white gas (a type of liquid petroleum fuel) or other liquid fuels, such as kerosene, typically stored in a fuel bottle which connects to the stove burner via a hose (code 6).
- **Manufactured solid fuel stove.** Burners and cooking stoves that utilize any solid fuel made industrially from coal, wood, plant-derived materials, waxes or petroleum products (code 7) (figure 6).
- **Traditional solid fuel stove.** Traditional cooking stoves, including structures made from clay with stone or metal tripods, that make use of solid cooking fuels such as charcoal, coal, wood, crop waste, animal dung, or other fuels (code 8). Traditional cookstoves are usually made within the community, from materials sourced from local sources gathered by individuals (figure 7).
- **Three stone stove (open fire).** Three stone stoves, or structures whereby three stones are placed together to hold cooking pots above a fire (code 9) (figure 8).
- No cooking in household (code 10)
- Other (code -96)



Figure 1. Example of a stove with piped natural gas

Solar box cooker



Parabolic solar cooker

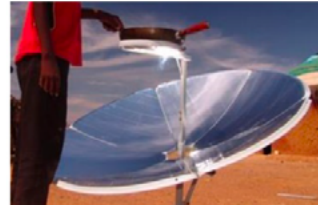


Figure 2. Examples of solar cookers

Electric coil stove



Induction stove



One burner, LPG stove



Two burner, LPG stove



Figure 3. Examples of electric stoves

Figure 4. Examples of LPG/cooking gas stoves

Stove for biogas application



Floating-dome biogas digester



Balloon biogas digester



Ceramic charcoal stove



Rice husk, top-lift updraft stove with forced air



Figure 5. Examples of biogas stoves

Figure 6. Examples of manufactured solid fuel stoves

Traditional rocket stove



Traditional chulha



Traditional cookstove with grate



Traditional mud and brick cookstove



Figure 7. Examples of traditional solid fuel stoves



Figure 8. Examples of three-stone stoves/open-fire

All photos included in this section have been sourced from [Pictorials - WHO Household Energy Use Catalogue \(September 2016\)](#).

2.9 Does the stove have a chimney?

- a. Measurement goal:** The aim of this question is to determine whether the stove used by the household for cooking is ventilated by a chimney. Chimneys support air circulation and thus limit the impact of unclean fuels on the household's air quality.
- b. Filtering questions/respondent universe:** Ask if household uses manufactured or traditional solid fuel stoves.

(Ask if Q2.8=7 or 8)

- c. Instructions:** A "chimney" is a pipe or tunnel-like structure that ventilates houses and other building structures. It directs the smoke or gas from the cookstove to the outside of the house. A chimney could be made of different materials, such as brick or masonry, concrete, pipes, sheet metal, or other materials (WHO and UNICEF 2016) (figure 9).

Record one answer only. If the household uses multiple types of cookstoves, the enumerator should probe to determine the main source or the type they use most often.



Figure 9. Examples of cookstoves with chimneys and chimney vent

2.10 Does the stove have a fan?

- a. Measurement goal:** The aim of this question is to determine whether the stove used by the household for cooking has a ventilation fan. Similarly, the existence of fans may support air circulation and contribute to better indoor air quality.
- b. Filtering questions/respondent universe:** Ask if household uses manufactured or traditional solid fuel stoves.

(Ask if Q2.8=7 or 8)

- c. Instructions:** This question refers to the stove fan, or the part of the stove that aids in better combustion of cooking fuel. It is different from kitchen hood or exhaust fans that are used to ventilate or remove smoke from the cooking area (WHO and UNICEF, 2016) (figure 10).

A manufactured, solid fuel cookstove with externally visible fan housing

A fan attached to a cookstove

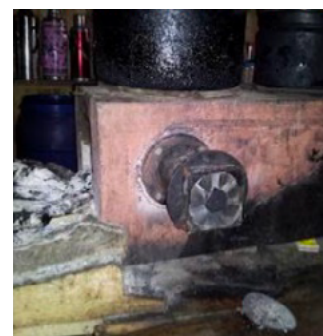


Figure 10. Examples of cookstoves with fan attachments

2.11 What type of fuel or energy source is used in this cook stove?

- a. Measurement goal:** The aim of this question is to determine the type of fuel or energy used by households who use liquid fuel stoves, manufactured solid fuel stoves, traditional fuel stoves and three stone stoves. The type of fuel used, combined with the type of stove or technology/stove, will have important implications for household air quality and thus health effects on the cook and other household members.
- b. Filtering questions/respondent universe:** Ask if household uses liquid fuel stoves, manufactured solid fuel stoves, traditional fuel stoves, or three stone stoves.

(Ask if Q2.8=6–9)

- c. Instructions:** This question refers to the type of fuel used by households that cook with technology other than electric or gas stoves. The following liquid or solid fuels may be used by these households:

- **Alcohol/ethanol:** an organic compound which is typically colourless and highly flammable (code 1).

- **Gasoline/diesel:** Refined petroleum that is often used for internal combustion engines, including for cars and motorcycles (code 2)
- **Kerosene/paraffin:** Combustible hydro carbon liquid derived from petroleum, widely used also for lamps (code 3)
- **Coal/lignite:** A combustible black or brown rock, consisting mainly of carbonized plant matter (code 4)
- **Charcoal:** A porous black solid material obtained as residue when wood or other organic matter is heated. Charcoal is lighter than coal and is often sold in the form of briquettes or conglomerates (code 5)
- **Wood:** Fibrous material obtained from tree trunks and branches (code 6)
- **Straw/shrubs/grass:** Woody or fibrous plants smaller than trees, including stalks of grain or other forms of vegetation (code 7)
- **Agricultural crop residue:** Stalks, roots, leaves and other plant material obtained as by-product of agricultural production (code 8)
- **Animal dung/waste:** Faeces of animals and related residue (code 9)
- **Processed biomass (pellets) or wood chips:** Compressed organic matter that may be produced from industrial waste, food waste, energy crops, untreated lumber or other (code 10)
- **Garbage/plastic:** Waste or refuse from the household (code 11)
- **Sawdust:** Powdery particles of wood (code 12)
- Other (code -96)

Record one answer only. If the household has multiple sources of fuel or energy, the enumerator should probe to determine the main source or the source they use **most often**.

2.12 Is the cooking usually done in the house, in a separate building, or outdoors?

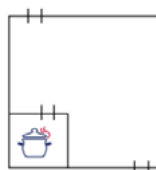
a. Measurement goal: The aim of this question is

to determine where the cooking is usually done in the household. If the fuel and stove used generate unhealthy fumes, but the cooking takes place outdoors, some of the health effects on the cook will be mitigated.

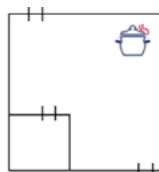
b. Filtering questions/respondent universe: Ask if cooking is done in the household, regardless of type of stove or fuel or energy source.

(Ask if Q2.8=1 through 9, -96)

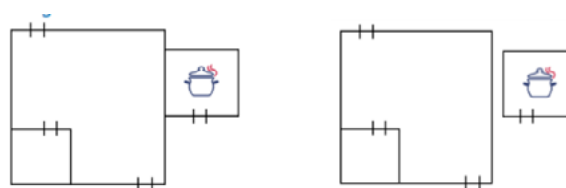
c. Instructions: “Inside the house, in a separate room used as kitchen” refers to a dedicated kitchen with permanent walls. Source: WHO and UNICEF, 2016.



“Inside the house, somewhere else” refers to a place in the household that is considered a place for cooking and is not separated from the rest of the house by a permanent wall.



“In a separate building” refers to a unit that is physically separated from the dwelling unit of the household. This may be used by the household for their own personal use or being used by other households or by a community.



“Outdoors” refer to any open-air area outside of the dwelling unit or structure. It may include areas that are within the properties of the household, or a communal/common area used by other households.



2.13 Who in this household is usually in charge of cooking? (if various, select person who does it most often)

- a. Measurement goal:** The aim of this question is to determine who is usually in charge of cooking for the household. The person typically in charge of cooking suffers most from exposure to unhealthy cooking fumes.
- b. Filtering questions/respondent universe:** Ask if cooking is done in the household, regardless of type of stove or fuel or energy source.

(Ask if Q2.8=1 through 9, -96)

- c. Instructions:** Enumerators should note the difference in the age indicated in parenthesis, e.g. “Adult woman (age 15+ years)”.

Record one answer only. If multiple household members cook for the household, the enumerator should probe to find out who does it most often.

2.14 Who in your household is usually in charge of gathering, fetching, carrying and/ or bringing fuel materials for cooking or heating? (if various, select person who does it most often)

- a. Measurement goal:** The aim of this question is to identify who is usually in charge of gathering, fetching, carrying and/or bringing fuel materials for cooking or heating for the household.
- b. Filtering questions/respondent universe:** Ask if cooking is done in the household, regardless of type of stove or fuel or energy source.

(Ask if Q2.8=1 through 9, -96)

- c. Instructions:** “Gathering, fetching, carrying and/ or bringing fuel materials” refers to the physical act of looking for, collecting, or buying and bringing the fuel materials from any source, whether from the market/store or from a forested area.

Enumerators should note the differences in age indicated in parenthesis, e.g. “Adult woman (age 15+ years)”.

If there is no household member who gathers, fetches, carries or brings fuel materials to the household, record “Nobody fetches fuel” (code 5).

Record one answer only. If multiple household members are in-charge of doing this for the household, the enumerator should probe who does it most often.

2.15 How long does it usually take to go there, get fuel and come back?

- a. Measurement goal:** The aim of this question is to determine the proximity of the household to a source of fuel for cooking or heating. People living in households located far from fuel materials will have heavier collection burdens, with potential consequences on their health and remaining time for paid work or leisure.
- b. Filtering questions/respondent universe:** Ask if cooking is done in the household, regardless of type of stove or fuel or energy source.

(Ask if Q2.8=1 through 9, -96)

- c. Instructions:** Record the estimated **number of minutes** for the whole travel (or round trip) to the source of fuel materials and back to the household’s dwelling unit.

Only accept numeric variables. Do not accept range (15-20 minutes, 30 minutes to one hour depending on the weather). Do not accept responses that are descriptions of distance (e.g. too far, several miles or kilometres away, etc.). If the respondent cannot give an estimate, record “don’t know” (code -98).

Enumerators may use this conversion for reference:

1 hour=60 minutes
1 hour and a half=90 minutes
2 hours=120 minutes

2.16 What does this household use to heat the home when needed?

- a. Measurement goal:** The aim of this question is to determine if the household uses a heater or heating device and, if so, what type.
- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:**

• **Central heating** refers to systems in which heat is converted from a fuel source, and the

resulting heat is circulated into a structure built into the house infrastructure, mainly through pipes or ducts.

- **Manufactured space heater:** devices used to heat or distribute heat in rooms or space areas. Manufactured space heaters typically use electricity or gas to function, while the traditional space heaters are usually fuel burning (wood or oil).
- **Manufactured cook stoves:** Some countries use cookstoves to heat their homes. Manufactured cookstoves are those that typically use wood and are connected to chimneys or exhaust.
- **Traditional cookstoves,** such as open-fire or clay stoves, typically use polluting fuels such as liquid fuel or kerosene and solid fuels such as charcoal, coal, or wood and crop waste.
- **Three stone stoves or open fires** may also be used to heat the household.

Record one answer only.

If the household does not use heating, record “No heating in household” (code 7).

2.17 Does the house have a chimney (apart from the kitchen extractor)?

- Measurement goal:** The aim of this question is to determine whether the house has a chimney that is used to ventilate dwelling units equipped with certain types of heaters.
- Filtering questions/respondent universe:** Ask if household uses any of the following for heating: space heater, cook stove, or stone stove/open fire.

(Ask if Q2.16=3 through 6, -96)
- Instructions:** A “chimney” is a pipe or tunnel-like structure that ventilates houses and other building structures.

Note that the chimney referred to is the one being used to ventilate dwellings and is different from the chimney used to ventilate cookstoves (or directs smoke or gas from the cookstove to the outside of the house).

2.18 What type of fuel does your household mainly use for heating?

- Measurement goal:** The aim of this question is to determine the type of fuel mainly used by the household for heating.
- Filtering questions/respondent universe:** Ask if household uses heating or cooling.

(Ask if 2.16=1 through 6, -96)

c. Instructions:

- **Electricity** means the heating unit is connected to the dwelling’s electrical system, which in itself may be connected to the power grid or to a generator.
- **Piped natural gas** refers to natural gas that is distributed through a pipeline network that is connected to the dwelling unit.
- **Solar generators** are rechargeable power stations or generators with solar panels that convert the sun’s energy into electricity.
- **Liquefied petroleum gas (LPG)** is a portable fuel source that usually reaches consumers in the form of cylinders. LPGs are the most common fuel source for cooking, but it can also be used for heating and cooling.
- **Biogas** is a gas fuel that is produced from the decomposition of raw organic materials, such as manure, agricultural wastes, food wastes, or plant materials.
- **Alcohol or ethanol** are biofuels that are derived from fossil fuels or biomass (plant-based materials, such as grass or corn).
- **Gasoline or diesel**, also known as gas or petrol, are derived from petroleum. These are commonly used in automobiles, but also to fuel generators or heating/cooling systems.
- **Kerosene or paraffin** is also derived from petroleum. It is a combustible liquid that is often used for domestic heating, cooking or lighting.
- **Coal or lignite** are combustible sedimentary rocks that formed from plants materials that decomposed over millions of years.

- **Charcoal** is a solid fuel, a black material that is derived from burning plant materials, such as wood.
- **Wood, or wood fuels**, are usually firewood that may have come from the natural forest or tree plantations, processed wood products such as pellets or sheets and wood residues such as saw dust.
- **Straw/shrubs/grass** are plant materials that are often used as raw materials to produce biofuels. Dried straw, shrubs or grass may also be used directly as fuel in cooking or heating.
- **Agricultural crops** are often used as raw materials to produce biofuels.
- **Animal dung/waste** are animal faeces that are dried and used as biofuel.
- **Processed biomass (pellets)** or wood chips are processed wood used to feed boilers or cook stoves.
- **Garbage or plastic** can be burned to produce fuel.
- **Sawdust** is a wood processing by-product that can be used directly in heating and cooking, as an alternative to wood.

Record one answer only. If the household has multiple types, the enumerator should probe to determine the main type of fuel or the type they use most often

2.19 What type of fuel does your household mainly use for cooling?

- Measurement goal:** The aim of this question is to determine the type of fuel mainly used by the household for cooling.
- Filtering questions/respondent universe:** Ask if household uses heating or cooling.

(Ask if Q2.16=1 through 6, -96)
- Instructions:** Note that Q2.18 asks for the type of fuel used for heating, and Q2.19 is specifically for cooling. Responses in Q2.18 and Q2.19 could be the same, but not necessarily.

Record one answer only. If the household has multiple types, the enumerator should probe to determine the main type of fuel or the type they use most often.

- **Electricity** means the cooling unit is connected to the dwelling's electrical system, which in itself may be connected to the power grid or to a generator.
- **Piped natural gas** refers to natural gas that is distributed through a pipeline network that is connected to the dwelling unit.
- **Solar generators** are rechargeable power stations or generators with solar panels that convert the sun's energy into electricity.
- **Liquified petroleum gas (LPG)** is a portable fuel source that usually reaches consumers in the form of cylinders. LPGs are the most common fuel source for cooking, but it can also be used for heating and cooling.
- **Biogas** is a gas fuel that is produced from the decomposition of raw organic materials, such as manure, agricultural wastes, food wastes, or plant materials.
- **Alcohol or ethanol** are biofuels that are derived from fossil fuels or biomass (plant-based materials, such as grass or corn).
- **Gasoline or diesel**, also known as gas or petrol, are derived from petroleum. These are commonly used in automobiles, but also to fuel generators or heating/cooling systems.
- **Kerosene or paraffin** is also derived from petroleum. It is a combustible liquid that is often used for domestic heating, cooking or lighting.

2.20 At night, what does your household mainly use to light the home?

- Measurement goal:** The aim of this question is to determine the source mainly used by the household to light their dwelling unit at night.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:**
 - **Electricity** means the lighting unit is

connected to the dwelling's electrical system, which may be connected to a grid, or to a fuel or solar generator. "Grid" refers to electrical grid, or an interconnected network in which electricity is delivered from power generation producers to consumers. A household that is "off-grid" means it is not physically connected to an electrical grid for electricity. Households that are "off-grid" rely on their own electricity source, such as generators, which may or may not be renewable energy sources (e.g. gas-powered generators, solar powered generators). Generators may be either fuel-powered or solar-powered.

- **Solar lantern** or solar lamp is a portable lamp with an LED bulb that is connected to a solar panel.
- **Flashlights** are portable hand-held light sources that are battery-operated. Flashlights can be rechargeable, in which its battery source can be charged repeatedly, or non-rechargeable, in which its battery source is disposable.
- **Biogas lamp** is a lighting device that uses biogas for fuel. Biogas is a gas fuel that is produced from the decomposition of raw organic materials, such as manure, agricultural wastes, food wastes, or plant materials
- **Gasoline lamp** is a lighting device that uses gasoline for fuel.
- **Kerosene or paraffin lamp** is a lighting device that uses kerosene or paraffin for fuel.
- **Charcoal** is a solid fuel, a black material that is derived from burning plant materials, such as wood.
- **Wood or wood fuels** are usually firewood that may have come from the natural forest or, tree plantations, processed wood products such as pellets or sheets and wood residues, such as saw dust.
- **Straw/shrubs/grass** are plant materials that are often used as raw materials to produce biofuels. Dried straw, shrubs or grass may also be used directly as fuel in cooking or hearing.
- **Agricultural crops** are often used as raw materials to produce biofuels.

- **Animal dung/waste** are animal faeces that are dried and used as biofuel.
- An **oil lamp** is a lighting device that uses oil for fuel. The oil used in oil lamps are usually sourced from nuts, seeds or animal fats.
- A **candle** is a light source made of wax.

Record one answer only. If the household uses multiple sources, the enumerator should probe to determine the main source or the source they use most often.

Note that there are households which may use a different source for night or day. There are also households that do not use any lighting during the day but uses lighting at night.

2.21 Does this household use the same source of drinking water across seasons (e.g. different sources used during dry and wet season)?

- Measurement goal:** The aim of this question is to determine if the household uses the same source of drinking water across all seasons, such as during the dry or wet season. For instance, in some settings, people may shift from rainwater to other sources when rainwater is not available.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** Seasons are periods of the year with distinct climate conditions.

The "season" could vary depending on where the country is located. In places in the Northern Hemisphere (the part of the Earth between the Equator and the North Pole) and the Southern Hemisphere (between the Equator and the South Pole), there are four seasons - winter, spring, summer, fall/autumn. But in places that are near the Equator, there may be only two seasons - wet (or rainy season) and dry (or summer season).

Question 2.21 is a filter question:

- If the household uses the same source across all seasons, "Yes the same main source is used all year" (code 1): ask Q2.31 only once.
- If the household uses different sources during different seasons, "No, different main sources are used in different seasons (code 2): Q2.22 to Q2.27 should be asked for EACH season.

2.22 Record season name [e.g. dry, wet, spring, summer, winter, autumn]

- Measurement goal:** The aim of this question is to identify the season when the household uses a particular source of drinking water.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** Record the name of season.

If the household uses the same source of drinking water all year (Q2.21=1), the enumerator should write/type “All year”.

If the household uses different main sources in different seasons (Q2.21=2), record the name of each season. Note that Q2.23 to Q2.27 are on loop **for each season** identified.

For example, if the household uses drinking water sourced from rainwater during the wet or rainy season and unprotected spring during the dry season, the enumerator will have to ask Q2.23 to Q2.31 for the water source during the wet or rainy season and again for the water source during the dry season.

2.23 What is the main source of drinking water for members of the household?

- Measurement goal:** The aim of this question is to determine the main source of drinking water for the household, as some drinking water sources carry health concerns.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** Record one answer only. If the household has multiple water sources, the enumerator should probe to determine the main source or the source they use most often.

If **one source** only for all seasons (Q2.21=1), ask Q2.23 only once. If **different sources** for each season (Q2.21=2), ask Q2.23 for each season identified in 2.22.

“Drinking water source,” refers to the point where people collect water for drinking and not the origin of the water supplied (UNICEF and WHO, 2018). A drinking water source is classified as either improved or unimproved. Improved sources are protected sources that provide safe drinking water, while the unimproved sources are those that come from unprotected sources or surface waters and are likely to be unsafe sources. Accordingly, water sources are classified as follows:

Table 2: Water sources

| FIRST LEVEL CLASSIFICATION | SECOND LEVEL CLASSIFICATION | IMPROVED | UNIMPROVED |
|----------------------------|-----------------------------|----------|------------|
| Tap water | Piper water into dwelling | X | |
| | Piper water to yard/plot | X | |
| | Public tap, standpipe | X | |
| | Other | X | |
| Ground water | Tubewell, borehole | X | |
| | Protected well | X | |
| | Protected spring | X | |
| | Unprotected well | | X |
| | Unprotected spring | | X |
| Rainwater | Covered cistern/tank | X | |
| | Uncovered cistern/tank | | X |
| Packaged water | Bottled water | X | |
| | Sachet water | X | |
| Delivered water | Cart with small tank/drum | X | |
| | Tanker truck provided | X | |
| Surface water | River | | X |
| | Lake | | X |
| | Dam | | X |
| | Pond | | X |
| | Stream | | X |
| | Irrigation channel | | X |
| Other | Other improved | X | |
| | Other unimproved | | X |

Below are the definitions of drinking water sources adopted from the UNICEF/WHO Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (2018). Illustrations were adopted from the pictorial illustrations from UNICEF and WHO (2005).

Improved sources of drinking water:

- **Piped into dwelling:** also called a 'household connection', is a piped water supply connected with in-house plumbing to one or more taps (for example in the kitchen or bathroom) (figure 13).
- **Piped into compound, yard or plot:** also called a 'yard tap', is a piped water supply connected to a tap in the compound, yard or plot outside the house (figure 12).
- **Piped to neighbour:** refers to a household obtaining drinking water from a neighbour's piped water supply (household connection or yard tap) (figure 12).
- **Public tap or standpipe:** also known as a public fountain, is a public water point from which people can collect water (figure 14).
- **Borehole or tubewell:** is a deep hole that has been driven, bored or drilled, in order to reach groundwater. Boreholes/tubewells are constructed with casing, or pipes, which prevent the small diameter hole from caving in and protect the water source from infiltration by run-off water. Water is delivered through a pump which may be powered by human, animal, wind, electric, diesel or solar means (figure 15).
- **Protected well:** is a dug well that is protected from run-off water by a well lining or casing that is raised above ground level to form a headwall and an apron that diverts spilled water away from the well. A protected well is also covered so that contaminated materials (including bird droppings and small animals) cannot enter the well. Water is delivered through a pump or manual lifting device (figure 16).
- **Protected spring:** is a natural spring protected by a "spring box", made of brick, masonry, or concrete, that is built around the spring so that water flows directly out of the box into a pipe or cistern, without being exposed to run-off or other sources of contamination (figure 17).
- **Rainwater collection:** refers to a system whereby rain is collected or harvested from

large surfaces (by roof or ground catchment) and stored in a container, tank or cistern until used (figure 18). Note that if cisterns are uncovered these are not considered improved.

- **Tanker-truck:** refers to water sold or distributed by a provider who transports large quantities of water into a community using a motorized truck with a tank (figure 20).
- **Cart with small tank/drum:** refers to water sold or distributed by a provider who transports a tank or drum with small quantities of water into a community using donkey carts, small motorized vehicles and other means (figure 19).
- **Water kiosk:** refers to a water point from which water is sold in small quantities. Households typically bring their own containers to be filled (figure 22).
- **Bottled water:** is sold by commercial providers in small or large bottles or refillable containers. This does not include water from other sources stored in plastic bottles (figure 21).
- **Sachet water:** is similar to bottled water but is packaged in a plastic bag rather than a bottle.

Unimproved sources of drinking water:

- **Unprotected well:** is a dug well that lacks any of the following: a lining or casing that is raised above ground level to form a headwall; an apron that diverts spilled water away from the well; a cover which prevents contaminated materials (including bird droppings and small animals) from entering the well; or a pump or manual lifting device (figure 23).
- **Unprotected spring:** is a natural spring that lacks a "spring box" to protect against run off and other sources of contamination (including bird droppings and animals).
- **Surface water:** refers to open water sources located above ground including rivers, reservoirs, lakes, ponds, streams, canals and irrigation channels (figure 24).
- **Rainwater stored in an uncovered cistern:** refers to when rain is collected or harvested from large surfaces (like roofs or catchments) and stored in an open cistern, without a slab or cover.

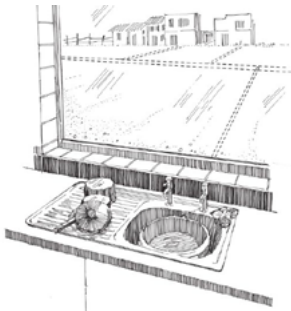


Figure 12. Piped into compound, yard or plot, or piped to neighbour



Figure 13. Piped into dwelling



Figure 14. Public tap or standpipe



Figure 15. Borehole or tubewell

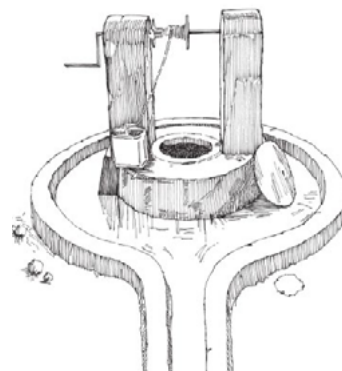


Figure 16. Protected well



Figure 17. Protected spring



Figure 18. Rainwater collection

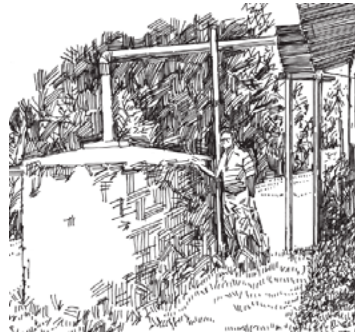


Figure 19. Cart with small tank/drum

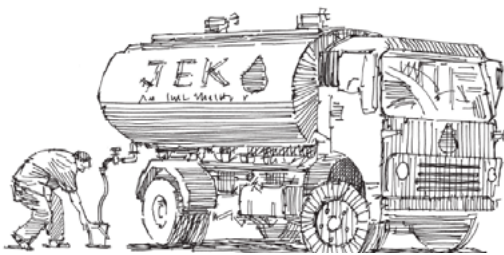


Figure 20. Tanker-truck



Figure 21. Bottled water



Figure 22. Water kiosk



Figure 23. Unprotected well



Figure 24. Surface water

All photos included in this section have been sourced from [Pictorials -UNICEF and WHO \(2005\)](#).

2.24 Where is that water source located?

a. Measurement goal: The aim of this question is to determine where the water source used for drinking is located. The question helps determine whether drinking water is available in or near the household, or whether it needs to be fetched elsewhere.

b. Filtering questions/respondent universe: Ask if the household uses drinking water that is NOT piped directly into the dwelling unit or its yard/plot.

(Ask if Q2.23=13 through 91, -96)

c. Instructions: “In own dwelling” refers to the insider premises of the dwelling unit.

“In own yard/plot” refers to the outside premises, whether in the backyard or front yard, as long as it is within the boundaries of the household’s yard/plot.

“Elsewhere” refers to sources that are outside of the household’s own yard/plot. It could refer to a public land or to a public or private water distribution.

If one source only for all seasons (Q2.21=1), ask Q2.24 only once.

If different source for each season (Q2.21=2), ask Q2.24 for each season identified in Q2.22.

2.25 How long does it usually take to go there, get water and come back?

a. Measurement goal: The aim of this question is to determine the proximity of the dwelling unit to the water source located elsewhere. People living in households located far from drinking water sources may have higher water fetching burdens, which may impinge on their health or time left for paid work or leisure.

b. Filtering questions/respondent universe: Ask if the household uses a drinking water source located outside of the household’s building, own yard/plot.

(Ask if Q2.24=3)

c. Instructions: Record the estimated number of minutes for the whole travel (or round trip) to the source of water and back to the household’s dwelling unit.

Only accept numeric variables. Do not accept range (15–20 minutes, 30 minutes to one hour depending on the weather). Do not accept responses that are descriptions of distance (e.g. too far, several miles or kilometres away, etc.). If the respondent cannot give an estimate, record “don’t know” (code -98).

Enumerators may use this conversion for reference:

1 hour=60 minutes

1 hour and a half=90 minutes

2 hours=120 minutes

If one source only for all seasons (Q2.21=1), ask Q2.25 only once.

If different source for each season (Q2.21=2), ask Q2.25 for each season identified in Q2.22.

2.26 Who usually goes to this source to collect drinking water for your household? (if various, select person who goes most often)

a. Measurement goal: The aim of this question is to determine the person in the household who usually collects the drinking water. Water collection burdens may affect people’s health, safety and free time.

b. Filtering questions/respondent universe: Ask if the household uses drinking water source located outside of the household’s building, own yard/plot.

(Ask if Q2.24=3)

c. Instructions: “Collect drinking water” refers to the physical act of looking for, collecting or buying and bringing water from elsewhere.

Enumerators should note of the differences in the age indicated in parenthesis, e.g. “Adult woman (age 15+ years)”.

Record one answer only. If multiple household members are in-charge of doing this for the household, the enumerator should probe to determine who does it most often.

If one source only for all seasons (Q2.21=1), ask Q2.26 only once.

If different source for each season (Q2.21=2), ask Q2.26 for each season identified in Q2.22.

2.27 What mode of transport do you/ does she/he usually use to get the drinking water?

- a. Measurement goal:** The aim of this question is to determine how water is transported from the source elsewhere to the household.
- b. Filtering questions/respondent universe:** Ask if the household uses drinking water source elsewhere or outside of the household's own yard/plot. Skip this question if the respondent does not know who collects the water.

(Ask if Q2.24=3 and Q2.26=1 to 4)

- c. Instructions:** Record one answer only. If multiple modes are used, the enumerator should probe to determine the mode used most often.

If one source only for all seasons (Q 2.21=1), ask Q2.27 only once.

If different source for each season (Q 2.21=2), ask Q2.27 for each season identified in Q2.22.

- **Walking** means the individual goes on foot to and from the source.
- **Bicycle.** This indicates that the water is transported by means of bicycles, or unmotorized two-wheel vehicles with a frame.
- **Motorcycle.** Water is transported by means of motorcycles, that is, two-wheel motorized vehicles.
- **Sidecar.** Water is transported by means of a sidecar, or a motorcycle with a vehicle attached to the side to carry passengers or goods. Tuk-tuks, auto rickshaws, Keke-napep and other similar three-wheel vehicles with a small engine may be included under this category.
- **Car.** Water is transported by means of car. That is, a four-wheeled motorized vehicle that is typically, privately owned by the household, a family member, friend or acquaintance.
- **Bus/van/shared vehicle.** Water is transported by means of shared vehicles, such as bus or van.
- **Public transport.** Water is transported by means of public transportation, or travel systems available for public use, such as train, ferry, or tram.

2.28 In the past 12 months, has there been any time when your household didn't have sufficient quantities of drinking water when needed?

- a. Measurement goal:** The aim of this question is to determine if the household experienced lack of sufficient drinking water in the past 12 months, regardless of the cause (e.g. due to drought, supply interruptions, cost, or other reasons).
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** The lack of sufficient quantities of drinking water could be caused by ANY factor, such as due to drought, supply interruptions, cost, or other reasons.

The time reference is within the past 12 months.

If one source only for all seasons (Q2.21=1), ask Q2.28 only once.

If different source for each season (Q2.21=2), ask Q2.28 for each season identified in Q2.22.

2.29 In the past 12 months, has your drinking water source been compromised (due to pollution, chemicals, animal refuse, garbage, etc.) or interrupted due to shortages?

- a. Measurement goal:** The aim of this question is to determine whether the household's drinking water source has been compromised due to a number of reasons (such as contamination from pollution, animal refuse, garbage or others) or interrupted due to shortages. A reliable water source is important for people's health, for limiting unpaid domestic and care work burdens and avoiding having to fetch water elsewhere.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Note that the contamination or interruption **should not be due to natural disaster-related causes**, as this will be covered under Q4.6p in module 4.

"Compromise" refers to contamination or pollution of the water source.

"Interruption" is specific to interruption because of **shortages in supply**, such as during drought conditions or the summer season, and not due to repairs of water supply systems.

The time reference is within the past 12 months.

This is a modified yes/no question, in which two categories correspond to an answer of “yes” and how the household adapted to this problem (code 1 and code 2) and one corresponding to “no” (code 2).

2.30 What type of toilet facility do members of your household usually use?

- a. **Measurement goal:** The aim of this question is to determine the type of toilet facility usually used by the household.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Record one answer only. If the household uses multiple types of toilets, the enumerator should probe to determine the main type or the type they use most often.

If the household does not have a toilet facility or uses an open land or body of water, record “No facility, bush, field, beach, lagoon” (code 95) and then continue to the next module.

Toilet or sanitation facilities are classified into improved or unimproved (UNICEF and WHO, 2018). Improved sanitation facilities are those designed to hygienically separate excreta from human contact.

Below are the definitions of sanitation or toilet facilities, adopted from the UNICEF/WHO Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (2018). Illustrations were adopted from the pictorial illustrations from UNICEF and WHO (2005).

Improved sanitation facilities:

- **Flush/pour-flush toilet:** a flush toilet has a cistern or holding tank to store water for flushing and has a water seal (which is a U-shaped pipe below the seat or squatting pan) to prevent the passage of flies and odours. A pour-flush toilet also has a water seal but has no cistern and water is poured by hand for flushing.
- **Flush to piped sewer system:** is a toilet that flushes excreta to a system of sewer pipes, also called sewerage, which is designed to

collect human excreta (faeces and urine) and wastewater and remove them from the household environment (figure 24).

- **Flush to septic tank:** is a toilet that flushes excreta to a watertight container, normally buried underground away from the dwelling, designed to separate liquids from solids which are then allowed to settle and decompose (figure 25).
- **Flush to pit latrine:** is a toilet that flushes excreta to a covered pit which retains solids. The base and sides of latrine pits may be permeable to allow liquids to percolate into the soil (figure 26).
- **Pit latrine with slab:** is a dry sanitation system that collects excreta in a pit in the ground. The pit is covered by a squatting ‘slab’ or platform that is constructed from materials that are durable and easy to clean. The ‘slab’ has a small drop hole, or is fitted with a seat, allowing excreta to be deposited directly into the pit (figure 27).
- **Composting toilet:** is a dry toilet into which carbon-rich material (vegetable wastes, straw, grass, sawdust, ash) is added to the excreta and special conditions maintained to produce inoffensive compost. A composting latrine may or may not have a urine separation device.
- **Twin pit latrine with slab:** refers to a system where households use a second pit when the first one fills up and is designed to ensure that excreta are treated in situ for a sufficient amount of time before the wastes are evacuated safely. Twin pit latrines can be dry (double VIP, fossa alterna) or wet (offset pits connected to pour flush toilets (figure 28).
- **Container based sanitation:** refers to a system where toilets collect excreta directly in sealable, removable containers (also called cartridges) which are regularly collected by commercial service providers and delivered to treatment.
- **Flush/pour flush to don’t know where:** indicates that the household uses an improved sanitation facility, but does not know whether it flushes to a sewer, septic tank or pit latrine.

Unimproved sanitation facilities:

- **Flush/pour flush to open drain:** refers to households using toilets that discharge into uncovered drains which do not effectively contain excreta thereby exposing the community to faecal pathogens.
- **Pit latrine without slab/open pit:** is a dry sanitation system that uses a pit in the ground for excreta collection and does not have a squatting slab, platform or seat. An open pit is a rudimentary hole in the ground where excreta is collected (figure 29).
- **Bucket:** refers to the use of a bucket or other container for the retention of faeces (and sometimes urine and anal cleaning material), which are periodically removed for treatment, disposal, or use as fertilizer (figure 30).
- **Hanging toilet/hanging latrine:** is a toilet built over the sea, a river, or other body of water, into which excreta drops directly (figure 31).
- **No facility/bush/field:** includes defecation in the bush or field or ditch; excreta deposited on the ground and covered with a layer of earth (cat method); excreta wrapped and thrown into garbage; and defecation into surface water (drainage channel, beach, river, stream or sea).

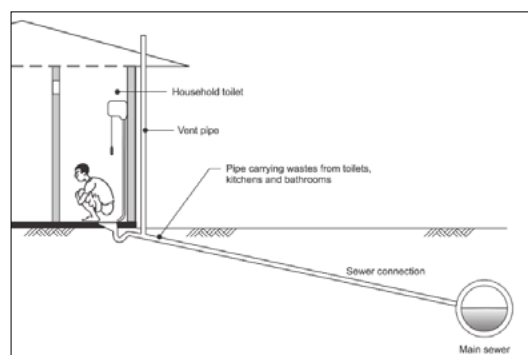
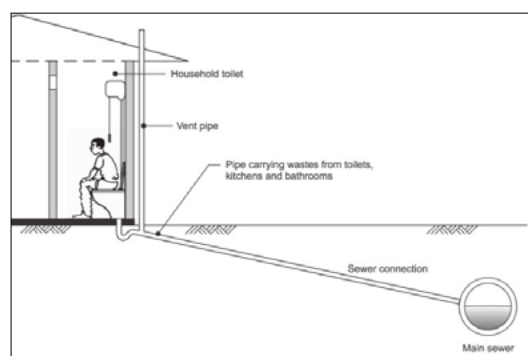


Figure 24. Flush to piped sewer system

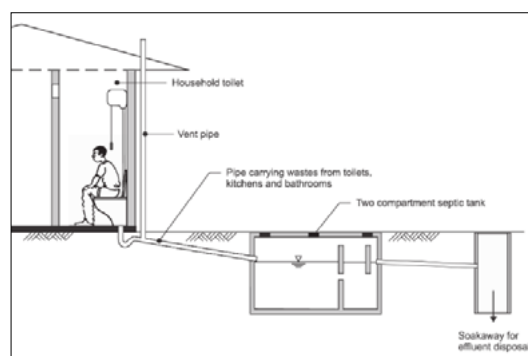
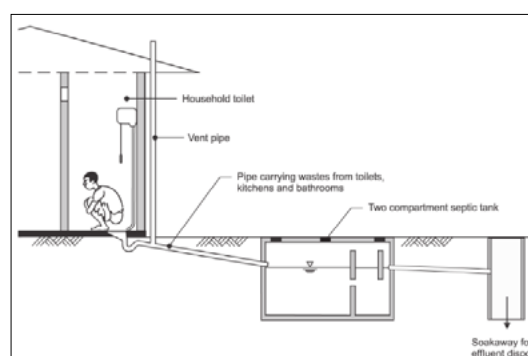


Figure 25. Flush to septic tank



Figure 26. Flush to pit latrine

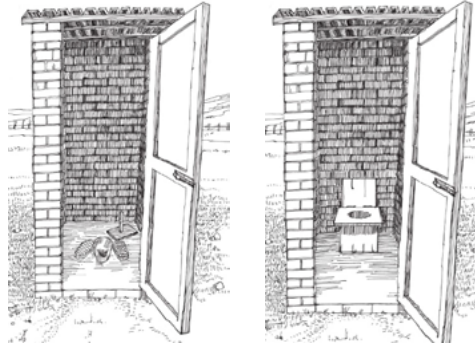


Figure 27. Pit latrine with slab

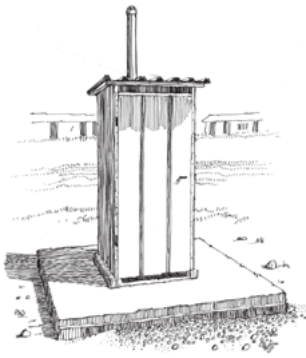


Figure 28. Twin pit latrine with slab

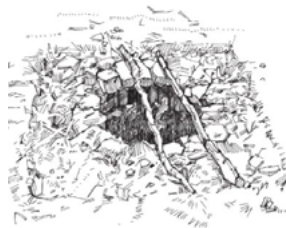
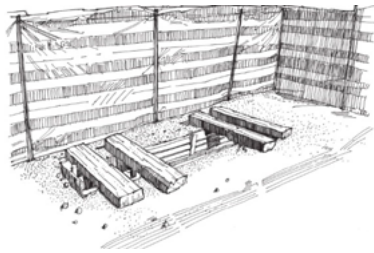


Figure 29. Pit latrine without slab

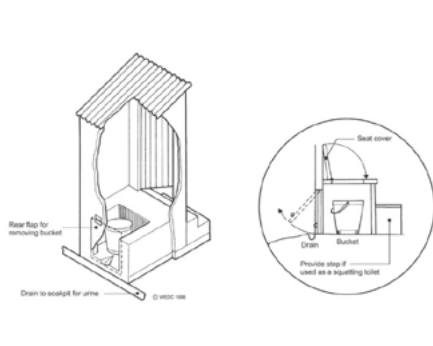


Figure 30. Bucket



Figure 31. Hanging toilet/hanging latrine

All photos included in this section have been sourced from [Pictorials -UNICEF and WHO \(2005\)](#).

2.31 Where is this facility located?

a. Measurement goal: The aim of this question is to determine whether the household's toilet facility is located within the house or outside.

b. Filtering questions/respondent universe: Ask if the household has a toilet facility.

(Ask if Q2.30=11 through 51)

c. Instructions: "In own dwelling" refers to the insider premises of the dwelling unit.

"In own yard/plot" refers to the outside premises, whether in the backyard or front yard, as long as it is within the boundaries of the household's yard/plot.

"Elsewhere" refers to outside of the household's own yard/plot. It could refer to a public land or to a public or private facility.

2.32 Is the facility and the way to reach it adequately illuminated and does it have a lock?

a. Measurement goal: The aim of this question is to determine whether the toilet facility is adequately lit and is secure. Available evidence shows that toilets located outside households that lack sufficient lighting and locks may put user's safety at risk.

b. Filtering questions/respondent universe: Ask if the household has a toilet facility.

(Ask if Q2.30=11 through 51)

c. Instructions: "Illuminated" means it has light or can be reached by light, whether by sunlight or electrical light.

"Lock" may refer to any type of lock attached to a door or materials used as a door.

This is a modified yes/no question, in which three categories correspond to "yes" within specific conditions (code 1, code 2, code 3) and one corresponds to "no" (code 3).

2.33 Do you share this facility with other households?

a. Measurement goal: The aim of this question is to

determine whether the household's toilet facility is shared or not. This may also have health and safety implications for toilet users.

b. Filtering questions/respondent universe: Ask if the household has a toilet facility.

(Ask if Q2.30=11 through 51)

c. Instructions: Sharing could be by different households that share dwelling units or shared by neighbours or by the community.

Record either "yes" (code 1) or "no" (code 0).

2.34 Indicate number of households you share these facilities with

Measurement goal: The aim of this question is to identify the number of households sharing the toilet facility. This may also have safety implications for toilet users.

Filtering questions/respondent universe: Ask if the household uses a shared toilet facility.

(Ask if Q2.33=1)

Instructions: Record the actual number of households that share the toilet with the respondent's household.

DO NOT INCLUDE the respondent's household in the computation. For example, the household shares a toilet with another household (1), record 1.

Only accept numeric variables.

2.35 Where are the contents of the toilet facility emptied to?

a. Measurement goal: The aim of this question is to determine where the toilet facility is emptied to. This has environmental implications, as well as health implications for nearby dwellers.

b. Filtering questions/respondent universe: Ask if the household has a toilet facility.

(Ask if Q2.30=11 through 51)

c. Instructions: "Emptied to" refers to the means of disposing of urine or faeces in a facility,

treatment plant or the open environment (e.g. water bodies, underground, etc.).

The type of toilet facility should be consisted with the outlet.

- **A treatment plant.** In this mode, excreta are treated and disposed offsite in a treatment facility. The toilet facility may be connected to the treatment plant through the sewer system, or on-site storage containers such as pit latrines and septic tanks are transported to the treatment plant for disposal.
- **Buried in a covered pit.** In this mode, the excreta collected onsite is buried underground in pits.
- **Uncovered pit/bush/field/open ground.** These are open areas or grounds, in which excreta is disposed of.
- **Surface water** (river, dam, lake, pond, stream, canal, irrigation channel). Excreta are disposed untreated in bodies of water, including the ocean.

2.36 Does the facility have a hand-washing place nearby?

- a. **Measurement goal:** The aim of this question is to determine if the household's toilet facility has a hand-washing place, either within the facility itself or close to it.

- b. **Filtering questions/respondent universe:** Ask if the household has a toilet facility.

(Ask if Q2.30=11 through 51)

- c. **Instructions:** The hand-washing place may refer to a sink with water supply, whether permanent or portable, or to a water source, like piped water or well or spring.

2.37 Do you typically keep any of the following next to your hand washing place?

- a. **Measurement goal:** The aim of this question is to identify whether soap or other hand washing items are available near the toilet facility. This has health implications for toilet users.

- b. **Filtering questions/respondent universe:** Ask if the household with toilet facility has a hand-washing place nearby.

(Ask if Q2.36=1)

- c. **Instructions:** This is a modified yes/no question, in which two categories correspond to “yes” and the type of handwashing items used (code 1 and code 2) and one corresponds to “none of the above” (code 3).

If the toilet does not keep “soap or detergent” (code 1) or “ash, mud, sand” (code 2) next to the handwashing place, record “None of the above” (code 3).

4.5 Selection of respondents

All modules from 3 through 10 should be implemented at the individual level (two or more individuals, age 15+ years per household) to avoid bias introduced by the use of proxy respondents.

1. Name and ID of selected **male** adult household member: _____

2. Name and ID of selected **female** adult household member: _____

3. List all the respondents to be individually interviewed on this tablet by giving the name and the type of respondent (example, John – random person; Jane – spouse; Kate – domestic worker):

| NAME AND ID OF SELECTED ADULT HH MEMBER | TYPE OF RESPONDENT |
|---|--|
| (Selected male) | Randomly selected person 1 |
| | Spouse/partner of randomly selected person 2 |
| | Other -96 |
| (Selected female) | Randomly selected person 1 |
| | Spouse/partner of randomly selected person 2 |
| | Other -96 |

For PAPI: The following details should be filled out by the enumerator BEFORE the start of the interview.

For CAPI: These details will be pre-filled in the CAPI survey

4. Is respondent 1 available for the interview during your time in the PSU?

Yes _____ 1
No _____ 2

5. Is respondent 2 available for the interview during your time in the PSU?

Yes _____ 1
No _____ 2

If respondent cannot be contacted, enter reason for non-response

| RESPONDENT | REASON |
|------------|--------|
| | |
| | |

6. Date of interview: _____

If the respondent is different from the one completing the household questionnaire, please read confidently the statement of purpose given on the introduction/consent page, and then give the respondent time to ask questions before soliciting information.

4.6 | Module 3 Individual characteristics

The questions in module 3 refer to the characteristics of the respondents. In this module, standard information is collected from two (or more) selected respondents, including their marital status, age at first marriage, nationality, educational attainment, ethnicity, disability status and other variables.

All questions must be asked to each respondent in the household (or at least two adults of different sex).

Questions 3.9 to 3.14 were adopted from the Washington Group on Disability Statistics (2022) Short Set on Functioning. Accordingly, the discussion on implementation has been adopted from the question specifications provided for standardized interviewing.

(Introduction) I would now like to record a few characteristics about your personal background

- a. Measurement goal:** This introduction statement is intended to inform the selected respondent that the questions in this module are about their personal background.
- b. Filtering questions/respondent universe:** Applies to all respondents.
- c. Instructions:** Read out loud to the respondent. Emphasize “personal background”.

The enumerator must re-assure the respondent of the confidentiality of the survey and that the personally identifiable data about each respondent will be protected according to data privacy regulations..

3.1 Where do you currently reside?

- a. Measurement goal:** The aim of this question is to determine whether the respondent currently reside in an urban area or a rural area.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** This question should only be asked if implementing a CATI survey.

Countries use different criteria in defining what is an “urban” area. Most countries use a combination of population size/density,

economic activities, presence of administrative offices, infrastructure and services that are typically found in urban areas. Any area that is not considered an “urban” area becomes automatically known as a “rural” area.

For this survey, the classification of urban and rural areas is based on self-reports of the characteristics of the dwelling’s location. A city or town is used as a proxy word for an urban area, while a village or the countryside is used as a proxy for a rural area.

Cities or towns are considered urban areas as these are usually the centre of administrative and economic activities and usually have higher population size and density. These areas are characterized by the presence of certain infrastructures, such as high-rise buildings, hospitals and schools, paved roads and most non-agricultural activities.

Villages or countryside are located outside of cities/towns and therefore are considered rural areas. Villages or countryside are characterized by open areas of land and lower population size; these are where agricultural activities or farming areas are usually located.

3.2 Have you ever been married or lived together with a partner as if married?

- a. Measurement goal:** The aim of this question is to determine whether the respondent has been married or has never been married.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** This is a filter question related to the question on marital or cohabitation status (Q3.4). Marital status refers to one’s state in relation to being married or not, according to the laws or customs of a country. Cohabitation means a person may be living with a partner, even though the marriage has not been formalized legally. One is either unmarried/never cohabited or has ever been married/cohabited with a partner.

Record either “yes” (code 1) or “no” (code 0).

If the respondent says “I’m single” or “I’m not married”: probe if he/she has ever been married or currently living with a partner.

- If married before but have separated, divorced, or been widowed, consider as “ever married” and record “yes” (code 1)
- If never married but is currently living with someone, record “yes” (code 1)
- If never married and not currently living in with someone, record “no” (code 2)

3.3 In what month and year did you first start living with a partner?

- a. Measurement goal:** The aim of this question is to determine when the respondent first started living with a partner, whether they are married or not. Age at first cohabitation typically influences women’s agency, their age at first birth and their economic outcomes later in life.
- b. Filtering questions/respondent universe:** Ask if respondent has been married or has lived or is living together with a partner.

(Ask if Q3.2=1)

- c. Instructions:** Enter the month and year in this format: MM/YYYY

| | | | | | |
|---|---|---|---|---|---|
| M | M | Y | Y | Y | Y |
|---|---|---|---|---|---|

For example: February 1980

| | | | | | |
|---|---|---|---|---|---|
| 0 | 2 | 1 | 9 | 8 | 0 |
|---|---|---|---|---|---|

The “first start living with a partner” refers to the **very first instance** that a respondent has lived with a partner, who may or may not be their current partner, regardless of their marital status.

3.4 What is your current marital status?

- a. Measurement goal:** The aim of this question is to determine the current marital status of those who have been married or have lived together with a partner
- b. Filtering questions/respondent universe:** Ask if respondent has been married or has lived or is living together with a partner.

(Ask if Q3.2=1)

- c. Instructions:** Marital status refers to one’s state in relation to matrimony, according to the laws or customs of a country. Cohabitation is the arrangement in which a couple shares a household without legal formalization of their partnership.

Individuals who have never married or cohabitated are expected to have responded No to Q3.2 and thus these will not be included among respondents of Q3.4.

Possible responses to this question include:

- **Never married but living with a partner (cohabitating):** these refer to individuals who have never been married but are living in or cohabitating with a partner.
- **Married** individuals are those who are legally married by an authorized representative of the state.
- **Separated** individuals are those who are permanently living apart from their legal spouses while they are still married. Married individuals who live apart from each other temporarily for reasons such as work, care responsibilities or other, may still be classified as “Married”.
- **Widowed** individuals are those whose spouses have died or are declared legally missing. If a widowed individual is currently cohabitating with someone else, the person is still considered “widowed” unless they remarry. A widowed individual can remarry – a widow who has since remarried will then be considered as “married”.
- **Divorced** individuals are those whose marriages have been terminated. Divorced individuals who are currently cohabitating with someone else are still considered “divorced” unless they remarry. A divorced person can remarry, thus a divorced person who has remarried changes their marital status to “married” if they remarried after the divorce.

Record one answer only.

Marital status refers to the status at the time of the interview.

3.5 What country were you born in?

- a. **Measurement goal:** The aim of this question is to determine the country of birth of the respondent.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Get verbatim response. Enumerators should select the country from the list.

If the respondent says “I’m from this country”: record the country of interview.

3.6 Do you hold any nationality, different from the country you were born in? (Record as many as necessary)

- a. **Measurement goal:** The aim of this question is to determine if the respondent has another nationality different from the country that they were born in.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Get verbatim response. Enumerators should select the country from the list. Multiple responses are allowed.

“Nationality” is a legal identification of an individual belonging to a particular nation. Nationality could be acquired by birth, from the country of origin of parents, or by naturalization or allegiance.

Note that “nationality” does not necessarily refer to the country of birth. Some people attain a different nationality. “Nationality” could also be referred to as “citizenship”.

3.7 What is the highest level of education you have completed?

- a. **Measurement goal:** The aim of this question is to determine the highest level of education completed by the respondent.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Record one answer only.

Primary refers to level 1 education programmes under the International Standard Classification of Education (ISCED). According to UNESCO (2012), these are typically designed to provide students with fundamental skills in reading, writing and mathematics.

Secondary refers to education programmes classified under ISCED levels 2 and 3 (lower and upper secondary education). They provide learning activities to prepare students for first labour market entry, or for post-secondary education.

Tertiary refers to education programmes classified under ISCED levels 5 to 8 (short cycle tertiary education, bachelor’s degrees, master’s degrees and doctoral degrees). They provide learning activities in specialized fields of education. Tertiary education includes what is commonly understood as university education, as well as advanced vocational and professional education.

Note that if the respondent started secondary education but did not complete it, the response should be recorded as “primary”, as it is the highest level completed. Similarly, if the respondent started tertiary education but did not complete it, the response should be recorded as “secondary”.

The enumerator may probe for the grade number or level number for accuracy of coding. It should be noted that countries have various systems of education and the number of years per level therefore varies by country.

3.8 Which of the following ethnicities do you identify with?

- a. **Measurement goal:** The aim of this question is to determine the self-identified ethnicity of the respondent.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** The answer should be based on the respondent’s own self-identification, which could be based on their language or regional, among other things.

Record one answer only.

The ethnicities in the list are country specific.

The next questions ask about difficulties you may encounter doing certain activities because of a HEALTH PROBLEM

- a. Measurement goal:** This is a transition statement to introduce the respondent to the next section.

Questions 3.9 through 3.14 are standard questions used to determine if an individual has a disability and the extent of that disability. Each question refers to a specific disability.

- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** The term “disability” may be sensitive to some people. Therefore, the questions ask about functional “difficulties” – that is, the response categories are different levels of difficulties.

The term “disability” should not be used by the enumerator at all times.

According to the Washington Group on Disability Statistics (2022):

Included are difficulties that occur within a health context, not those caused by a lack of resources.

“Health” refers to the general condition of the body or mind with reference to soundness, vitality and freedom from disease.

“Problem refers to the respondent’s perception of a departure from physical, mental, or emotional well-being. This includes specific health problems such as a disease or chronic condition, a missing limb or organ or any type of impairment or physical or psychological symptoms.

3.9 Do you have difficulty seeing, even if wearing glasses?

- a. Measurement goal:** The aim of this question is to determine if the respondent has vision difficulties or problems seeing even when wearing glasses (if they wear glasses).
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Enumerators should read the response categories as part of the question.

- “Do you have difficulty seeing, even if wearing glasses? Would you say: No difficulty, Some difficulty, A lot of difficulty, or Cannot do it at all?”

Ask all respondents, even if the enumerator observes that the respondent is wearing eyeglasses.

“Seeing” refers to an individual using his/her eyes and visual capacity in order to perceive or observe what is happening around them.

“Even when wearing glasses” refers to difficulty seeing with glasses if the respondent has and uses them – NOT how vision would be if glasses, or better glasses, were provided or available.

Included are problems:

- Seeing things close up or far away;
- Seeing out of one eye or only seeing directly in front but not to the sides.

Any problem with vision that the respondent considers a problem should be captured.

3.10 Do you have difficulty hearing, even if using a hearing aid?

- a. Measurement goal:** The aim of this question is to determine if the respondent has some hearing limitation or problems of any kind with their hearing even when using a hearing aid (if they wear a hearing aid).
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Enumerators should read the response categories as part of the question.

- “Do you have difficulty hearing, even if using a hearing aid? Would you say: No difficulty, Some difficulty, A lot of difficulty, or Cannot do it at all?”

Ask all respondents, even if the enumerator observes that the respondent is wearing assistive devices like a hearing aid.

“Hearing” refers to an individual using his/her ears and auditory (or hearing) capacity in order to know what is being said to them or

the sounds of activity, including danger that is happening around them.

“Even if using a hearing aid” refers to difficulty hearing with a hearing aid if the respondent has and uses that device – NOT how hearing would be if hearing aids, or better hearing aids, were provided or available.

Included are problems:

- Hearing in a noisy or a quiet environment;
- Distinguishing sounds from different sources;
- Hearing in one ear or both ears.

Any difficulty with hearing that is considered a problem should be captured.

3.11 Do you have difficulty walking or climbing steps?

- Measurement goal:** The aim of this question is to determine if the respondent has some limitations or problems on physical mobility or moving around on foot.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** Enumerators should read the response categories as part of the question.

Ask all respondents, even if the enumerator observes that the respondent is wearing assistive devices like wheelchair or crutches.

“Walking” refers to the use of lower limbs (legs) in such a way as to propel oneself over the ground from point A to point B. The capacity to walk should be without assistance of any device (wheelchair, crutches, walker etc.) or human. If such assistance is needed, the person has difficulty walking.

Included are problems:

- Walking short (about 100 yards/metres) or long distances (about 500 yards/metres);
- Walking any distance without stopping to rest is included;
- Walking up or down steps.

“Difficulties walking” can include those resulting from impairments in balance, endurance, or other non-musculoskeletal systems, for example blind people having difficulty walking in an unfamiliar place or deaf people having difficulty climbing stairs when there is no lighting.

Any difficulty with walking (whether it is on flat land or up or down steps) that is considered a problem should be captured.

3.12 Do you have difficulty remembering or concentrating?

- Measurement goal:** The aim of this question is to determine if the respondent has some problems with remembering or focusing attention that contribute to difficulty in doing their daily activities.
- Filtering questions/respondent universe:** Ask all respondents.

Instructions: Enumerators should read the response categories as part of the question.

“Remembering” refers to the use of memory to recall incidents or events. It means the individual can bring to mind or think again about something that has taken place in the past (either the recent past or further back). With younger people, remembering is often associated with storing facts

learned in school and being able to retrieve them when needed.

Remembering should NOT be equated with memorizing or with good or bad memories.

“Concentrating” refers to the use of mental ability to accomplish some tasks such as reading, calculating numbers, learning something. It is associated with focusing on the task at hand in order to complete the task.

Included are problems:

- Finding one’s way around, being unable to concentrate on an activity, or forgetting one’s whereabouts or the date;
- Problems remembering what someone just said or becoming confused or frightened about most things.

- Any difficulty with remembering, concentrating, or understanding what is going on around them that they or family members (if the family member is the respondent) consider a problem should be captured.
- Note: difficulties remembering or concentrating because of common everyday situations such as high workload or stress, or as a result of substance abuse are EXCLUDED.

3.13 Do you have difficulty (with self-care such as) washing all over or dressing?

- a. Measurement goal:** The aim of this question is to determine if the respondent has some problems with taking care of themselves independently.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Enumerators should read the response categories as part of the question.

“Washing all over” refers to the process of cleaning one’s entire body (usually with soap and water) in the usual manner for the culture. The washing activity includes cleaning hair and feet, as well as gathering any necessary items for bathing such as soap or shampoo, a washcloth or water.

“Dressing” refers to all aspects of putting clothing or garments on the upper and lower body including the feet if culturally appropriate.

Included are the acts of gathering clothing from storage areas (i.e. closet, dressers), securing buttons, tying knots, zipping, etc.

Washing and dressing represent tasks that occur on a daily basis and are considered basic, universal activities.

3.14 Using your usual language, do you have difficulty communicating (for example understanding or being understood by others)?

- a. Measurement goal:** The aim of this question is to determine if the respondent has some problems with talking, listening or understanding speech such that it contributes to difficulty in

making themselves understood to others or understanding others.

- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Enumerators should read the response categories as part of the question.

“Communicating” refers to a person exchanging information or ideas with other people through the use of language.

“Communication difficulties” can originate in numerous places in the exchange process. It may involve mechanical problems such as hearing impairment or speech impairment, or it may be related to the ability of the mind to interpret the sounds that the auditory system is gathering and to recognize the words that are being used or an inability of the mind to compose a sentence or say a word even when the person knows the word and sentence.

Included is the use of the voice for the exchange or using signs (including sign language) or writing the information to be conveyed.

Included are problems making oneself understood, or problems understanding other people when they speak or try to communicate in other ways.

NOTE: Difficulty understanding or being understood due to non-native or unfamiliar language is NOT included.

4.7 | Module 4 Disaster and hazard exposure, preparedness and consequences

The questions in module 4 ask whether the respondent has personally experienced hazards or disasters in the past 12 months, whether and how they prepared and if they suffered any consequences as a result of such exposure.

The focus of this module is on hazard exposure, early warning, preparedness, experience of consequences and impacts, and environmental decision-making associated with post-disaster needs assessment and planning. The module includes a list of hazards (in line with international Hazard Definition and Classification standards)

and respondents state whether or not these were experienced in the past. For each of the hazards experienced, the respondent is asked a full suite of questions. The number of responses recorded must equal the total number of questions in the module multiplied by the total number of hazards experienced. Enumerators can use this calculation to check for completeness in this module. It is important for enumerators to perform this quality check when implementing the survey.

Note that questions D.1 through D.38 are filter questions that should be asked of all respondents. For each disaster or hazard (D.1 through D.38) the respondent experienced, enumerators should ask Q4.2 through Q4.7.

Responses for Q4.2 through Q4.7 should be recorded for each hazard the respondent experienced. For example, if a respondent has experienced typhoons three times in the past 12 months the enumerator should ask Q4.2 through Q4.7 for each of the three typhoons.

- **Hazard:** It's a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.
- **Disaster:** It's a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

The descriptions of the hazards/disasters are adopted from the Hazard Information Profiles: Supplement to UNDRR-ISC Hazard Definition and Classification Review-Technical Report (2020).

(Introduction to questions D.1 through D.38)

I would now like to understand if you have experienced extreme weather events, natural hazards, or other disaster situations in the past 12 months and how you reacted at the time. For each event you have experienced, I will ask a series of questions.

First, let's begin by understanding if you can remember being in a place (city, village, municipality, field) where you witnessed the following events:

- Measurement goal:** The aim of this question is to identify whether the respondent experienced extreme weather events, hazards, or disaster situations in the past 12 months.
- Filtering questions/respondent universe:** Ask all respondents.
- Instructions:** This is an introduction statement, with stem question for a 38-item battery. Read the full introduction statement before D.1.

From D.2 through D.38: It is recommended that the **stem question** be repeated from D.2 through D.5. After which, the enumerator may re-read the stem question only as needed.

• **Stem question: In the past 12 months, were you in a place where you witnessed [disaster/hazard event D.1 through D.38]**

The reference period is within the past 12 months from the date of the interview. For example, September 2021 to September 2022.

The enumerator should emphasize that the respondent should have witnessed or observed the disaster/hazard or its direct consequences directly themselves as it affected their own locality or place where they were at the time the disaster/hazard took place. If the respondent was in the same country where a hazard took place, but not in an affected locality, the response is "no", regardless of whether the respondent saw it on television or heard it on the news. If the respondent was in a hazard-affected area at the time but did not experience it directly (e.g. stayed indoors, was asleep, etc.), the response to this question is "yes".

Items D.1 through D.38:

(Stem question) In the past 12 months, were you in a place where you witnessed [disaster/hazard event D.1 through D.38]

- Measurement goal:** The aim of this question is to identify whether the respondent experienced extreme weather events, hazards, or disaster situations in the past 12 months.
- Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** Read out **each item** from D.1 through D.38 and record the code corresponding to the answer given for each item. Record either “yes” (code 1) or “no” (code 0).

Below are the descriptions of the hazards/disasters, which were adopted from the **Hazard Information Profiles: Supplement to UNDRR-ISC Hazard Definition and Classification Review-Technical Report (2020)**.

Enumerators must familiarize themselves with the basic description of each disaster/hazard event. For some events, there are country or area-specific terms used to refer to these. Therefore, it is suggested that a list of localized terms/examples be also prepared and shown during the training for reference of enumerators.

D.1 Drought

A drought is a period of abnormally dry weather characterised by a prolonged deficiency of precipitation below a certain threshold over a large area and a period longer than a month.

D.2 Flood

Flood includes coastal, riverine, flash flood, fluvial, ground water flood, snowmelt flood, surface water flooding, etc.

A **flash flood** is a flood of short duration with a relatively high peak discharge in which the time interval between the observable causative event and the flood is less than four to six hours.

Coastal flooding is most frequently the result of storm surges and high winds coinciding with high tides. The surge itself is the result of the raising of sea levels due to low atmospheric pressure.

Estuarine flooding is flooding over and near coastal areas caused by storm surges and high winds coincident with high tides, thereby obstructing the seaward river flow. Estuarine flooding can be caused by tsunamis in specific cases.

Surface water flooding is that part of the rain which remains on the ground surface during rain and either runs off or infiltrates after the rain ends, not including depression storage. Surface water flooding is caused when the volume of rainwater falling does not drain away through the existing

drainage systems or soak into the ground but lies on or flows over the ground instead. This type of flooding is usually short-lived and associated with heavy downpours of rain, thunderstorms, etc.

D.3 Storm surge, storm tides

A storm surge is the rise in seawater level caused solely by a storm. A storm surge reflects the difference between the actual water level under the influence of a meteorological disturbance (storm tide) and the level which would have occurred in the absence of the meteorological disturbance (i.e. astronomical tide).

A storm tides is the actual sea level as influenced by a weather disturbance. The storm tide consists of the normal astronomical tide plus the storm surge.

D.4 Cyclone hurricane/typhoon / depression (low pressure area)

A **tropical cyclone** is a cyclone of tropical origin of small diameter (some hundreds of kilometres) with a minimum surface pressure in some cases of less than 900 hectopascal (hPa), very violent winds and torrential rain; sometimes accompanied by thunderstorms. It usually contains a central region, known as the ‘eye’ of the storm, with a diameter of the order of some tens of kilometres, with light winds and a more or less lightly clouded sky.

Note: Typhoon, hurricane, cyclone and tropical cyclone are different terms for the same weather phenomenon in different geographical regions:

- In the western North Atlantic, central and eastern North Pacific, Caribbean Sea and Gulf of Mexico, such a weather phenomenon is called a ‘hurricane’
- In the western North Pacific, it is called a ‘typhoon’
- In the Bay of Bengal and Arabian Sea, it is called a ‘cyclone’
- In the western South Pacific and southeast India Ocean, it is called a ‘severe tropical cyclone’
- In the southwest India Ocean, it is called a ‘tropical cyclone’

A **depression or cyclone** (low pressure area) is a region of the atmosphere in which the pressures are lower than those of the surrounding region at the same level.

D.5 Tornado

A **tornado** is a rotating column of air, extending from the base of a cumuliform cloud and often visible as a condensation funnel in contact with the ground and/or attendant circulating dust or debris cloud at the ground.

Synonyms: twister, land spout, cold air funnel, waterspout, funnel, whirlwind.

D.6 Extreme wind episode

Examples are derecho, strong gale, squall, etc.

A **derecho** (pronounced similar to 'deh-REY-cho') is a widespread, long-lived windstorm that is associated with a band of rapidly moving showers or thunderstorms. Derechos are fast-moving bands of thunderstorms with destructive winds. The winds can be as strong as those found in hurricanes or even tornadoes. Unlike hurricanes and tornadoes, these winds follow straight lines.

A **gale** is wind with a speed of between 34 and 40 knots (62–74 km per hour, 32–38 miles per hour). Also known as Beaufort scale wind force 8.

A **squall** is an atmospheric phenomenon characterized by a very large variation of wind speed: it begins suddenly, has a duration of the order of minutes and decreases suddenly in speed. It is often accompanied by a shower or thunderstorm.

D.7 Hailstorm, ice storm, freezing rain, blizzard, severe glaze

Snow is the precipitation of ice crystals, isolated or agglomerated, falling from a cloud. Types of snow hazards: hailstorm, ice storm, freezing rain, blizzard, severe glaze.

A **blizzard** is a severe snowstorm characterized by poor visibility, usually occurring at high-latitude and in mountainous regions. The term blizzard is generally used in North America and Great Britain.

Hail is precipitation in the form of particles of ice (hailstones). These can be either transparent, or partly or completely opaque. They are usually spheroidal, conical or irregular in form and generally 5–50 mm in diameter. The particles may fall from a cloud either separately or agglomerated in irregular lumps. Falls of hail always occur as showers. They are generally observed during heavy thunderstorms.

An **ice storm** involves the intense formation of ice on objects by the freezing, on impact, of rain or drizzle.

A **snow storm** is a meteorological disturbance giving rise to a heavy fall of snow, often accompanied by strong winds.

Glaze is a smooth compact deposit of ice, generally transparent, formed by the freezing of super-cooled drizzle droplets or raindrops on objects with a surface temperature below or slightly above 0°C.

Freezing rain is rain where the temperature of the water droplets is below 0°C. Drops of supercooled rain may freeze on impact with the ground, in-flight aircraft or other objects.

D.8 Severe thunderstorm, downburst, lightning

A **thunderstorm** is defined as one or more sudden electrical discharges, manifested by a flash of light (lightning) and a sharp or rumbling sound (thunder).

A **downburst** is a violent and damaging downdraught reaching the ground surface, associated with a severe thunderstorm. Downbursts are powerful winds that descend from a thunderstorm and spread out quickly once they hit the ground. Synonyms: microburst, macroburst, wind shear.

Lightning is the luminous manifestation accompanying a sudden electrical discharge which takes place from or inside a cloud or, less often, from high structures on the ground or from mountains. Synonyms: bolt, thunderbolt, bolt-from-the-blue, firebolt, thunderstroke, thunderball.

D.9 Acid rain

Acid rain is rain which in the course of its history has combined with chemical elements or pollutants in the atmosphere and reaches the Earth's surface as a weak acid solution.

D.10 River/ coast erosion event

Soil erosion is defined as the accelerated removal of topsoil from the land surface through water, wind and tillage (FAO, 2021).

Riverbank erosion is the removal of material from the banks of rivers when flowing water forces exceed bank resisting forces by the soil

and vegetation, for example, when river levels are sufficiently high, primarily due to fluvial energy and atmospheric processes and secondarily because of the resultant geotechnical instability and consequential riverbank failure. Riverbank failure can also occur as a consequence of Earth hazards, such as volcanos and earthquakes.

D.11 Landslide

Landslide is the downslope movement of soil, rock and organic materials under the effects of gravity, which occurs when the gravitational driving forces exceed the frictional resistance of the material resisting on the slope. Landslides could be terrestrial or submarine.

D.12 Mud flow, rockslide

A **mud flow** is a flow of water so heavily charged with sediment and debris that the flowing mass is thick and viscous.

A **rock slide** is a movement of a mass of soil or rock on an individualized failure surface

D.13 Earthquake, surface rupture or other seismogenic event

Earthquake is a term used to describe both sudden slip on a fault and the resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the Earth.

Earthquake surface ruptures and fissures are localised ground displacements that develop during and immediately after an earthquake, where the fault which hosted the earthquake intersects the Earth's surface. Surface ruptures represent the upward continuation of fault slip at depth, while fissures are smaller displacements, or more distributed deformation in and around the rupture area.

Tectonic uplift and subsidence are the distributed vertical permanent ground deformations (warping) that result from displacement on a dipping (inclined) fault.

D.14 Sinkhole, liquefaction and other shallow geohazard

Soil liquefaction occurs when soil is transformed from a solid to a liquid state as a result of increased pore pressure and reduced effective

stress. It is typically caused by rapid loading of the soil during earthquake shaking.

D.15 Salinity/sea water intrusion episode

Soil salinity refers to the amount of salt in the soil. The increase in the soil's salt content, salinization, can happen naturally or by improper man-made activities.

Seawater intrusion is the process by which saltwater infiltrates a coastal aquifer, leading to contamination of fresh groundwater. Synonyms: saltwater intrusion, saltwater encroachment.

D.16 Avalanche

An **avalanche** is a mass of snow and ice falling suddenly down a mountain slope and often taking with it earth, rocks and rubble of every description. Includes snow, debris.

Rock avalanches are a translational form of mass movement where the transported material is dry rock that is fragmented before or during slope failure. They are rapid with long runouts and large volumes and often involve the entrainment of slope material, commonly therefore, giving rise to debris slides or flows. The motion of rock avalanches is massive such that the bulk of the rock fragments move together as a largely coherent mass.

D.17 Sea ice, seiche

Sea ice is any form of ice found at sea. Synonyms: ice floes, pack ice.

Seiches are sea-level oscillations at the resonant frequency of enclosed bodies of water (WMO, 2011). Similar in motion to a seesaw, a seiche is a standing wave in which the largest vertical oscillations are at each end of a body of water with very small oscillation at the 'node', or centre point, of the wave. Standing waves can form in any enclosed or semi-enclosed body of water, from a massive lake to a small coffee cup.

Examples are cold wave, dzud, etc.

D.18 Extreme cold event

A **cold wave** is a period of marked and unusual cold weather characterised by a sharp and significant drop in air temperatures near the surface (maximum, minimum and daily average) over a large area and

persisting below certain thresholds for at least two consecutive days during the cold season.

A **dzud** (severe winter conditions, sometimes spelled zud) is a cold-season disaster in which anomalous climatic (i.e. heavy snow and severe cold) and/or land-surface (snow/ ice cover and lack of pasture) conditions lead to reduced accessibility and/or availability of forage/pastures and ultimately to high livestock mortality during winter-spring. Severe dzuds (high mortality) result from a combination of growing-season drought and severe weather.

Example is a heatwave.

D.19 Extreme heat event

A **heatwave** is a marked warming of the air, or the invasion of very warm air, over a large area; it usually lasts from a few days to a few weeks.

Alternative definition: A heatwave is a marked unusual period of hot weather over a region persisting for at least two consecutive days during the hot period of the year based on local climatological conditions, with thermal conditions recorded above given thresholds.

D.20 Infrastructure failure

Infrastructure failure dam failure, supply systems failure, water supply failure, etc.

Structural failure corresponds to the exceedance of ultimate limit state in many of the load-carrying elements, which compromise the structural stability of the building. Progressive structural collapse is defined by the National Institute of Standards and Technology (NIST) as the spread of an initial local failure in a manner analogous to a chain reaction that leads to partial or total collapse of a building

The United States Department of Labor defines building collapse as the failure of load-bearing structural elements, causing a building to fall, i.e. catastrophic failure.

Dam failure is the collapse or movement of part of a dam or its foundation, such that the dam cannot retain water. In general, a failure results in a release of large quantities of water imposing risks on the people or property downstream.

Critical infrastructure failure is defined as the failure in one or more of the physical structures, facilities,

networks and other assets which provide services that are essential to the social and economic functioning of a community or society.

Supply chain failure refers to an event in the supply chain that disrupts the flow of materials on their journey from initial suppliers through to final customers.

D.21 Radiation event

Includes radioactive waste, radiation agents, nuclear agents.

Radioactive materials (natural and human-made) are a substance or a material emitting, or related to the emission of, ionizing radiation (either in the form of electromagnetic waves or particle radiation) is radioactive.

Radioactive waste is radioactive material for which no further use is foreseen but still contains, or is contaminated with, radionuclides. Radioactive waste can be in gas, liquid or solid form. It may remain radioactive from a few hours to hundreds of thousands of years.

Radiation agents are a substance or a material emitting, or related to the emission of, ionizing radiation (either in the form of electro-magnetic waves or particle radiation) is radioactive. Depending on the magnitude of exposure, the radioactive substance may become a hazard to human health; as such it is subject to regulatory control by national laws and national regulatory authorities. Radioactive material may also be hazard to animal health, other forms of life and the environment.

Nuclear agents are derived from neutron radiation (n) which is a neutron emitted by an unstable nucleus, in particular during atomic fission and nuclear fusion. Apart from a component in cosmic rays, neutrons are usually produced artificially. Because they are electrically neutral particles, neutrons can be very penetrating and when they interact with matter or tissue, they cause the emission of beta- and gamma-radiation. Neutron radiation therefore requires heavy shielding to reduce exposure.

D.22 Wildfire

Wildfires are any unplanned or uncontrolled fire affecting natural, cultural, industrial and residential landscapes. Unplanned or uncontrolled landscape

fires (wildfires) are either started by natural causes (lightning, occasionally by burning coal seams or volcanic activity) or – predominantly at global level – by human activities and primarily by burning live or dead vegetation in natural or anthropogenically altered ecosystems.

These include forests, grasslands, bush (shrub, scrub) and organic terrain (peatlands, wetlands), cultivated lands (agricultural and pasture lands, plantations, abandoned formerly cultivated lands) as well as protected lands (wilderness, conservation sites).

Synonyms: landscape fire, vegetation fire, wildland fire, forest fire, bushfire, brush fire, scrub fire, peat fire, grass fire.

D.23 Volcanic activity events

Examples are ash fall, lava flow, ballistics, debris flow, etc.

These events occur during volcanic eruptions.

A **lava flow or lava dome** is a body of lava that forms during an eruption, or main eruptive episode. Lava flows are outpourings of fluid, relatively low-viscosity molten rock, whereas a lava dome is a pile of relatively viscous lava that cannot flow far from the vent (UNDRR and ISC, 2021).

Ash/tephra fall (physical and chemical). **Tephra** is a collective term for fragmented magma and old (i.e. pre-existing) rocks ejected into the atmosphere from volcanic vents during an explosive eruption, irrespective of size, composition and shape. The term “volcanic ash” refers to the finest particles of tephra (less than 2 mm diameter).

Ballistics (volcanic) comprise fragments of magma and old (i.e. pre-existing) rocks ejected during an explosive eruption at variable velocity and angle on cannon ball-like trajectories; they are not entrained within the volcanic plume and are dispersed in proximity to the vent (typically <5 km).

Lahars or debris flows are discrete, rapid, gravity-driven, water-saturated flows containing water and solid particles of volcanic rock, sediment, ice, wood and other debris that originate at volcanoes.

D.24 Tsunami or other wave action

Tsunami is the Japanese term meaning wave (‘nami’) in a harbour (‘tsu’). It is a series of travelling waves of extremely long length and period, usually generated

by disturbances associated with earthquakes occurring below or near the ocean floor.

D.25 Extra-terrestrial event

Examples are geomagnetic storm, meteor impact, solar storm, space hazard, etc.

A **geomagnetic storm** is a worldwide disturbance of the Earth’s magnetic field induced by a solar storm.

A **meteorite** is an object that survives a trip through Earth’s atmosphere and hits the ground.

Solar radiation storms occur when large quantities of charged particles, primarily protons, accelerated by eruptive processes at or near the Sun reach the near-Earth environment.

A **space accident** is any accident involving space objects that causes damage.

D.26 Pandemic/health emergency/other biological event

A **public health emergency** is an “an occurrence or imminent threat of an illness or health condition, caused by bio terrorism, epidemic or pandemic disease, or an infectious agent or biological toxin, that poses a substantial risk to humans by either causing a significant number of human fatalities or permanent or long-term disability.” (Massachusetts Emergency Management Agency, 2022).

Examples are biological agents, anthrax, airborne disease, waterborne disease, etc.

An **influenza pandemic** is the worldwide spread of a new influenza virus to which there is little or no pre-existing immunity in the human population (WHO, 2022b).

The coronavirus disease (COVID-19) is caused by SARS-CoV-2, which was first identified in human populations in late 2019.

D.27 Animal infectious disease (mass)

Infectious animal diseases outbreaks are due to viruses, bacteria or parasites that infect a large mass of animal population. Includes viral, bacterial, fungal, parasitic, shrimp disease, oyster disease, etc.

D.28 Infestation event

Examples are locust, invasive weeds, etc.

An **insect pest** infestation is a recently detected insect pest population, including an incursion, or a sudden significant increase of an established insect, disease agents or weed population in an area leading to damage to plants in production fields, forests or natural habitats and causing substantial damage to productivity, biodiversity or natural resources.

Widespread and heavy infestations of crops and natural vegetation by locusts causing significant threats to food security, livelihoods and natural habitats in multiple regions.

An **invasive weed** is an alien species that by its establishment or spread has become injurious to plants, or that by risk analysis is shown to be potentially injurious to plants.

Invasive species, also known as alien invasive species, are species whose introduction, establishment and spread into new areas threaten ecosystems, habitats or other species and cause social, economic or environmental harm, or harm to human health.

D.29 Mass animal mortality /disease event

Includes birds, marine and land animals, including brucellosis, swine fever, foot and mouth disease, etc.

Classical swine fever, also known as hog cholera, is a contagious viral disease of domestic and wild swine. It is caused by a virus of the genus Pestivirus of the family Flaviviridae. African swine fever is a devastating haemorrhagic viral disease of pigs, affecting domestic and wild pigs of all ages and both sexes.

Foot-and-mouth disease is caused by a virus of the family Picornaviridae, genus Aphthovirus. It is a highly contagious and economically important disease of cloven-hoofed domestic animals (cattle, buffaloes, pigs, sheep, goats) and wild animals.

Avian influenza is an infectious disease of birds caused by type A influenza viruses of the Orthomyxoviridae family. Naturally occurring among wild bird populations, avian influenza viruses can infect domestic poultry and other bird species. Some avian influenza viruses can also infect mammals and those affecting humans are called zoonotic. A pandemic can occur when a novel zoonotic avian influenza virus spreads in human populations worldwide.

D.30 Toxic dump/oil spill/ mass pollution event

Includes gases, heavy metals, oil, benzene, chemical agents, asbestos, fluoride, methanol, microplastics, chlorine, hazardous waste, etc.

According to the Global Marine Oil Pollution Information Gateway, **oil pollution** includes the accidental or deliberate, operational spills of oil from ships, especially tankers, offshore platforms and pipelines.

A **leak or a spill** is an incident involving the uncontrolled release of a toxic substance, potentially resulting in harm to public health and the environment. Chemical incidents can occur as a result of natural events, or as a result of accidental or intentional events. These incidents can be sudden and acute or have a slow onset when there is a 'silent' release of a chemical. Chemical leaks and spills can range from small releases to full-scale major emergencies.

D.31 Contaminated food/animal feed

Food contamination could be due to foodborne diseases or release contaminants in the food system.

Foodborne diseases are transmitted by consumption of contaminated biological food and drink. These diseases are caused by eating food contaminated with bacteria, viruses, parasites or chemical substances. Similarly, these agents may also contaminate animal feed. In this module, a food contamination event refers to an episode when numerous people/animals were affected by foodborne disease.

The contamination of food and animal feed may occur at any stage of the food production, delivery and consumption chain. Foodborne diseases can result from several forms of environmental contamination, including pollution in water, soil or air, as well as unsafe food storage and processing. Foodborne diseases encompass a wide range of illnesses from diarrhoea to cancers. Most present as gastrointestinal issues, although they can also produce neurological, gynaecological and immunological symptoms.

D.32 Persistent organic pollutants contamination episode

Examples are pesticide contamination event, insecticide contamination event, etc.

Hazardous pesticide contamination often results from improper storage of (obsolete) agrochemicals, as a result of which pesticides are spilled in the surroundings of the storage site, where they seep into the soil or are dispersed by wind. In some cases, pesticide spillage has been ongoing for many years. Such spillage may cause serious soil or water contamination, including groundwater contamination. In addition, highly toxic and persistent compounds have been used in agriculture for decades to control pests and diseases, which are proven to cause harm to non-target species. When soil and groundwater are contaminated, crops, livestock and drinking water may become affected and, when they are consumed by people, health risks may occur. Similarly, when organic pollutants contaminate water bodies, sea life and other water dwellers may experience die-off events or overwhelmed by disease.

D.33 Dust storm, haze event, polluted air, smoke, brown clouds and other lithometeors

A **dust storm** is an ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.

Haze is a suspension in the air of extremely small, dry particles invisible to the naked eye and sufficiently numerous to give the air an opalescent appearance.

Polluted air is air containing dust, smoke, microorganisms or gases different from those from which it would normally be composed. Alternative definition: Polluted air is air which contains gases and particles emitted to the atmosphere by a variety of human activities and natural sources, or formed in the atmosphere, that at critical levels have harmful effects on human health, animals, plants and ecosystems, or reduce visibility and corrode materials, buildings and cultural heritage sites.

D.34 Aquaculture release event

Includes marine toxins, algal bloom

Harmful algal blooms result from noxious and/or toxic algae that cause direct and indirect negative impacts on aquatic ecosystems, coastal resources and human health. Algal blooms may occur as a result of certain natural environmental phenomena, such as water circulation, high temperatures or extreme weather events. Algal blooms may be due to excessive nutrient build-up or “overfeeding,” in

which nutrients from fertilizers or sewage waste result in the overfeeding of algae (NOAA, 2022).

Marine toxins (biotoxins) are naturally occurring chemicals, mostly caused by certain types of toxic algae, but also by bacteria. According to WHO, these toxins can accumulate in fish and shellfish and present a human health hazard. When people consume such contaminated aquatic products, depending on the toxins, they can evoke a variety of gastrointestinal and neurological illnesses (paralytic shellfish poisoning, amnesic shellfish poisoning, diarrhoeic shellfish poisoning, neurotoxic shellfish poisoning, azaspiracid shellfish poisoning and ciguatera poisoning). As aquaculture operations typically use antibiotics and other chemical compounds, releases into natural marine environments may contaminate other sea life.

D.35 Biological event

Biological events are characterized for being intentional. Examples are biological agents, anthrax, airborne disease.

Biological agents, according to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, 1972, include germs, toxins and viruses that can sicken or kill people, livestock, or crops. They are typically bacteria, viruses, fungi, parasites and other pathogens that can be deliberately engineered as weapons in bioterrorism.

Bacteria: *Bacillus anthracis* (the bacterium causing Anthrax) is one of the most common biological agents used because its spores are easily found in nature, can be produced in a laboratory and can persist for a long time in the environment. People are infected with anthrax when spores enter the body. The microscopic spores may be in powders, sprays, food and water.

Toxins: Botulinum toxin, also known as Agent X is the most toxic agent known to humankind and is a very potent neurotoxin, which blocks the release of critical enzymes from the human nervous system. The lethal dose for humans of such toxins is in the sub-microgram range, which is many times lower (more toxic) than the dosage for nerve agents. Ricin (produced in nature in the seeds of the castor bean plant) and saxitoxin (produced in nature by cyanobacteria) are also listed in Schedule 1 of the Biological Weapons Convention, however their toxicity is less than for Botulinum toxin.

Viruses: These include virus derived diseases, particularly smallpox which was eradicated in 1980. Although smallpox, caused by variola virus no longer occurs naturally, the threat remains. There are concerns that variola virus, may exist outside of the two WHO-designated collaborating centres in the United States and Russia. The risk for an intentional or accidental release of the smallpox virus is believed to be low, but the effects of such an event could be devastating. The potential consequences make it critical to plan for a smallpox emergency.

Airborne transmission of infectious agents refers to the transmission of disease caused by dissemination of very small droplets that remain infectious when suspended in air over long distance and time.

D.36 Conflict-related environmental degradation

Environmental degradation from conflict is defined as the reduction of the capacity of the environment to meet social and ecological objectives and needs.

Environmental degradation occurs during peace time but can be particularly exacerbated by an armed conflict. The level of environmental damage from conflict depends on several factors: the weapons as well as the tactics used; location of the military operations (e.g. rural vs urban, proximity to industrial sites), the duration of the military conflict and the pre-war environmental conditions. In parallel, countries might enter the vicious cycle between environmental degradation and conflict as pollution and environmental hazards can on the other hand undermine security and lead to political instability, disasters and regional tensions.

D.37 Other types of disaster (specify)

D.38 Specify other(s)

For each disaster/hazard event experienced in D.1 through D.38: ask Q4.2 through Q4.7. Record responses for Q4.2 through Q4.7 as many times as disaster events were experienced.

4.1 Disaster/hazard code

a. Measurement goal: This is a placeholder question to identify the disaster/hazard experienced, which will be the basis of the follow-up Q4.2 through Q 4.7.

b. Filtering questions/respondent universe: Ask all respondents.

Ask for EACH disaster/hazard event experienced by the respondent in the past 12 months (D.1 through D.38=1)

c. Instructions: Ask for EACH disaster/hazard event experienced by the respondent in the past 12 months (D.1 through D.38=1)

4.2 Did you receive any advance notice or warning (e.g. were you able to access and understand early warning information)?

a. Measurement goal: The aim of this question is to determine if the respondent received any advance notice or warning of the disaster/hazard event.

b. Filtering questions/respondent universe: Ask if respondent experienced a particular disaster/hazard event in D.1 through D.38.

(Ask for each code 1 in D.1 through D.38)

c. Instructions: The advance notice or warning may have come from government advisories, or from media sources, or from other people and means like sirens. Includes personally accessing early warning information or news from various sources.

Early warning systems are a critical component of disaster risk reduction, as it allows individuals to receive timely information and take action to prevent loss of life and properties accordingly.

Early warning information could come from a centralized source in government systems or from private organizations. These are cascaded through various means of communications, including traditional mass media of television or radio, Internet-based websites or apps, cell phone or mobile communications through text or SMS, or through community-based alert systems such as sirens, public address systems or house-to-house campaigns.

Ask for EACH disaster/hazard experienced by the respondent in the past 12 months (D.1 through D.38=1).

4.3 Was the early warning information useful?

a. Measurement goal: The aim of this question is to determine if the early warning received was deemed useful by the respondent.

b. Filtering questions/respondent universe: Ask if respondent received early warning prior to the particular disaster/hazard event in D.1 through D.38.

(Ask if Q4.2=1)

c. Instructions: By “useful” we mean the respondent used the warning received to prepare for the disaster/hazard.

Nevertheless, let the respondent interpret the usefulness of the early warning received.

Ask for EACH disaster/hazard experienced by the respondent in the past 12 months (D.1 through D.38=1).

4.4 What was your MAIN source of early warning information?

a. Measurement goal: The aim of this question is to determine the main source of the early warning information for the disaster/event.

b. Filtering questions/respondent universe: Ask if respondent received early warning prior to the particular disaster/hazard event in D.1 through D.38.

(Ask if Q4.2=1)

c. Instructions: Record one answer only. If the respondent used multiple sources, the enumerator should probe to determine the main source or the source they use most often.

Early warning information could come from a centralized source in government systems or from private organizations. These are cascaded through various means of communications, including traditional mass media of television or radio, Internet-based websites or apps, cell phone or mobile communications through text or SMS, or through community-based alert systems such as sirens, public address systems or house-to-house campaigns.

Traditional mass media: radio (code 1) and television (code 2). Early warning information disseminated through radio and television may have come from news programmes or special warning advisories. In some countries, high-ranking government officials (such as the president, governors or mayors) may broadcast disaster warnings on the radio or television. These modes of early warning system are centralized and usually cover a geographic scope that could be nationwide or statewide. In some countries, there are dedicated television channels or radio networks that continuously broadcast weather information.

Community-based outdoor alert systems: speaker or PSAs (public service announcements) (code 3)/ community (code 4), public board (code 7), siren (code 8). These are alert systems that are usually localized or disseminated at the community level, such as within a province or city. For instance, some communities have set-up speakers or sirens around the community to alert the public to take shelter in the event of an emergency. In some communities, local officials use loudspeakers or megaphones as they go house to house to urge evacuation. Also included here are postings of announcements on public bulletin boards.

Cell phone or mobile communications through text/SMS or SMS (code 6) and apps (code 9). Early warning information disseminated through texts or SMS to cell phones are designed to alert the recipient of an emergency or disaster or hazard, including any action one should take. There are mobile phone apps that provide real-time notifications of emergency or disaster.

Internet/social media/email (code 5). These media sources include news or advisories found online, whether in newspapers or news media organizations, on social media pages such as Facebook or Twitter, or mass advisory through emails.

If the respondent mentions a person who gave an advisory, such as the president of their country, or a disaster management official, the enumerator should probe to find out from which medium, channel or source they heard or saw this person.

Ask for EACH disaster/hazard experienced by the respondent in the past 12 months (D.1 through D.38=1).

4.5 Did you personally take any of the following precautionary measures? (refers to measures taken by the respondent and not other household members)

a. Measurement goal: The aim of this question is to determine if the respondent personally took precautionary measures to prepare for the disaster/hazard after receiving the early warning information.

b. Filtering questions/respondent universe: Ask if respondent received early warning prior to the particular disaster/hazard event in D.1 through D.38.

(Ask if Q4.2=1).

c. Instructions: Read out **each item** from 4.5.a through 4.5.o and record the code corresponding to the answer given for each item. Record either “yes” (code 1) or “no” (code 0).

For items 4.5.e, 4.5.f, 4.5.g, 4.5.h, 4.5.j 4.5.m and 4.5.o: there is a third category (code 3) if the item is not applicable to the respondent.

“Personally” refers to the measures taken by the respondents themselves rather than by the household as a unit or by other household members.

Ask for EACH disaster/hazard experienced by the respondent in the past 12 months (D.1 through D.38=1).

4.5.a Preserve drinking water

This refers to the storage of drinking water in a container such as bottles, jugs, or tubs, for use during emergencies.

4.5.b Preserve dry food

This refers to the storage of dry food, or food that do not require any refrigeration or cooking. Examples are dried fruits, protein bars, ready-to-eat canned fruits and meats.

4.5.c Preserve valuable items [e.g. appliances, jewellery, clothes, utensils, etc.]

This refers to the securing of items such as home appliances (e.g. washing machine, dishwasher, toaster, blender, etc.) and clothes into secure

locations (such as moving them up to keep them away from flood water), or protecting valuables, such as jewellery and important documents from disaster-related damage or loss.

4.5.d Preserve medicine/medical supplies

This includes the storage of prescription medication (with prescription card), other medicines (such as pain relievers, anti-diarrheal) and medical supplies that may be need during or after an emergency, such as first-aid kits (bandages, antiseptics).

4.5.e Preserve seeds/planting material

This involves saving the seeds from harvest and or preserving planting stocks as means of ensuring “seed security”. Seed security refers to farmers having “sufficient access to available good quality seed and planting materials of preferred crop varieties at all times in both good and bad cropping seasons” (Abu, Codjoe and Sward, 2014).

Preserving seeds also ensures that seeds needed for the next planting season remain available in case of a disaster, such as drought or extreme flooding.

This item has an option for not applicable: “I don’t have planting space” (code 3).

4.5.f Harvest or store crops

Events like typhoons or drought commonly result in the loss of harvest or livestock and agricultural infrastructure. Farmers often race to quickly harvest their crops before a typhoon, for instance. Farmers may also store seeds or harvested crops in waterproof containers and move them to a location secure from flooding.

This item has an option for not applicable: “I don’t have crops” (code 3).

4.5.g Move livestock to safe place

This involves moving livestock to a safe place, such as away from the path of flooding, or to an area with sufficient water supply during droughts.

This item has an option for not applicable: “I don’t have livestock” (code 3).

4.5.h Cover/protect crops

This refers to the protection of crops with tarps, walls, trellis or other protective materials against

wind, rain or any foreseeable hazard. This may include protecting gardens from damage.

This item has an option for not applicable: “I don’t have a garden” (code 3). This item has an option for not applicable: “I don’t have livestock” (code 3).

4.5.i Build barrier

Includes building of temporary dikes or levees, such as sandbagging.

4.5.j Take refuge in designated shelter

In most countries, there are designated shelter sites or evacuation areas, where people in high-risk or hazard-prone areas, such as flood-prone areas, or within hazard zones of volcanoes, can temporarily take shelter. For example, if a family resides in a village near the coastline, they may decide to temporarily take refuge/shelter or evacuate to a shelter located in a higher ground in the event of a typhoon.

This item has an option for not applicable: “No shelter was designated” (code 3).

4.5.k Isolate indoors

This is also referred to as sheltering-in-place, or seeking safety in a structure, such as a building or housing unit, one is already in.

4.5.l Flee to different geographical area (temporary)

People may also flee or relocate to a different geographical area for safety where they can temporarily avoid the impact of a disaster or hazard. For example, if a family resides in a village near the coastline, they may decide to temporarily flee to a relative/friend who resides in a different town for safety.

4.5.m Send children to a safe place

Parents or guardians may choose to send their children to a safe place, such as designated shelters or evacuation sites, or to friends/relatives in different areas.

This item has an option for not applicable, that is, those who do not have children: “I don’t have children” (code 3).

4.5.n Reinforce building materials of household

Individuals may reinforce or strengthen their home’s structures. For example, strengthening the connection between beams and posts, or reinforcing using flood-resistant materials. Others may also board up windows and doors to protect from wind damage or flying debris.

4.5.o Reinforce building materials of animal shelter

Owners and community officials often reinforce animal shelters to keep animals safe during disasters and hazardous events, such as by building platforms to avoid flood water, reinforcing materials to avoid cave-in or water intrusion, or insulating pens and stables to prevent animals from freezing or overheating.

This item has an option for not applicable: “I don’t have an animal shelter” (code 3).

4.6 As a result of this event, did you (personally) experience any of the following consequences?

a. Measurement goal: The aim of this question is to determine if the respondent personally experienced selected consequences as a direct result of the disaster/hazard experienced.

b. Filtering questions/respondent universe: Ask if respondent experienced a particular disaster/hazard event in D.1 through D.38.

(Ask for each code 1 in D.1 through D.38).

c. Instructions: Read out each item from Q4.6.a through Q4.5.z.i and record the code corresponding to the answer given for each item. Record either “yes” (code 1) or “no” (code 0).

Note that there are some items that are not applicable to the respondents (such as they do not live with other household members or they have no children) and therefore should not be asked: **4.6.c, 4.6.d, 4.6.e, 4.6.l, 4.6.s, 4.6.t.**

In addition, there are some items that may not also be applicable to the respondents but should still be asked of them. For these items

there is a third category (code 3) if the item is not applicable to the respondent: **4.6.h, 4.6.i, 4.6.j, 4.6.r, 4.6.w, 4.6x, 4.6z.b 4.6.z.c, 4.6.z.d, 4.6.z.h.**

“Personally” refers to the personal experience of the respondents themselves and not to the experiences of other household members or the experience of the household as a unit.

Ask for EACH disaster/hazard experienced by the respondent in the past 12 months (D.1 through D.38=1).

4.6.a Injury

The respondent may have suffered physical or bodily injuries as a direct result of the disaster/hazard they experienced. Examples of physical injuries include minor injuries, such as cuts, lacerations, burns, bruises, dislocations, fractures, or sprains and strains, to major injuries from electrical shock, or bleeding heavily, blast injury, head injury, blunt trauma or crush-related injuries.

4.6.b Illness

“Illness” is a generic term used to describe the feeling of being sick or unwell due to diseases or infections.

If one is ill, it may be as a result of an underlying disease, such as allergies. Or the illness could have been a direct result of one’s experience in a disaster/hazard, such as contracting infectious diseases or communicable diseases from overcrowded evacuation shelters, or waterborne diseases from lack of clean water.

4.6.c Death of a household member

The death should have happened during the disaster/hazardous event, or afterwards, as a direct result of the disaster or hazardous event.

If the respondent lived alone when the hazard took place, record code 3.

4.6.d Injury/illness of a household member

The injury/illness should have happened during the disaster/hazardous event, or directly afterwards, as a direct result of the disaster or hazardous event.

If the respondent lived alone when the hazard took place, record code 3.

4.6.e Household member is missing

There could be instances in which the respondent’s household member went missing during disaster/hazardous event, or directly afterwards, as a direct result of the disaster or hazardous event. This could include those who are presumed dead because their bodies could not be found. For example, a household member was swept away by flood or a tsunami.

If the respondent lived alone when the hazard took place, record code 3.

4.6.f Dwelling is damaged

Refers to physical damages to the dwelling structure and adjacent structures. These include, among others, damage from debris or missing roof or walls. These damages can be repaired.

4.6.g Dwelling is destroyed

Refers to the destruction of the entire dwelling structure during a disaster/hazardous event, or shortly afterwards, as a direct result of the disaster or hazardous event. As opposed to damages, destruction is when repair is impossible, too dangerous, or too costly. For example, a tornado may completely destroy houses within its path. Or a house may be completely wrecked from a very strong earthquake. There could also be instances in which authorities decide to demolish a destroyed dwelling structure that poses risk to rescuers or to the community at-large.

4.6.h Personal income decreased (question refers to individual, not overall household income)

Disasters or hazardous events could directly lead to loss of personal income during or shortly after the event. For example, this would be the case when a flood ruins the crops of farmers, when work stoppage takes place ahead of a typhoon or after an earthquake, or when the hazard prevents people from going out (in the street or in market stalls) for work.

This item has an option for not applicable: “I have no personal income” (code 3).

4.6.i Crops that I grow were damaged or destroyed

A common impact of a hazardous event is the damage to agriculture. Crop damage could be due to direct physical impact on crops or crops being

left on storage facilities and spoiled as a result of flooding, lack of refrigeration, power outages, or lack of management. This item has an option for not applicable: “I don’t grow crops” (code 3).

4.6.j Livestock that I raise was lost or contracted serious illness

This refers to the appearance of potentially life-threatening disease in livestock, or to the death or disappearance of livestock during a disaster/hazardous event, or shortly afterwards, as a direct result of the disaster or hazardous event. For instance, the livestock may have drowned, gotten lost, or contracted an infectious disease.

This item has an option for not applicable: “I don’t raise livestock” (code 3).

4.6.k Productive assets I personally own or use (land, industrial assets, machinery, productive services, etc.) were damaged or destroyed

Productive assets refer to those assets that can generate cashflow or profits (such as agricultural land, buildings and dwellings that are rented out to others, tractors, vehicles and machinery used for work, etc.). The damage or destruction of such productive assets should have happened during, or shortly after, as a direct result of the hazardous event.

4.6.l Children’s school was cancelled or reduced

National disaster and risk management systems often rely on forecasting systems and may choose to recommend the closure of schools before, during and/or after a disaster or hazardous event. Similarly, if schools are destroyed or damaged, they may be closed after such events.

Ask only if children live in the household.

4.6.m Migrated to different geographical area

These include instances in which individuals leave their residence or localities to avoid a recurring disaster/hazardous event and move to a different geographical area within their countries or to another country.

For example, individuals may choose to move away from a permanent volcano risk zone or landslide zone to a different locality, or from the coastal area to avoid gradual rise in seawater level. There are also cases in which people move to avoid water shortage or drought.

4.6.n Obtained or applied for refugee status

There are situations in which individuals severely affected by a disaster or hazardous event flee their country and seek asylum or refugee status in other countries. This question refers in particular to what is typically called “climate refugees” – defined by UNEP as “people who have been forced to leave their traditional habitat, temporarily or permanently, because of marked environmental disruption.”

It should be noted that a displaced person has to apply for refugee status.

4.6.o Experienced another form of forced displacement (including pre-emptive evacuation)

Aside from migration to avoid hazards/disaster, or applying for refugee status, individuals may also experience other forms of displacement, such as pre-emptive evacuation or planned relocation. These are usually done following recommendation by the authorities to reduce injuries and deaths.

4.6.p Drinking water source was damaged/compromised

Water sources may be contaminated, or interrupted, or their quality substantially affected during a disaster/hazardous event. For instance, floodwater may enter the drinking water supply, resulting in murky water. Sewage, industrial and farming run-off, pathogens, and other agents may also contaminate water sources and could lead to disease outbreaks.

4.6.q Water shortages affected my household’s water use

This refers to limitations in the amount of water that can be consumed, or the time of the day when water is made available to households, as a result of a hazardous event, such as a severe drought, wildfires, or even floods.

4.6.r Time spent on water collection increased

This is applicable only in the case of households that lack a reliable clean water supply on premises and thus a member of the household must collect or fetch water from a source that is not directly piped into their dwelling unit, such as a spring, fountain, stream, river, or community water source. A disaster/hazardous event could compromise the respondent’s usual water source or could result in damages that would make the water source difficult to access or totally inaccessible,

prompting the person to look for alternative ways to access their source or to switch to a further source. Similarly, if vehicles utilized by the respondent to go fetch water are damaged by hazards, the time spent on water collection may increase.

This item has an option for not applicable: “I don’t collect water” (code 3).

4.6.s Time spent on childcare increased (including physical care, teaching, playing)

This is applicable for individuals who have children who live in the household.

A disaster/hazardous event could result in these individuals needing to increase time spent on childcare. For instance, parents or guardians may need to care for children during school closures; or these children may suffer illness, injuries or trauma as a direct result of the disaster/hazardous event, and they need medical care.

According to the International Classification of Activities for Time-Use Statistics (ICATUS) (United Nations Statistics Division, 2016), childcare activities include feeding, cleaning, providing physical and medical care for children, teaching and training children, playing with children, minding them while doing other activities and any activities regarding child instruction, such as school meetings.

These caregiving activities are unpaid services for the household and household members.

If no children were living in the household at the time of the hazard, record code 3.

4.6.t Time spent caring for adult family members increased (including administrative support, physical care, psychological support)

This refers to care activities for any adult family members, regardless of whether or not live in the household. The disaster/hazardous event could result in these individuals needing to increase time spent on caring for other adults who were injured or suffered illness as a result of the disaster/hazardous event. This could also include providing increased physical care or psychological support for disabled or elderly adults, for instance. It also includes the additional time needed to assist adults in administrative matters, such as filling out forms or paper works for insurance claims for damages after an earthquake.

According to ICATUS (United Nations Statistics Division, 2016), adult care activities include help with tasks of daily living, medical care, help with administration and accounts, minding adults while performing other tasks, meetings and arrangements with adult care providers, feeding and cleaning adults, and providing emotional support.

These caregiving activities are unpaid services for the household and household members.

If the respondent didn’t have any adult family members at the time of the hazard, record code 3.

4.6.u Time spent on any domestic work activities increased (services provided for the household, including cleaning, cooking, shopping for the household, repairs, décor, pet care)

The disaster/hazardous event could result in these individuals needing to increase time spent on domestic work activities, or household activities, as a direct result of the disaster or hazardous event. These domestic work activities are unpaid services for the household and household members.

For instance, if a dwelling unit and its surroundings suffered damage during the disaster/hazardous event, individuals may need to spend time cleaning or fixing it. Similarly, as a result of hazard-related damage, food preparation may take longer.

According to ICATUS (United Nations Statistics Division, 2016), domestic work activities include food and meal management, including cooking, serving, storing and preserving food, cleaning and maintaining the dwelling and surroundings, managing garbage and recycling, keeping plants, maintaining appliances and vehicles, making repairs, washing, ironing and mending clothes, paying bills, managing the household budget, decoration, pet care, shopping for the household or family members and travelling to accompany household goods or people.

4.6.v Had to switch to unclean cooking/heating/lighting fuel for more than two weeks (e.g. any fuel apart from electricity, LPG, natural gas and biogas)

The disaster/hazardous event could result in the household needing to switch to an unclean cooking/heating/lighting fuel for more than two weeks. For instance, supply from gas or electric companies were affected, and households need to temporarily use charcoal, kerosene, or stone stove.

4.6.w Time spent on fuel and firewood collection increased

This is applicable for individuals who rely on fuel sources that aren't directly piped or installed into household, or whose electricity or piped gas have been damaged and thus now need to collect or fetch fuel and firewood from a source. For instance, disaster/hazardous event could result in damages that make access to fuel sources, such as forests and stores, difficult or totally inaccessible or unusable, resulting in the individual having to look for alternative ways to access fuel sources, or having to find alternative sources.

This item has an option for not applicable: "I don't collect fuel/firewood" (code 3).

4.6.x Lost job

A disaster/hazardous event could result in individuals losing their jobs during or immediately after a disaster/hazardous event. Whether the job loss was permanent, or the person got their job back after some time is not relevant for this question. Mark "yes" in both cases.

This item has an option for not applicable: "I didn't have a job" (code 3).

4.6.y Had to switch to unimproved form of sanitation (pit latrine without slab, bucket, hanging toilet or bush/field)

The disaster/hazardous event could result in the household needing to switch to an unimproved form of sanitation. For instance, dwelling structures could have been damaged or destroyed in an earthquake or a hurricane, and a household that relied on flushed toilets needs to use temporary toilet facilities, such as buckets or pit latrines.

4.6.z Had to start sharing sanitation facilities with other households

Household who evacuated into shelters or whose dwelling units were destroyed or damaged may need to temporarily share sanitation or toilet facilities with other households during or immediately after a disaster/hazardous event. This excludes households who were sharing sanitation facilities prior to the disaster/hazardous event.

4.6.z.a Found difficulties accessing hygiene products

The disaster/hazardous event could result in the temporary closure of roads, or of markets/

groceries/stores, hence limiting one's access to hygiene products, such as soap, toothbrush, or feminine hygiene products. Or it could be that the individual did not have the time to collect hygiene products before they got evacuated or their dwelling units were damaged or could not leave the household as a result of the disaster/hazard.

4.6.z.b Experienced longer wait times to visit doctors/seek medical care

After a disaster/hazardous event, emergency health care, such as medical care services to those injured or ill, may be overburdened. Hence, individuals may need to spend more time waiting to seek medical care. In addition, the disaster/hazardous event may have caused damage to infrastructure like roads, bridges and healthcare facilities, making medical care facilities inaccessible or unusable.

This item has an option for not applicable: "I did not need medical care" (code 3).

4.6.z.c Was unable to seek necessary medical care

Individuals may not be able to see a doctor or seek other medical care as a result of damaged structures, limitations in mobility or other hazard related reasons. Inaccessibility of medical care facilities or to the lack of medical care providers.

This item has an option for not applicable: "I did not need medical care" (code 3).

4.6.z.d Was unable to seek necessary medical care for family

Individuals may not be able to bring household members to healthcare facilities or seek any other kind of medical care for family members as a result of injuries, inaccessibility of facilities, or lack of medical care providers, for instance.

This item has an option for not applicable: "Family did not need medical care" (code 3).

4.6.z.e Mental health was affected (experienced stress, anxiety)

According to the WHO (2022), individuals may suffer mental health problems that are "emergency-induced" or "humanitarian response-induced". Emergency-induced mental health problems include grief or stress reaction to the disaster and its aftermath, or depression or anxiety, such as post-traumatic stress disorder. Humanitarian

response-induced mental health problems include anxiety due to uncertainties on lack of food or water supply, or how to obtain medical care.

4.6.z.f Crime increased in the area where I live or work

A disaster/hazardous event may compromise the security and safety of some locations, as law enforcement may be needed to provide emergency care or people resort to looting or stealing food or other items because of the lack of access to basic services or scarcity of goods.

4.6.z.g Someone I know has been a victim of violence

The respondent may know another person who has suffered violence, either from an intimate partner or another person (including strangers) during or after a disaster/hazardous event. This includes acts of violence perpetrated in shelters and other displacement settings, as well as acts of violence perpetrated in households, by partners or family members, or at the workplace.

4.6.z.h Own vehicle was damaged

A disaster/hazardous event could result in damage to properties, particularly vehicles. For instance, a flood swept away a vehicle or completely submerged vehicles in floodwater. Or a landslide totally destroyed or covered a vehicle in mud or rocks. This included motorized and non-motorized vehicles, such as cars, bicycles and carts.

This item has an option for not applicable: “I don’t have a vehicle” (code 3).

4.6.z.i Lost access to/ could not use public transportation

A disaster/hazardous event could result in damages in infrastructure, such as roads and bridges, making it difficult to use transportation, or resulting on cancellations or delays in transportation services. Mobility limitations may also contribute to losing access to transportation.

4.7 Were you involved in any committees or groups where you felt you could influence responses to rebuild after these events? (e.g. disaster response teams, camp management bodies, disaster-related policy making committees, etc.)

a. Measurement goal: The aim of this question is to determine if the respondent was involved in any group, such as disaster response teams or disaster-related policy making committees, that could influence responses to rebuild after these events.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: Committees or groups may include formal or informal groups, such as government committees, local councils, village groups, private associations, or others. This question refers in particular to groups that contribute, directly or indirectly, to disaster response, preparedness or to the management of hazards.

Examples of committees or groups include disaster response teams, camp management bodies (for people in displacement), disaster-related policy making committees and others, including at the village level.

4.8 | Module 5 Exposure to and preparedness for climate change related effects

The questions in module 5 ask whether the respondent has personally experienced climate change-related effects, whether they have prepared and if they suffered any consequences as a result of such exposure.

Includes questions collecting information on the various effects of climate change on each individual and their livelihoods, including information on exposure, preparedness, source of information, mitigation techniques, effects on livelihoods, changes in safety and participation in environmental decision-making for climate change mitigation. Like module 4, module 5 gives each respondent a list of slow-onset effects and asks whether the respondent witnessed them in the reference period (the respondent’s lifetime). For each of the effects experienced, the enumerator will ask the full suite of questions in the module. Thus, enumerators must make sure that the number of responses recorded for this module equals the total number of questions in the module, multiplied by the total number of effects experienced by the respondent.

The descriptions of most of the climate change effects are adopted from the Hazard Information Profiles: Supplement to UNDRR-ISC Hazard Definition & Classification Review-Technical Report (2020).

Note that questions CC.1 through CC.40 are filter questions that should be asked of all respondents. For each climate change-related effect the respondent experienced, enumerators should ask Q5.2 through Q5.5.

Responses for Q5.2 through Q5.5 should be recorded for each climate change effect the respondent experienced ever in his or her lifetime. For example, if a respondent experienced sea level rise and wildfires, the enumerator should ask Q5.2 through Q5.5 for each. Because the climate change effects included in this module are slow onset events, it is likely that the respondents have experienced them many times, such as recurrent heatwaves. The enumerator should not record separate responses for each time a heatwave was experienced. Rather, the respondent should recall his/her typical response to heatwaves.

Climate change refers to a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use (FAO, 2022a). Since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas (United Nations, 2022).

Climate and weather are often used interchangeably, although they are essentially different. “Weather is the state of the atmosphere (e.g. temperature, humidity, wind, rainfall) over hours to weeks. It is influenced by the oceans, land surfaces and ice sheets, which together with the atmosphere form what is called the ‘climate system’. Climate, in its broadest sense, is the statistical description of the state of the climate system” (Australian Academy of Science, 2022). It typically refers to sustained atmospheric conditions over longer periods of time.

(Introduction to CC.1 through CC.40)

The following questions refer to your own personal experience of slow onset climate events. These events differ from the events we mentioned in the previous module as they typically take place over longer periods of time.

In particular, I would like to understand if you have ever observed some of the following phenomena in the environment around you.

For each phenomenon you have experienced, I will ask a series of questions.

First, let’s begin by understanding if you can remember living or working near a place (city, village, beach, field, etc.) where the following phenomena were apparent:

a. Measurement goal: The aim of this question is to determine whether the respondents personally observed or experienced several phenomena or slow-onset events that are typically indicators of climate change and its effects.

The reference period for this question is the respondent’s lifetime, as most of these hazards are slow onset events. All events EVER experienced by the respondent are considered.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: This is an introduction statement, with stem question for a 40-item battery. Read the full introduction statement before CC.1.

From CC.2 through CC.40: It is recommended that the **stem question** be repeated from CC.2 through CC.5. After which, the enumerator may re-read the stem question as needed.

• **Stem question: Did you ever lived or worked near a place (city, village, beach, field, etc.) where this phenomenon was apparent or occurred? [READ event/phenomenon from CC.1 through CC.40]**

Note that there is **no specified reference period**. This means that the respondent may have experienced the phenomenon being asked at any point in time before the interview is conducted. It may also be that they are experiencing this phenomenon at the time of the interview.

Items CC.1 through CC.40:

(Stem question) Can you remember ever living or working, near a place (city, village, beach, field, etc.) where this phenomenon was apparent or occurred? [event/phenomenon from CC.1 through CC.40]

a. Measurement goal: The aim of this question is to determine whether the respondents personally observed or experienced phenomena or slow-onset events that are

typically indicators of climate change and its effects.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: Read out **each item** from D.1 through D.38 and record the code corresponding to the answer given for each item. Record either “yes” (code 1) or “no” (code 0).

The items are phenomena or slow-onset events that are typically indicators of climate change and its effects.

CC.1 Increased temperature (sustained) (e.g. temperatures are higher than they used to be years ago)

Sustained increase in temperature refers to overall higher average temperatures compared to average levels in the past (e.g. average temperatures are higher than they used to be years ago). Temperatures may have increased in intensity and frequency. This is relevant to both warm and cold environments, both of which may have experienced warming in temperatures. Note that this phenomenon differs from D.19 (Extreme heat event), because it refers to average temperatures or recurrent warmer days.

CC.2 Drop in temperature (sustained) (e.g. temperatures are lower than they used to be years ago)

Refers to sustained decline in average temperatures (e.g. temperatures are lower than they used to be years ago). Note that this event differs from D.18 (Extreme cold event) because it refers to drops in overall average temperature over time. As such, a location that sees increased frequency in extreme cold events, may not see a sustained drop in temperature if it also witnesses increases in extreme heat events, or overall increases in average temperatures (in other words, increases in the frequency and severity of extreme cold days do not necessarily translate in sustained drops in average temperature).

CC.3 Recurrent heatwaves

A heatwave, according to the World Meteorological Organization, is a prolonged period of statistically unusual hot weather persisting for a number of days and nights. Recurrent heatwaves are not one-off events, and thus differ from D.19 (Extreme

heat event). Record “yes” if the respondent has experienced two or more extreme heat events, especially if the recurrence has increased over time.

CC.4 Recurrent extreme cold events

Recurrent extreme cold events refer to frequent presence of unusually cold temperature snaps. This is a repeating phenomenon, and thus differs from D.18 (Extreme cold event). Record “yes” if the respondent has experienced this phenomenon two or more times, especially if the frequency and intensity has increased over time.

CC.5 Increased overall precipitation

Precipitation may include rain, drizzle, snow, ice pellets, hail and any other water-based droppings on the surface of the Earth. This refers to increases in total amounts of overall precipitation (caused by higher frequency of rainy/snowy days, or higher amounts of rain, snow or other forms of precipitation dropped per day).

CC.6 Decreased overall precipitation

Refers to reductions in the overall amount of rain, drizzle, snow, ice pellets, hail and other precipitation, caused by lower frequency of rainy/snowy days, or lower amounts of rain or other precipitation dropped per day.

CC.7 Desertification

Desertification, according to the United Nations Convention to Combat Desertification, is the degradation of land in arid, semi-arid and dry sub-humid areas. It is a gradual process of soil productivity loss and the thinning out of the vegetative cover because of human activities and climatic variations such as prolonged droughts and floods.

Desertification is usually noticed when agriculturally productive lands become barren and depleted of productivity or when forest transition gives way to biodiversity loss and degraded land.

CC.8 Endemic insect borne disease (e.g. malaria, dengue, zika, etc.)

Insect-borne diseases are diseases that are transmitted by insect vectors, such as mosquitoes or ticks. Examples of insect-borne diseases are malaria, dengue, chikungunya, zika, yellow fever, Est Nile fever and Japanese encephalitis – transmitted by mosquitoes – and Lyme disease or tick-borne

encephalitis – transmitted by ticks. When infection rates of these diseases increase to the point a large proportion of the population of a certain location experience them, these diseases are considered endemic to those areas. For example, dengue is endemic in many densely populated areas with hot and humid climates. Increases in rainfall, stranded floodwater or standing water may give way to mosquito breeding grounds and potentially support the spread of these diseases. Intensive farming, dams, irrigation, deforestation and rapid urbanization, among other factors, may all increase the risk for these diseases. Insect borne disease may affect humans, livestock or plants.

CC.9 Recurrent wildfires

According to UNDRR and ISC (2021), wildfires are unplanned or uncontrolled fires affecting natural, cultural, industrial or residential landscapes. These may be started by natural causes (e.g. lightning, volcanic activity, burning coal seams) or by human activity (burning vegetation and anthropogenically altered ecosystems).

Droughts, heatwaves and extreme weather events can influence the frequency and severity of wildfires. CC.9 refers to recurrent wildfires only. Record “yes” if the respondent has experienced two or more events of this kind, or if these are becoming more frequent in recent years.

CC.10 Water scarcity (reduced availability over extended periods)

Water scarcity is a condition in which the demand for water exceeds the available water supply.

Water scarcity could either be due to physical water scarcity (that resulted from drought, aridity, or warmer temperatures, or due to human activities that cause degradation of ground water, water reservoirs or land resources) or due to failure of institutions to ensure regular supply through adequate infrastructure (including instances in which contamination of water supply limits water availability for extended periods of time).

CC.11 River/coast erosion/sand encroachment and other permanent shallow geohazards

Erosion is a process in which materials on the Earth’s surface, such as soil, rocks or sediments, are worn away and transported to other areas. According to UNDRR and ISC (2021), riverbank

erosion is the removal of material from the banks of rivers when flowing water forces exceed bank resisting forces by the soil and vegetation. Coastal erosion is the physical reduction of land mass at the coast that results from marine, fluvial and land sliding processes with the coast (also known as shoreline change). Sand encroachment occurs when grains of sand are carried by winds and form sandy accumulation (dunes) on coasts, water courses or uncultivated land.

CC.12 Increased frequency of animal death episodes (birds, land animals)

This refers to recurrent die-off episodes of numerous wildlife or livestock specimens (birds and land animals only). Changes in weather patterns could have serious implications on the health, behaviour and sources of food of birds and land animals. Similarly, habitat loss, pollution and biodiversity loss affecting their food sources could result in mass wildlife death episodes. Furthermore, due to the proliferation of animal disease, the frequency and severity of mass die-offs may be increasing (e.g. as a result of swine fever, bird flu, brucellosis, pleuropneumonia, foot and mouth disease, vector borne diseases, etc.).

CC.13 Increased frequency of animal death episodes (fish, seafood, freshwater animals, marine animals)

This refers to recurrent die-off episodes of large numbers of fish, marine animals and other water animals and plants (including freshwater and saltwater fish, clams, shrimp and other shellfish, eels and sea snakes, coral, seaweed and any other water animal or plant). Changes in water temperatures, water’s potential of hydrogen (pH), pollution, biodiversity loss, wetland degradation, eutrophication and reduction in the availability of plankton, krill and other marine food sources, among many other factors, contribute to die-off events for underwater life. Human activity, including noise, marine or riverine dumping, mangrove destruction and aquaculture spillover events, all contribute to mass die-offs, including whale strandings, changes in migration routes for sea life, coral bleaching and toxic algal blooms, among many other effects.

This refers to both wild fish and other water animals and plants, as well as mass die-offs of aquaculture specimens; both of which may happen simultaneously when aquaculture operations spillover to wild habitats.

CC.14 Loss of land and air biodiversity/ depletion of species (land animals, birds, plants, trees, insects, mushrooms, seeds)

Biodiversity loss refers to the reduction of any aspect of biological diversity (e.g. genetic, species, ecosystems) in a particular area through death, destruction or manual removal. It includes loss of species through global extinctions and population extinctions, resulting in decreased total diversity. CC.14 refers, in particular, to the loss of species of land animals, birds, plants, trees, insects, mushrooms and seeds. Direct exploitation of species, changes in land and sea use, climate change, pollution and invasion of alien species can all contribute to biodiversity loss. If the respondent recalls the existence of species of birds, land animals, plants, trees, insects, mushrooms, or seeds in the area that are no longer around, whether because the individual can no longer harvest them, does not see them, or has heard others discuss this issue, record “yes”.

CC.15 Loss of aquatic biodiversity/ depletion of species (fish, seafood, seaweed, coral bleaching, etc.)

Biodiversity loss refers to the reduction of any aspect of biological diversity (e.g. genetic, species, ecosystems) in a particular area through death, destruction, or manual removal. It includes loss of species through global extinctions and population extinctions, resulting in decreased total diversity. CC.15 refers, in particular, to the loss of marine and freshwater species of animals and plants, including fish, shellfish, coral, krill, plankton, seaweed, seagrass and other species. Direct exploitation of species, changes in wetland and sea use, climate change, pollution and invasion of alien species can all contribute to biodiversity loss. If the respondent recalls the existence of species of fish, shellfish, coral, seaweed, seagrass and other water animals or plants in the area that are no longer around, whether because the individual can no longer harvest them, does not see them, or has heard others discuss this issue, record “yes”.

CC.16 Increased/ frequent/ chronic air pollution, haze, smoke

Air pollution, according to the WHO (2022), is the contamination of the air by pollutants, such as chemicals in the form of smoke and emissions. CC.16 refers, in particular, to outdoor air pollution; a leading environmental risk factor affecting urban and rural populations around the world. Outdoor air pollution contains particles and gasses from a

variety of sources, both natural (wildfires, volcanic eruptions) and man-made (e.g. transport, industry, agriculture). Haze is a suspension in the air of small dry particles invisible to the naked eye but sufficiently numerous to give the air an opalescent appearance. Sand haze is, in addition, caused by the suspension in the atmosphere of small sand or dust particles, either raised from the ground or by a sandstorm or dust storm. Smoke is a suspension in the air of small particles produced by combustion. Polluted air may also microorganisms and gasses different from which air is normally composed.

If the respondent has noted a sustained increase on the level of air pollution, or its frequency, compared to how it was years ago, record “yes”.

CC.17 Increased ocean temperature

As Earth’s temperature rises, ocean temperature also rises. This threatens the habitat and breeding patterns of marine animals and plants. It could also bring recurrent or more intense algal blooms, coral bleaching and ocean acidification. Warming ocean temperature also triggers more intense or frequent storms.

Increasingly frequent severe coral bleaching is a key indicator for increased ocean temperature.

CC.18 Sea level rise

Sea level rise is a change to the height of sea level, at seasonal, annual, or longer time scales, due to changes in ocean volume (e.g. water density due to warmer conditions), the mass of water in the ocean (e.g. due to melting of glaciers and ice sheets), the shape of the ocean basins (for instance, as a result of storms and tsunamis), the earth’s gravitational fields and local uplift of the land.

Sea level rise produces changes in coastlines (erosion and accretion), coastal inundation (damaging infrastructure and crops and causing salinization of groundwater and soil) and degradation of coastal vegetation. In the case of atoll islands, the increase in frequency of inundation events could result in inhabitability and movements of fresh groundwater.

CC.19 Permanent/frequent flood (coastal, estuarine, groundwater flood, snowmelt flood, etc.)

Coastal floods are most frequently the result of storm surges and high winds coinciding with tides. CC.19, however, refers to increases in the frequency of coastal flooding, or instances of permanent flooding, as a result of sea level rise, the breaking of a

sandbar or the shallowing of seabed. Estuarine flood refers to flooding near coastal areas obstructing seaward river flood. This category refers to instances of increased frequency or severity of estuarine floods. Fluvial flood refers to increases in riverine water streams, either permanently swallowing meanders and other landmasses, or taking place more frequently. Groundwater flood refers to the emergence of groundwater at the surface, when normal ranges of groundwater level are exceeded. Ice jam flood is an accumulation of broken ice in a river that causes narrowing of the river channel and thus overall flooding. Snowmelt flood is a flood rise in a river caused by a melting snowpack. This may also include glacial lake outbursts. This category refers to increased frequency on snowmelt floods. Mark also “yes” if the respondent notices increased frequency in surface water flooding, ponding of rainwater and flash floods.

CC.20 Thawing of ice (glaciers, permafrost, other)

The sustained increase in temperature has resulted in the thawing or melting of ice, including glaciers, sea ice and permafrost. Thawing of permafrost sites (the thick subsurface layer of soil that remains frozen throughout the year in polar regions) may cause damage to infrastructure and affect health, economic livelihoods and safety of affected communities. Thawing of glaciers may cause glacial lake outburst floods, a sudden release in water retained in a glacial lake. When glaciers terminate in the ocean and form floating ice tongues, or when they form ice shelves, sea ice, river and lake ice, ice flows may occur (the motion of ice driven by gravity, ice stress, wind, or water currents). If these phenomena have become more frequent than they were years ago, record “yes”.

CC.21 Increasing spread of pathogens (virus, bacteria)

Bacteria are a group of microorganisms that may affect large areas and have significant impacts on crop and forest productivity, affect natural habitats and affect animals and livestock. They may also cause human disease. Fungal agents are multi-cellular organisms different from animals and plants, that may cause disease typically affecting plants and natural ecosystems (impact on crop productivity or on biodiversity of natural habitats), although they may also have health effects on humans. Viruses are microscopic organisms that may cause plant, animal, or human disease over large areas with significant impact on crop productivity, natural habitats, livestock or human health. Examples of

these microorganisms include typhoid, hepatitis, e-coli, listeriosis, influenza, COVID-19 and many others. If the respondent has noticed an increase in the spread or the frequency of pathogens and related diseases in crops, livestock, or other humans (including foodborne disease and fungal, viral and bacterial pests in plants), record “yes”.

CC.22 Increase spread of parasites (human and animal)

Parasites are organisms (often micro-organisms) that live in other species and benefit by deriving nutrients at their expense. Parasites may cause diarrhoea, malnutrition and compromise the host’s immunity, among many other effects. Examples of parasites that may affect the health and well-being of humans and animals include cryptosporidium, malaria, intestinal worms, trypanosomiasis, oyster-disease protozoa and foodborne parasites, among many others. If the respondent has seen an increase in foodborne disease, malnutrition or other parasite-related disease in the community or in livestock, record “yes”.

CC.24 Freshwater depletion

This refers to elimination of groundwater or aquifers as a result of overconsumption (e.g. sustained pumping of water from the ground or overextraction of water from springs and related water sources). When the water table level is not replaced by rainwater or other sources, it results in complete depletion.

Freshwater depletion could lead to serious water scarcity, affecting households and agriculture industries, deterioration of water quality (contamination or saltwater intrusion), or land subsidence.

CC.25 Eutrophication (higher than usual concentrations of nutrients/phytoplankton in fresh water)

Eutrophication is the overabundance of nutrients in a body of water that results in harmful algal blooms, fish kills and, in some cases, ecosystem collapse. It is a process driven by enrichment of water by nutrients, (e.g. nitrogen and/or phosphorus), leading to increased growth of algae, changes in the balance of nutrients and organisms and water quality degradation. Excessive enrichment of water by these nutrients, commonly found in fertilizers and in sewage, often leads to toxic algal blooms, deterioration of water quality and use and death of plants and animals.

Eutrophication, as defined by the European Environment Agency (2018), is a “process of pollution that occurs when a lake or stream becomes over-rich in plant nutrient; as a consequence it becomes overgrown in algae and other aquatic plants. The plants die and decompose. In decomposing the plants rob the water of oxygen and the lake, river or stream becomes lifeless. Nitrate fertilizers which drain from the fields, nutrients from animal wastes and human sewage are the primary causes of eutrophication.”

CC.26 Salinization of fresh water (aquifers, wells, etc.), sea water intrusion

Salinization refers to the accumulation of salt in the soil (soil salinization) or in freshwater sources such as aquifers and wells (freshwater salinization).

Freshwater salinization happens when salty water runoff from human activities or agricultural or industrial practices reaches and contaminate the freshwater source.

Sea water intrusion, on the other hand, is the infiltration of sea water into freshwater sources such as aquifers.

Both freshwater salinization and sea water intrusion results in the contamination and eventual degradation of water quality.

CC.27 Ocean acidification (coral bleaching, damaged or dissolved shells in shellfish)

Ocean acidification refers to a reduction in the pH of the ocean water over an extended period, which is caused primarily by uptake of carbon dioxide from the atmosphere and can be caused by other chemical additions and subtractions from the ocean.

Ocean acidification affects biodiversity (e.g. marine life, particularly corals, shellfish, oysters, crabs and plankton) and therefore other organisms that use these as food sources, such as sea birds and humans.

Ocean acidification is most often perceived by humans when shellfish struggle to maintain or form their skeletons or shells, or when coral bleaching (corals turning completely white) is visible.

CC.28 Land degradation (eroded, polluted, salinized, less productive land or soil)

The United Nations Convention to Combat Desertification definition of land degradation is as follows: Land degradation in arid, semi-arid and dry sub-humid areas is a reduction or loss of the biological

or economic productivity and integrity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as (i) soil erosion caused by wind and/or water; (ii) deterioration of the physical, chemical, biological, or economic properties of soil; and (iii) long-term loss of natural vegetation.

When land is degraded – due to erosion, pollution, or salinization – it becomes less fertile thus affecting agricultural productivity, it results in the deterioration of water sources often resulting in water scarcity, and it increases the risk of desertification.

CC.29 Sand mining

Sand mining is the extraction of sand and sand resources (mineral sands and aggregates, such as gravel) from the marine and lake coastlines and riverbeds. This is typically carried out to extract valuable minerals, metals, crushed stone and other components for subsequent processing.

Respondents may perceive increases in the intensity or frequency of sand mining in rivers and coasts, when erosion, lack of natural barriers and salinization, contamination or depletion of freshwater occurs. Marine sand mining in particular may also manifest through water turbidity and decline in the abundance and variety of fauna. Riverine sand mining may manifest through reduced sediment delivery from rivers, accelerated beach erosion and pollution of rivers.

CC.30 Deforestation, forest disturbances

The FAO (1993) definition of deforestation is the conversion of forest to other land uses (regardless of whether it is human-induced). It involves the permanent reduction of the tree canopy and includes areas converted to agriculture, pasture, water reservoirs, mining and urban areas. The term excludes areas where trees have been removed through logging, but forest management is in place to ensure regeneration.

Deforestation results in loss of habitat and biodiversity as well as displacement of people dependent on forest resources, particularly the indigenous population. Agricultural expansion continues to be the main driver of deforestation and forest degradation.

CC.31 Forest invasive species

Forest invasive species are any species that are non-native to a particular forest ecosystem and whose

introduction and spread causes, or are likely to cause, sociocultural, economic or environmental harm or harm to human health. These invasive species include bacteria, fungi, flatworms, nematodes, insects and arachnids, molluscs, amphibians, reptiles, birds, mammals, grasses, plants, trees and shrubs.

The most common examples include coleoptera and lepidoptera insects (butterflies, moths, beetles), Ascomycota disease (caused by sac fungi), acari pests (mites, ticks), artiodactyls (hoofed animals such as bison, dromedary, wild bores, deer) and Santalales (mistletoes and parasitic plants). In addition, nematodes, rodents and primates are important pests. If the respondent has noticed an increase in the numbers of some such non-native organisms, record “yes”.

CC.32 Loss of mangroves

Mangroves are shrubs or trees that grow in coastal saline or brackish water. Mangrove forests help in the fight against climate change by reducing erosion and the impact of storm surges. Mangrove loss and the destruction of mangrove habitat is caused by both human activities in the form of farming, aquaculture and urban development; and natural stressors such as erosion and extreme weather.

Loss of mangroves and their ecosystem services has devastating socioeconomic and environmental consequences for coastal communities, especially in those areas with low mangrove diversity and low mangrove area.

CC.33 Ocean invasive species

Invasive species refer to plant or animal species that are not native or indigenous to a particular geographic area and whose introduction, establishment and spread into new areas threaten ecosystems, habitats, or other species. CC.33 refers specifically to oceanic invasive species. These may include fish or other animals, as well as plants, often introduced through global shipping trade, who may pose a risk to the local species. These include Asian carp outside of Asia, Lionfish outside the Indo-Pacific, Green crab outside of Europe and many others.

CC.34 Wetland loss/degradation

Wetland loss/degradation is a negative trend in wetland condition, caused by physical or human-induced processes resulting in long-term reduction or loss of at least one of the following: biological

productivity, ecological role, or value to humans.

Wetlands are defined as areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 metres. Wetlands may incorporate riparian and coastal zones adjacent to the wetlands and islands or bodies of marine water deeper than 6 metres at low tide lying within the wetlands.

CC.35 Permafrost loss

Permafrost is defined as the ground that remains frozen under 0°C for a minimum of two consecutive years. Permafrost loss is the progressive loss of ground ice in permafrost, usually due to heat. It may cause serious damage to infrastructure, biodiversity loss and carbon dioxide emissions, and it may alter ecosystems more broadly, including by impacting lakes and streams, microbiological communities, changes in sediment and organic matter and nutrient levels.

CC.36 Runoff (non-point source pollution)

Nonpoint sources of pollution refer to pollution sources that are diffused and without a single point of origin or not introduced into a receiving freshwater or maritime environment from a specific outlet. The pollutants are generally carried off the land by storm water run-off. The commonly used categories for nonpoint sources are agriculture, forestry, urban areas, mining, construction, dams and channels, land disposal and saltwater intrusion. The respondent may have noticed water and land pollution and an increase in bacteria and other health hazardous organisms in the water supply caused by run-off from excess fertilizers, herbicides, insecticides, oil, grease, energy production, construction, erosion, salt, abandoned mines, livestock production and faulty septic systems, among other sources.

CC.37 Recurrent pest infestation (e.g. locust, invasive weeds, invasive species)

An insect pest infestation is a recently detected insect pest population, including an incursion (an isolated population of a pest), or a sudden significant increase of an established insect, disease agents or weed population in an area leading to damage to plants in production fields, forests or natural habitats and causing substantial damage to productivity, biodiversity or natural resources. Examples of insect pests include fall armyworm (FAW) and locusts.

Infestations can also take place from the spread of invasive weeds (alien species that become injurious to other plants) and invasive species (alien species whose introduction and spread threatens ecosystems). If the respondent has noticed the recent spread of new species, or overspread of a single species of animal, plant or insect, record “yes”.

CC.38 Recurrent plant disease (bacterial, fungal, mycoplasma, etc.)

Bacterial plant disease is the occurrence of plant diseases caused by bacterial microorganisms over large areas with significant impacts on crop and forest productivity or natural habitat. Examples include blight in fruit trees, bacterial wilt in banana, bacterial blight in rice and crown gall in many perennial plants. Similarly, plant disease may also be caused by fungal agents (multi-cellular organisms that aren't animals nor plants and reproduce through spores). Examples include black knot, clubroot, damping-off, Dutch elm disease, ergot, leaf blister, mildew, oak wilt, rot, rust (including wheat and soybean rust), pine blister, coffee rust, corn smut, snow mould and others. Finally, diseases of large crop or natural habitat areas may also be caused by viral, mycoplasma and viroid plant disease. These include tobacco mosaic virus, cassava virus, banana bunchy top virus, tomato yellow leaf curl virus, cucumber mosaic virus, potato virus, plum pox virus, citrus tristeza virus and barely yellow dwarf virus. If the respondent has noticed widespread presence of these plant diseases, or increased in spread and frequency, record “yes”.

CC.39 Recurrent animal or human disease (airborne, water borne, blood borne, etc.)

This refers to the sustained occurrence of animal or human infectious diseases (e.g. can be spread from one person to another), whether airborne (by speaking, coughing, breathing), water borne (by drinking contaminated water or sharing water receptacles), blood borne (through blood transfusion or blood contact), foodborne (through the consumption of contaminated food and drink), sexually (through sexual contact) or others. Examples include anthrax, tuberculosis, measles, chickenpox, influenza (flu), HIV, hepatitis B and C, cholera, dysentery, HPV and others. Mark “yes” only if the respondent has seen an uptick on the incidence of these diseases compared to years ago (e.g. more people contract them, or they are contracted more frequently).

CC.40 Specify other(s)

5.1 Climate change effect code

a. Measurement goal: This is a placeholder question to identify the slow onset climate change-related effects personally experienced or observed by the respondent, which will be the basis of the follow-up questions Q5.2 to Q5.5.

b. Filtering questions/respondent universe: Ask all respondents.

Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1 through CC.40=1)

c. Instructions: Read the stem question every few instances of climate change related effect. Record first whether each of the effects in the list was experienced, then repeat the sequence of climate change questions (5.2 onwards) for each of the effects.

5.2 Where did you experience this phenomenon?

a. Measurement goal: The aim of this question is to identify the area where the respondent personally experienced or observed the climate change-related effects (whether at home or at work).

b. Filtering questions/respondent universe: Ask all respondents.

Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1 through CC.40=1)

c. Instructions: The area where they experienced the phenomenon refers to where they live or work or any near place (city, village, beach, field) where the phenomenon was apparent or experienced.

Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1 through CC.40=1)

5.3 Did you receive any information about this effect of climate change and its potential impact on you?

a. Filtering questions/respondent universe: Ask for EACH climate change-related effect

experienced or observed by the respondent (CC.1 through CC.40=1).

- b. Instructions:** “Information” could refer to any kind of information received from any source.

Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1 through CC.40=1)

5.4 What was the main source of this information?

- a. Measurement goal:** The aim of this question is to identify the main source of information about the effect of climate change and its potential impact on the respondent.

- b. Filtering questions/respondent universe:** Ask if respondents received information about the particular climate change-related effect they personally experienced or observed.

(Ask if Q5.3=1)

- c. Instructions:** Radio, television, Internet, or apps (phone or tablet applications) refer to medium of sources of information. If a respondent learned from a person through any of these sources, the enumerator should code the medium of source. For example, if a respondent learned from a television report, then this should be coded as “television” (code 2).

Community/friends, local administration, civil society organizations, or children’s school refer to individuals or groups of individuals from which a person received the information, whether in person or through other means such as flyers, phone calls, text messages or meetings.

The enumerator should only record one response.

If the respondent answered multiple sources of information, the enumerator should probe to find out the main source, or the source they used the most.

Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1 through CC.40=1)

5.5 As a result of this phenomenon, did you personally experience any of the following?

- a. Measurement goal:** The aim of this question is to identify whether the respondent who experienced or observed a particular climate change-related affect experienced any consequences as a result of this.

- b. Filtering questions/respondent universe:** Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1. through CC.40=1)

- c. Instructions:** Read out each item from 5.5.a through 5.5.z.i and record the code corresponding to the answer given for each item. Record either “yes” (code 1) or “no” (code 0).

For items 5.5.d through 5.5.p and 5.5.v through 5.5.z.g: there is a third category (code 3) if the item is not applicable to the respondent.

These consequences should have been experienced by the respondents themselves, AND NOT by anyone in the household or other people they know or based on what they saw on television or news.

Ask for EACH climate change-related effect experienced or observed by the respondent (CC.1 through CC.40=1)

5.5.a Searched for additional sources of income (e.g. a side-job, ask for a loan, etc.)

Refers to individuals that had to search for additional sources of income, such as a side-job or ask for loans (for instance, if their income dropped as a result of climate change). Side-jobs, in this question, refers to any form of employment, whether formal or informal, or any income generating activities, whether in cash or kind. Loans refers to sums of money that are borrowed from financial institutions, friends, family or others.

5.5.b Had to preserve food due to limited availability

This refers to the purposeful effort to preserve stored food due to limited availability during or as a result of the phenomenon. Food preservation may include freezing, canning, pasteurizing, blanching, dehydrating, or sun drying, pickling and fermentation, packaging, salting and other forms of preservation.

5.5.c Had to personally eat less due to lack of food/income

Due to the lack of food (scarcity in terms of supply and access) or lack of income to purchase food, the respondent had to eat less than what they normally eat or had to choose foods with lower nutritional value. This includes instances in which the respondent chooses to eat less so other family members could eat more or better food if no sufficient resources are available to feed everyone sufficient nutritious food.

5.5.d Preserved seeds, planting material

This involves saving the seeds from harvest and or preserving planting stocks and bulbs as means of ensuring “seed security”. Seed security refers to farmers having “sufficient access to available good quality seed and planting materials of preferred crop varieties at all times in both good and bad cropping seasons” (Abu, Codjoe and Sward, 2014).

This item has an option for not applicable: “I don’t use seeds/plant material” (code 3).

5.5.e Applied pesticides in higher quantities

This refers to the practice of applying pesticides in higher quantities to better manage pests in crops or livestock, or in aquaculture. Pesticides are substances used to prevent, destroy and control pests (including vectors of disease and unwanted species of animals or plants). If the respondent applies now more pesticides than years ago, record “yes”.

This item has an option for not applicable: “I don’t use land, aquaculture or any other items that may require pesticides” (code 3).

5.5.f Applied antibiotics in higher quantities

This refers to the practice of applying antibiotics in higher quantities to increase productivity in crops or livestock, or in aquaculture. Antibiotics refers to antimicrobial drugs which prevent and treat parasitic, bacterial, viral and fungal infections in plants and animals, including livestock and aquaculture ponds. As climate change is making the conditions for the spread of disease more suitable, an increase in the use of antibiotics may have been experienced by the respondent as a result. If the respondent applies more antibiotics (more quantities, wider variety) now than years ago, record “yes”.

This item has an option for not applicable: “I don’t use land, aquaculture or any other items that may require antibiotics” (code 3).

5.5.g Moved livestock to a different place

This involves moving livestock to a safe place, such as away from the frequently inundated areas, or to an area with sufficient water supply, better grazing opportunities, or more endurable temperatures (e.g. indoors). Livestock refers to domesticated animals being raised to provide meat, eggs, fibres, feathers, or other products.

This item has an option for not applicable: “I don’t raise livestock” (code 3).

5.5.h Agricultural yield decreased

Agricultural yield refers to the amount of crop harvested per area of land. It is usually used to measure the production of crops such as wheat, maize, rice and soybean, but can refer to production of any agricultural products. If the respondent experienced drops in agricultural yield or noticed having to increase the amount of input (e.g. water, fertilizer, time) to produce the same amount of agricultural products as before, record “yes”.

This item has an option for not applicable: “I don’t practice agriculture” (code 3).

5.5.i Agricultural yield increased

Agricultural yield refers to the amount of crop harvested per area of land. If the respondent experienced increases in agricultural yield as a result of climate change related effects (e.g. warmer temperatures compared to years ago, increased precipitation, etc.), or noticed having to use less agricultural input (e.g. water, fertilizer, time) to produce the same amount of agricultural products as before, record “yes”.

This item has an option for not applicable: “I don’t practice agriculture” (code 3).

5.5.j Had to find a new plot for agricultural practices

A land plot is a part or whole of a field on which a specific crop or crop mixture is cultivated. If, as a result of climate change, the respondent had to find a new plot because the previous plot permanently flooded, the land was salinized, or agricultural production dropped for any other climate-related

reason, record “yes”. This item has an option for not applicable: “I don’t practice agriculture” (code 3).

5.5.k Switched to different crops

Switching to more resistant crops (temperature resistant, water resistant, drought resistant, pest resistant, etc.) is an important adaptation mechanism for farmers to ensure high agricultural yield and quality of crops in the context of climate change.

For example, farmers that grow crops affected by warmer temperatures may switch to planting heat resistant crop varieties such as eggplant, okra and sweet potatoes. Alternatively, the respondent may focus on the same crops but use genetically engineered crops prepared to better deal with climate change effects.

If the respondent farms and has switched to different crops (including genetically engineered crops) to better deal with the changing conditions brought about by climate change, such as change in temperature, precipitation, or land quality, record “yes”.

This item has an option for not applicable: “I don’t practice agriculture” (code 3).

5.5.l Fished in a different location

When climate change affects the biodiversity and availability of fish stocks in some locations, individuals may have to switch fishing locations. For instance, as a result of increasing water temperatures, changes in water pH and quality and other reasons, the presence of invasive species, depletion of target species, mass die-offs and other changes in the availability of fish, underwater plants and other underwater species may take place. If the respondent uses a fishing location different from that was used in the past, as a result of these issues (including if new rules and regulations have been introduced to protect threatened or other species), record “yes”.

This item has an option for not applicable: “I don’t fish” (code 3).

5.5.m Hunted in a different location

Climate change may alter wildlife migration patterns, habitational ranges, its health and behaviour. If, as a result of the effects of climate change, the availability and quality of target species decreases, respondents may choose to

hunt in different locations. Similarly, new rules and regulations may be introduced to prevent hunting in protected areas and the targeting of endangered species or species of concern as a result of climate change. If the respondent has changed hunting locations to circumvent these challenges, record “yes”. This item has an option for not applicable: “I don’t hunt” (code 3).

5.5.n Gathered plants/ mushrooms/ forest products in a different location

This refers to instances in which the respondent chose to change their foraging location as a result of climate change; for instance, if the availability of target plants, mushrooms and other forest products decreased as a result of climate change, if their quality was affected, or if new rules and regulations were put in place to protect a now threatened area or species. This item has an option for not applicable: “I don’t gather plants/mushrooms/ forest products” (code 3).

5.5.o Changed jobs

Job, in this question, refers to any income generating activity (in cash or in kind), regardless of whether it is formal or informal and whether or not it is permanent or part-time. Respondents may change jobs as a result of climate change if their previous jobs generate less income, become unsustainable, or become inaccessible, among other reasons. For instance, people whose livelihoods depend on the collection of wild plants or forest animals may need to find other sources of livelihood as a result of biodiversity loss or forest transition. Similarly, workers with health concerns due increasing ambient air pollution, may need to seek indoor jobs, fishermen whose catches of wild fish have dropped may switch to fish farming or other jobs. If the respondent has switched jobs over the years as a result, directly or indirectly, of climate change effects, record “yes”. This item has an option for not applicable, which refers to employment prior to the hazard taking place: “I wasn’t employed before” (code 3).

5.5.p I lost my job

This response refers to individuals who, as a result of climate change, lost income generating opportunities and were unable to find a new form of employment. Record “yes” if the respondent noted their previous job is no longer an option due to changes in the climate but have not been able to find a new job.

This item has an option for not applicable: “I wasn’t employed before” (code 3).

5.5.q My mental health was affected (stress, anxiety)

Mental health refers to a state of well-being in which an individual realizes their own abilities and can cope with the stresses of life, work productively and is able to contribute to their community. For this question, record “yes” if the respondent notes their mental health, including stress and anxiety, have worsened as a result of climate change. For instance, this may be the case due to loss of livelihoods and income, loss of biodiversity and livestock, or due to feeling of defeat to deal with current climate crisis.

5.5.r Own physical health was affected

This question refers to individuals who perceive their own physical health (injuries, illnesses, trauma) has worsened as a result of climate change. This may be the case, for instance, if the person contracts vector-borne diseases with higher frequency than years ago, or if they have contracted any other climate-related disease or illness, such as lung cancer or cardiovascular disease associated with air pollution or liver disease from changes in water quality.

5.5.s Repaired/ made changes to my house

This refers to fixing or re-building sections of the dwelling and surrounding areas, as a result of climate change. For instance, to cope with frequent flooding, to better insulate the house against heat, or to install filtering systems to deal with decreasing water and air quality, among many other repairs. This also includes instances in which the individual had to purchase specific household devices to deal with climate-related consequences, such as air purifiers and portable thermostats.

5.5.t Moved to a different house or area

These include instances in which individuals leave their residence to avoid exposure to recurring climate-related effects. This could be the case, for instance, if a person living in a coastal area moves a few kilometres further inland to avoid the effects of sea level rise. Similarly, a person may choose to move to a different nearby locality to escape industrial run-off or distance themselves from air and water pollution sources. In more extreme cases, a person may choose to move to a further area, such as a different island

or a different country. For any of these responses, record “yes”.

5.5.u Spent more time performing domestic chores such as such as cleaning, cooking, food processing, animal/pet care, etc.

Climate change effects may prompt individuals to increase time spent on domestic work activities, (unpaid services for the household and household members) such as boiling water prior to consumption, thoroughly washing food to remove parasites or chemical products, making household repairs to temperature-proof the household, caring for their pets to prevent disease, etc.

According to ICATUS (United Nations Statistics Division, 2016), domestic work activities include food and meal management, including cooking, serving, storing and preserving food, cleaning and maintaining the dwelling and surroundings, managing garbage and recycling, keeping plants, maintaining appliances and vehicles, making repairs, washing, ironing and mending clothes, paying bills, managing the household budget, decoration, pet care, shopping for the household or family members and travelling to accompany household goods or people.

5.5.v Time I spent caring for family members (e.g. children, elders, sick, disabled) increased

Climate change effects may prompt individuals to increase time spent on care work activities, (care services for family members) such as healthcare for those are increasingly sick from water and food consumption, or for children dealing with asthma and other pollution-related ailments. This may also include increases in time spent minding children when schools are closed due to recurrent floods, or due to lengthening periods of high or low temperatures, among many other services. According to ICATUS (United Nations Statistics Division, 2016), care activities include feeding, cleaning, providing physical and medical care for others, teaching and training children, playing with children, minding others while doing other activities and any activities regarding child instruction, such as school meetings. Adult care, in addition, also includes other activities such as billing and accounting, accompanying adults to health care visits and other caring responsibilities.

This item has an option for not applicable: “No family members were/are under my care” (code 3)

5.5.w Time I spent fetching water increased

This is applicable for individuals who lack a reliable source of clean water in their household or premises and are therefore prompted to go out and fetch water. Climate-change driven alterations in the availability and quality of water sources may prompt individuals to find alternative sources. If the respondent notes they now spend more time fetching water, such as to reach unpolluted groundwater reservoirs, or because their usual water source is now depleted or of low quality, record “yes”.

This item has an option for not applicable: “I don’t need to fetch water” (code 3).

5.5.x Time I spent on firewood/ fuel collection increased

This is applicable for individuals who are engaged in collecting firewood/fuel as a source of livelihood, whether for own use/consumption or for profit or for wage work.

A disaster/hazardous event could result in damage or lack of access that would make it difficult to engage in collecting firewood/fuel and related activities, including selling, trading and handling the materials. Or they need to find alternative sources in case their usual source has been damaged or destroyed. Hence, they would need to spend more time collecting more materials/raw products or to engage in these activities.

This item has an option for not applicable: “I don’t need to fetch fuel” (code 3).

5.5.y Time I spent on garbage management/ recycling/ picking increased

This is applicable for individuals who pick, sort, or recycle refuse (metal, plastics, paper, electronics, organic matter, etc.), either as part of household garbage management, or as a source of livelihood. Product packaging, the use and type of batteries and other energy storage sources, the food consumed and many other daily household items may change as a result of climate change. As such, the type and intensity of household and industrial garbage production may change, making picking, sorting and recycling garbage more time consuming. If individuals spend more time than years ago managing, recycling, or picking garbage, record “yes”.

This item has an option for not applicable: “I don’t collect/sort garbage” (code 3).

5.5.z Time I spent fishing increased

Fishing refers to the catching, collecting, or harvesting of fish, shellfish, sea snakes and any other marine or freshwater life, including animals and plants. Time spent fishing may increase as a result of fish stock depletion due to changes in water temperature and quality, decreasing quality of health of marine and freshwater life and increasing presence of invasive species, pests, or other non-target species, among many other reasons. As a result, fishing individuals may have to travel further, spend more time harvesting the same fishing sites, or fish in multiple sites. Increases in time may also be associated with discarding of by-catch, post-harvesting operations and related tasks. This item has an option for not applicable: “I don’t fish” (code 3).

5.5.z.a Time I spent on aquaculture increased

As a result of climate change, disease and other challenges might arise on aquaculture ponds. This may require farmers to spend more time managing ponds and performing aquacultural practices, such as applying antibiotics or managing water quality, limiting the incursion of sea water in ponds, managing algal blooms and procuring feed or other aquaculture materials. Increases in time may also be a result of wild fish stock depletion, prompting people to turn to fish farming instead. This item has an option for not applicable: “I don’t practice aquaculture” (code 3).

5.5.z.b Time spent taking care of livestock increased

Climate change and livestock raising are strongly connected. On the one hand, livestock raising is a key contributor to accelerating the effects of climate change, while on the other hand, climate change has impacts on livestock production, as a result of water scarcity, land degradation, more extreme temperatures, more prevalent livestock disease and other challenges to maintain productivity. As a result, farmers may need to spend more time procuring feed for livestock, managing animal disease, moving livestock to different grazing areas, conditioning pens and other stables, etc.

This item has an option for not applicable: “I don’t own livestock” (code 3).

5.5.z.c Time spent processing food increased

Processing food pertains to creating food products, beverages and tobacco, by manufacturing or handling raw ingredients. For instance, it includes drying fish, vegetables and other foods, pickling and canning foods, cleaning, peeling and discarding unusable parts of food items and related activities. Climate change may exacerbate the time spent on food processing as a result of limited availability of food items (prompting respondents to do more preservation when food is available), contamination (more time is needed for food cleaning), increases in temperatures and the spread of microbials (raising the need for better preservation) and other ways.

This item has an option for not applicable: “I don’t process food” (code 3).

5.5.z.d Time spent mining and oil pumping increased

Although mining (including oil pumping) is one of the most important drivers of climate change, climate change also affects mining operations. For instance, water stress disrupts supply to mining sites, flooding causes operational disruptions, closures and unsafe levels at tailing dams, extreme weather and sea level rise can damage processing and transportation mining infrastructure. As a result, respondents may have noticed having to spend additional time performing mining and oil pumping in order to keep production levels.

This item has an option for not applicable: “I don’t mine/pump” (code 3).

5.5.z.e Time I spent foraging increased

As climate change triggers biodiversity loss and affects the quality and availability of plants, mushrooms and other materials in forest areas and other wild areas, it is possible that respondents note increases in time spent collecting foraging. Further, water stresses, pests and other climate-related effects may make agricultural operations unaffordable for some individuals, prompting a switch to foraging instead. Similarly, as climate change affects the availability of other wildlife, such as fish or land animals, respondents may increase the consumption of plants and other foraged materials, thus increasing the time needed to collect them. This item has an option for not applicable: “I don’t collect forage” (code 3).

5.5.z.f Time spent hunting increased

Climate change prompts biodiversity loss and is connected to habitat loss and degradation. As a result, hunting wild animals may become more difficult, or hunters may need to travel longer distances to reach target species. Similarly, water and heat stresses are driving animals away from forests during some seasons and times of the day, potentially lengthening the time needed to catch them. Finally, as the cost of raising livestock and other agricultural operations increases as a result of climate change (e.g. farmers apply pesticides, provide antibiotics, manage pests, travel further to purchase feed due to overgrazing, provide treatment to deal with extreme temperatures, etc.), some people may not be able to afford farming and may turn to hunting instead. Other people who lost their jobs as a result of climate change, may also turn to hunting wildlife and exotic species as a more profitable option. If the respondent spends more time hunting than in the past, and this is related directly or indirectly with the effects of climate change, mark “yes”. This item has an option for not applicable: “I don’t hunt” (code 3).

5.5.z.g Time spent farming increased

Increases in temperatures, changes in precipitation patterns, extreme weather events, spread of infectious plant disease, reductions in water availability and other effects of climate change may all affect agricultural productivity. As a result, farmers may have to spend more time farming to produce equal yields compared to years ago (e.g. managing disease, improving irrigation, applying fertilizers and other growth promoters,

weather proofing agricultural operations, etc.). Alternatively, some people who may have lost sources of income elsewhere as a result of climate change (e.g. foraging or hunting is no longer possible in some areas, fish stock depletion, etc.) may turn to agriculture as a result. If the respondent has noted an increase in time spent farming, as a direct or indirect result of climate change, mark “yes”. This item has an option for not applicable: “I don’t farm” (code 3).

5.5.z.h Crime in my area has increased

Crime in this question refers to any offence that may be punishable by law. In the context of climate change related stressors, this may refer to petty

crime or looting as a result of scarcity of food and other basic items, burglaries and removals of agricultural, fishing and other environmental equipment, products or drugs, or violent crime, including intimate partner violence and other forms of violence against women, which typically worsens in stressful situations. If the respondent perceives crime in their area has increased, regardless of whether or not he or herself was a victim of crime themselves, record “yes”. Do not probe to find out additional information about the type or the perpetrator and victim of the crime.

5.5.z.i I have heard people are experiencing more violence

Violence in this question refers to any form of violent crime (whereby harmful force is used upon one or more victims). In particular, violence may refer to violent crimes perpetrated by strangers or by colleagues, family members or other acquaintances. It also includes intimate partner violence. It includes violence perpetrated through the use of tools (sharps, knives, or guns) or without it. In the context of violence against women, it may refer to physical, sexual, or psychological violence. If the respondent perceives violence in their area has increased, regardless of whether or not him or herself was a victim, record “yes”. Do not probe to find out additional information about the type or the perpetrator and victim of violence. Normally, if a person responds “yes” to this question, they should have responded “yes” to 5.5.z.h (although in communities where intimate partner violence is not perceived as a crime, regardless of its legal status, there may be a discrepancy).

5.6 Were you involved in any committees or institutions where you felt you could influence responses to resolve or mitigate these effects?

- a. **Measurement goal:** The aim of this question is to determine if the respondent is involved in any committees or institutions where they felt they could influence responses to resolve or mitigate the effect of climate change.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** “Any committees or institutions” refers to any committees or institutions that work to set up policies, practices or activities connected to climate change. For instance, committees or institutions working to resolve or mitigate the effects of climate change.

Committees or institutions may include those that are part of any level of government (e.g. national, local, village level), any grassroots level organization or civil society institution, or groups within the private sector.

Examples of committees or institutions include environmental protection groups, natural resource management groups, policy making committees working specifically on climate related issues, environmental degradation remediation groups and others.

4.9 | Module 6 Employment in the green economy

Respondents are asked to provide information on current employment and related work practices to determine whether or not they engage in green jobs. For instance, questions are asked around their engagement in different types of jobs, type of industrial processes, main function at the workplace, production of environmental goods and services and use of environmental technologies and practices in production processes and at work. Many of the questions in this module are only asked to individuals currently in employment.

Green jobs are decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency. Green jobs help to do the following: improve energy and raw materials efficiency; limit greenhouse gas emissions; minimize waste and pollution; protect and restore ecosystems; and support adaptation to the effects of climate change. Green jobs often produce goods or provide services that benefit the environment, for example green buildings or clean transportation (ILO, 2022b).

A “green economy” is defined by the United Nations Environment Programme as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services (UNEP, 2022).

All the questions included in this module have been obtained from international guidance produced by the International Labour Organization.

(Introduction) Now I will ask you some questions about your job and the activities you currently do.

- a. **Measurement goal:** Introduction statement.
- b. **Filtering questions/respondent universe:** Applies to respondents age 18 years or older.

(Ask if Q1.5.a=18 or older)

- c. **Instructions:** Read out loud to the respondent. Emphasize that the questions are about their own job and not on that of the other household members.

6.1 Now I will ask you some questions about your job and the activities you currently do. Which of the following best describes what you are MAINLY doing at present...?

- a. **Measurement goal:** The aim of this question is to identify the main status in employment of the respondent at the time of the interview.
- b. **Filtering questions/respondent universe:** Ask if respondent is age 18 years or older.

(Ask if Q1.5.a=18 or older)

- c. **Instructions:** As defined in the International Standard Classification of Occupations (ISCO-08), a job is a set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self-employment.

Record one answer only. It is possible that respondents are engaged in multiple jobs whereby their employment status may differ. Enumerators should record the employment status of respondent by probing for the MAIN activity the respondents are currently engaged in among those listed. Enumerators should read out each option until the respondent identifies the category that best describes what they are MAINLY doing at present.

“Mainly” refers to the activity that they do for the most time or full-time. For example, if a respondent is working and studying at the same time, the enumerator should probe to find out whether they are working full-time or part-time and studying full-time or part-time. A respondent can work full-time and study part-time or work part-time and study full-

time. There are also cases of individuals who are already of retirement age but could still be working for pay.

6.2 Are the farming, fishing or animal products that you are working on intended ...?

- a. **Measurement goal:** The aim of this question is to identify the purpose of the farming, raising animals, fishing, or fish farming activities of the respondent – for own use/consumption or for sale.

- b. **Filtering questions/respondent universe:** Ask if respondent is mainly working in own farming, raising animals and/or doing fishing or fish farming.

(Ask if Q6.1=2)

- c. **Instructions:** Record one answer only.

Ask respondent if the products from his/her farming, fishing, or animal raising are only or mainly for sale or for family consumption.

Record one answer only. If respondent says the products are both for sale and family consumption, probe to find out the main purpose of farming, fishing, or raising animals – i.e. is it mainly for sale or mainly for family consumption?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022b).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employment or self-employment.

If the purpose is “for sale”, probe to find out the proportion that is for sale – is all the produce and products for sale or only a portion of it.

If the purpose is “for consumption”, probe to find out the proportion that is for family consumption – is all the produce and products for consumption or only a portion of it.

If the respondent says some are for sale and some are for family consumption (half-half, for example), the enumerator should probe to find out the usual proportion for sale and for consumption.

6.3 What are the main (products/animals) that you are working on?

a. Measurement goal: The aim of this question is to record the type of main products or animals that the respondent is working on through farming, fishing, or animal raising that are intended for family consumption.

b. Filtering questions/respondent universe: Ask if the products that the respondent is working on are only or mainly for family consumption.

(Ask if Q6.2=3 or 4)

c. Instructions: Multiple responses are allowed. The enumerator should write down the main goods produced (e.g. maize, rice, apples, oranges, cattle, sheep, freshwater fish, etc).

Enumerators should probe for the main type of agricultural products or animals. For example, if the main produce is rice, the enumerator should record “rice” only and DO NOT probe for specific variety. If the respondent mentions only types, for example, type of fruit, then the enumerator must probe for specific type of fruit – is it apples, oranges, banana? – but not the specific variety.

For animals, if the respondent answers “livestock”, probe for the type of animal – pigs, cattle, sheep? If the answer is a generic “poultry,” specify if chicken, ducks, turkey, or geese?

6.4 Last week, from (DAY) to (DAY), did you ...?

a. Measurement goal: The aim of this question is to verify whether the respondent is engaged in any other paid job within the indicated reference period. Typically a working week, which would be displayed as “Monday to Friday”, “Monday to Sunday”, “Sunday to Thursday” or other

combinations, depending on the country

b. Filtering questions/respondent universe: Ask if respondent is not working for pay at present.

(Ask if Q6.1=4 through 10 and -96 OR Q6.2=3 or 4)

c. Instructions: Record one answer only.

“Generate income” refers to being paid in exchange for work. The income or payment may be in the form of money, products, or services.

Ask respondent if he/she did any other work to generate income, either part-time or unpaid, within specific days from the past week.

If respondent did not contribute to any income generating activity or did not engage in any paid work, proceed to the next module.

6.5 What kind of work do you do in your main job/ business?

a. Measurement goal: The aim of this question is to identify the kind of work done by the respondent in their main job or business.

b. Filtering questions/respondent universe: Ask if the respondent is working for pay (payment may be in the form of money, products, or services) or have their own business activity, or help in a family business.

(Ask if Q6.1=1 or 3, OR Q6.2= 1 or 2, OR Q6.4=1 through 3)

c. Instructions: Occupation is the kind of work performed in a job: a set of jobs whose main tasks and duties are characterized by a high degree of similarity (ILO, 2012).

This is an open-ended question, in which the enumerator will need to probe for the respondent’s occupation title and their main tasks or duties usually performed in their job.

Record specific occupation title of the respondent and specify the main tasks or duties in the main job that he/she is currently doing. For example, Cattle farmer – breed, raise, sell cattle; Policeman – patrol the streets; Primary school teacher – teach children to read, write.

The “occupation/title” provided by the respondent may be too generic or very specific or too vague. This is why it is important that the enumerator be able to probe for the specific tasks and duties done by the respondent in their main job or business. For example, if the respondent answers “teacher” – the enumerator what level of education is the respondent teaching in, whether in primary, high school, or college, or in some cases, what subjects are they teaching (music, physical education, foreign languages?). Another example is “driver” – what specific type of vehicle do they drive – taxi cabs, vans or multi-cabs, tricycles, trucks, ambulance or train?

6.6 What is the main activity of the place where you work?

a. Measurement goal: The aim of this question is to identify the main type of economic activity of the place where the respondent works, including the main products and services of the workplace.

b. Filtering questions/respondent universe: Ask if the respondent is working for pay (payment may be in the form of money, products, or services) or has their own business activity.

(Ask if Q6.1=1 or 3, OR Q6.4=1 through 3)

c. Instructions: This is an open-ended question, in which the enumerator will need to probe for the specific economic main activity of the place where the respondent works, including the main products or services provided.

The “place of work” may refer to an actual establishment (such as an office workplace, retail stores and market stalls), or institutions (such as hospitals, school), or the general environment where work is being done (such as farmland or forest, in the open-seas or in streets).

The enumerator should record the main activity of the place of work and main products, or services provided in the place of work of the respondent. For example: Police Department – public safety; Restaurant – preparing and serving meals; Transport company – long distance transport of goods. For example, if someone is a driver, the enumerator should probe the main activity of the respondent’s place of work – is he a driver for public

transportation vehicles (in which case he will be classified as a car, van, bus, train and motorcycle drivers), for establishments that transport heavy materials (in which case he will be classified as heavy truck driver), or for civil or building construction (in which case he will be classified either an earthmoving and related plant operators or crane operator),

6.7 Do you work as...?

a. Measurement goal: The aim of this question is to determine the employment relationship of the respondent in their current main job – i.e. whether he or she is an employee; a paid apprentice or intern; an employer (with hired employees); an own-account worker (without hired employees); or a helper (without pay) in a family business.

b. Filtering questions/respondent universe: Ask if the respondent is working for pay (payment may be in the form of money, products, or services) or has their own business activity.

(Ask if Q6.1=1 or 3, OR Q6.4=1 through 3)

c. Instructions: Record one answer only.

“Employee” refers to a formal working relationship with an employer, who may either be an individual or a company/establishment.

“Paid apprenticeships” are paid job experiences that usually lead to full-time employment, while “internships” are usually unpaid and only for a specific period of time, hence may not lead to a full-time employment (United States Department of Labor, 2002).

“Employer (with hired employees)” refers to employers who engage paid employees, regardless of how many employees they have. Examples are business owners.

“Employers” are those workers who, working on their own account or with one or a few partners, hold the type of job defined as a self-employed job, and in this capacity, on a continuous basis (including the reference period) they have engaged one or more persons to work for them in their business as employees (OECD, 2002).

“Own-account workers” are a subcategory of self-employed workers who, working on their own account or with one or more partners,

hold the type of job defined as a self-employed job and have not engaged on a continuous basis any employees to work for them during the reference period. “Own-account worker (without hired employees)” are engaged in a business activity on their own, without any paid employees (ILO, 1993).

“Helpers (without pay) in a family business” are those who are working but do not receive any pay, either in the form of money or service, in exchange.

6.8 Does your employer pay contributions to [NAME OF NATIONAL PENSION FUND, HEALTH INSURANCE] on your behalf?

a. Measurement goal: The aim of this question is to identify whether the respondent’s employer is paying for specific benefits contributions on his/her behalf such as national pension fund and health insurance. This information, along with other questions asked in this module, can be utilized to determine the formality of the respondent’s job.

b. Filtering questions/respondent universe: Ask if respondent is either an employee or a paid apprentice/intern.

(Ask if Q6.7=1 or 2)

c. Instructions: “National pension fund” refers to any government-sponsored pension scheme in a specific country. “Health insurance” varies from country to country.

“National pension fund or health insurance” are often mandatory contributions required of employees in some countries. In such instances, the employers deduct the contributions from the wages/salaries and pay directly to the pension fund or health insurance fund on behalf of their employees. In some countries, governments require employers to add employer contributions in addition to the employee-funded.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”

6.9 Is your business registered in the [NAME OF NATIONAL BUSINESS REGISTER]?

a. Measurement goal: The aim of this question is to

identify if the respondent’s business is registered in the country’s national business register This information, along with other questions asked in this module, can be used to determine the formality of the respondent’s job.

b. Filtering questions/respondent universe: Ask if the respondent is working for pay (payment may be in the form of money, products, or services) or has their own business activity.

(Ask if Q6.7=3 or 4)

c. Instructions: “National business registers” refer to country-specific national agency or office whether businesses need to register for accreditation purposes, or to be allowed to operate business in the country.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

6.10 During the past month were you involved in the production of any of the following categories of environmental goods and services intended for consumption outside your worksite? These goods and services also include research and development, installation and maintenance services.

a. Measurement goal: The aim of this question is to identify whether the respondent was personally involved in the production of any environmental goods and services for their job during the past month.

b. Filtering questions/respondent universe: Ask if the respondent is working for pay (payment may be in the form of money, products, or services) or has their own business activity.

(Ask if Q6.1=1 or 3, OR Q6.4=1 through 3)

c. Instructions: Ask the respondent’s involvement in the production of environmental goods and services intended for public consumption such as the following categories. These goods and services also include research and development, installation and maintenance services.

Enumerators should emphasize if the respondent themselves were involved in the production of these environmental good and services as part of their job.

The reference period is within the past month, which is assumed to be the full month preceding the month of the interview.

Read out **each item** from Q6.10.a through Q6.10.h and record the code corresponding to the answer given for each item. Record either “yes” (code 1) or “no” (code 0).

From Q6.10.a through Q6.10.h: It is recommended that the **stem question** be read in full before 6.10.a and 6.10.b, and from Q6.10.c onward it may be re-read as needed.

- **Stem question: During the past month, were you involved in the production of [category of environmental goods and services from Q6.10.a through Q6.10.h] intended for consumption outside your worksite?**

6.10.a Energy from renewable sources

Examples are solar, wind, biomass, solid waste, hydroelectric, etc. This includes any work or activity related to generation of electricity, heat or fuel but also manufacture, installation and maintenance of related machinery and equipment.

6.10.b Energy efficient goods and technologies

Includes any work or activity related to design, manufacture, installation and maintenance of (a) energy efficient manufacturing equipment, domestic electrical appliances, buildings, vehicles and parts for these vehicles; energy efficient lighting (e.g. LED), more efficient burners, stoves, boilers and pumps, water efficient equipment, insulation material; (b) smart grid technologies that improve the efficiency of energy storage and distribution; and (c) provision of efficient transportation technologies and services, including traffic management, intelligent traffic control.

6.10.c Recycling and reuse of resources

This includes any work or activity related to (a) collecting, separating and sorting, recycling, reusing, remanufacturing waste material (e.g. glass, metals, paper, rubber, textiles, etc.); and (b) manufacturing of equipment for waste collection and waste treatment (e.g. containers for collection of recycled materials, waste bags, magnetic separators, shredders, etc.).

6.10.d Sustainable agriculture, fisheries and forestry

This includes any work or activity related to production of agricultural products by using practices conserving land, water and other resources, environmentally non-degrading, technically appropriate, economically viable and socially acceptable.

6.10.e Reduction and removal of pollution and air emissions

This includes any work or activity related to collection, treatment and disposal of waste materials and wastewater, including monitoring and regulation, manufacturing and installation of equipment and technologies for waste collection, waste treatment, air pollution.

6.10.f Protection and natural resource conservation

This includes any work or activity related to protection and remediation of soil, groundwater and surface water, biodiversity, wildlife and landscapes, aquatic resources, timber resources, etc. It includes identification and analysis of sources of pollution, mechanisms of dispersion of pollutants and research for prevention and removal of pollution.

6.10.g Environmental compliance, education and training and public awareness

This includes any work or activity related to general environmental administration and management and enforcement of environmental regulations and standard, education and training related to green technologies and practices, increasing public awareness of environmental issues.

6.10.h Other environmental goods and services (that benefit the environment or conserve natural resources) not mentioned previously

If the respondent did not mention other environmental goods and services, proceed to next question (Q6.11).

6.10.i Please describe

Specify any involvement mentioned in category 6.10.h.

6.11 During the past month what percentage of your working time did you spend on the production of environmental goods and services (reported in Q6.11 through Q6.18)? (Complete if “yes” to at least one category in Q6.11 through Q6.18, otherwise go to Q6.20)

a. Measurement goal: The aim of this question is to estimate the proportion of working time spent by the respondent on the production of the environmental goods and services within the categories identified in Q6.10.

b. Filtering questions/respondent universe: Ask if respondent answered “yes” (code 1) in categories identified in Q6.10.

(Ask if at least one item in Q6.10.a through Q6.10.h=1)

c. Instructions: Ask the respondent to give an estimated proportion of their working time (over the past month) spent in the production of the environmental goods and services he/she is involved in.

Record one answer only. Ask respondent to choose from the range provided in options 1 to 3.

6.12 During the past month, did you use one or more of the following environmental technologies and practices at your worksite in order to reduce the environmental impact of your establishment’s operations or to make more efficient use of natural resources in the production process?

a. Measurement goal: The aim of this question is to identify whether, in the past month, the respondent used any environmental technologies and practices at work in order to reduce the environmental impact of the establishment’s operations or to make more efficient use of natural resources in the production process.

b. Filtering questions/respondent universe: Ask if the respondent is working for pay (payment may be in the form of money, products, or services) or has their own business activity.

(Ask if Q6.1=1 or 3, OR Q6.4=1 through 3)

c. Instructions: Ask the respondent’s usage of one or more of the following environmental

technologies and practices at his/her worksite in order to reduce the environmental impact of the establishment’s operations or to make more efficient use of natural resources in the production process.

Please refer to his/her usage during the past month before the date of interview. (Past month could refer to the full 30 days before the date of interview, that is, August 25 to September 25 for a survey done on September 26, or to the full month before the month when the interview is done, that is August 2022 for a survey done in September 2022).

Enumerators should emphasize if the respondent themselves were involved in the production of these environmental goods and services as part of their job.

The reference period is within the past month, which is assumed to be the full month preceding the month of the interview.

Read out each item from Q6.12.a through Q6.12.h and record the code corresponding to the answer given for each item. Record either a “1” (Yes) or “0” (No).

From Q6.12.a through Q6.12.h: It is recommended that the stem question be read in full before Q6.12.a and Q6.120.b, and from Q6.12.c. onward it may be re-read as needed.

- **Stem question: During the past month, did you use one or more of the following environmental technologies and practices at your worksite [category of environmental technologies and practices from Q6.12.a through Q6.12.h]?**

6.12.a Energy from renewable sources

Examples are electricity, heat, or fuel from renewable sources, includes installation and maintenance of equipment (photovoltaic panels, solar panels, etc.)

6.12.b Energy and water efficiency

Examples are water leakage reduction, water recycling, rainwater catchments, low-energy and/or low-water using appliances, efficient energy transmissions, etc.

6.12.c Recovery, reuse and recycling of resources and/or substitution of natural resources

This includes using technologies or practices to reduce the withdrawals of natural resources, or eliminate the creation of waste material as a result of establishment's operations (e.g. collect, recycle and remanufacture glass, metals, paper, rubber, textiles and other waste material and wastewater, composting solid waste, etc.).

6.12.d Sustainable agriculture, fisheries and forestry

Examples are practices conserving land, water and other resources, environmentally non-degrading, technically appropriate, economically viable and socially acceptable.

6.12.e Prevention, reduction and removal of pollution and air emissions

Such as waste materials, wastewater, fumes

6.12.f Environmental protection and natural resource conservation

Examples are protecting biodiversity, water, landscapes, forests, etc..

6.12.g Research, planning, maintenance and control of technologies

This refers specifically to environment-related research, planning maintenance and control technologies.

6.12.h Other environmentally friendly technologies and practices not mentioned previously

6.12.i Please describe

Specify any environmentally friendly technologies and practices mentioned in category 6.12.h.

6.13 During the past month what percentage of your time did you spend researching, developing, maintaining, using or installing technologies and practices reported in 6.12?

- a. Measurement goal:** The aim of this question is to estimate the share of time spent by the respondent on researching, developing, maintaining, using or installing technologies and practices reported in Q6.12.

- b. Filtering questions/respondent universe:** Ask if respondent answered "yes" (code 1) in any of the categories (letters a through h) in Q6.12.

(Ask if at least one item in Q6.12a through Q6.12h=1)

- c. Instructions:** Ask the respondent to give an estimated proportion of their working time in the past month that they spent on researching, developing, maintaining, using or installing technologies and practices reported in 6.12.

Record one answer only. Ask respondent to choose from the range provided in options 1 to 3

4.10 | Module 7 Agriculture and land use

The questions in module 7 ask about the respondent's personal engagement in any agricultural activities in the past 12 months such as farming or raising or tending any animals. Engagement in agriculture may take place in the context of subsistence farming, selling produce, wage work, leisure, or for religious purposes, tradition or other reasons. Ask all respondents. Those who engage in at least one way should be asked the remaining questions in this module.

This module collects data on various agricultural and land use practices. For instance, there are questions about whether each household member operates land, the type of farming they do, their income or gain, soil degradation and aggravating practices, irrigation techniques, quality and allocation, type of fertilizer, use of pesticides, environmental risks of agricultural practices, environmental practices for land conservation, organic certification, decision-making around agricultural practices, natural resources and biodiversity in the context of land and agriculture.

It is important to note that, contrary to agricultural surveys and censuses, the unit of analysis for this module is the individual and not the agricultural plot. In this regard, the data collected from this survey will differ from estimates generated from agricultural censuses and surveys. The gender-environment survey will capture the practices of all people who interact with land and agriculture, regardless of whether they live in an agricultural household or whether they grow produce for profit, subsistence or leisure. It is thus discouraged to attach this module to agricultural surveys or censuses, as the reference population used for these instruments will be different.

Agriculture or farming is the cultivation and breeding of animals, plants and fungi for food, fibre, biofuel, medicinal plants and other products used to sustain and enhance human life (FAO, 2022a). It encompasses activities from the preparation of cultivation up to distribution in the market or consumption.

Agricultural land is “used primarily for the production of plant or animal crops, including arable agriculture, dairying, pasturage, apiaries, horticulture, floriculture, viticulture, animal husbandry and the necessary lands and structures needed for packing, processing, treating, or storing the produce” (European Environment Agency, 2022)

For this survey, all human interactions with agriculture, including whether planting, growing or raising is performed for leisure or other purposes, should be considered as agriculture.

(Introduction) I will now ask you some questions about agricultural activities. These refer to farming of both animals (animal husbandry) and plants (agronomy, horticulture).

- a. **Measurement goal:** Introduction statement
- b. **Filtering questions/respondent universe:** Applies to all respondents.
- c. **Instructions:** Read out loud to the respondent.

The questions in this section are about the respondent’s agricultural activities in the past 12 months.

“Agricultural activities” covers both the farming of plants and animals. It is usually just referred to as “farming”. For purposes of this questionnaire, “farming” is understood to refer to both the farming of plants and animals, including fish and shrimp ponds.

“Agronomy” refers to the science of growing food crops. “Horticulture” refers to the science of growing fruits, shrubs, trees, vegetables, or ornamental plants for food production.

“Animal husbandry” refers to the rearing, breeding and raising of animals – livestock, poultry, or fish.

7.1 In the past 12 months, did YOU personally operate any land (including orchards and kitchen gardens) for agricultural purposes or raise or tend any livestock (e.g. fish, shrimp, cattle, goats, chickens, etc.)?

- a. **Measurement goal:** The aim of this question is to identify whether the respondent personally operated any land for agricultural purposes or raise any livestock animals in the past 12 months
- b. **Filtering questions/respondent universe:** Applies to all respondents.
- c. **Instructions:** Ask if the respondent himself/herself personally operated land (including orchards and kitchen gardens) for agricultural purposes or raise or tend any livestock (e.g. fish, shrimp, cattle, goats, chickens, etc.). Whether the land or livestock were tended for economic purposes, subsistence farming or leisure is irrelevant to this question. All people who operated land or tended to livestock, regardless of the purpose, should be recorded as “yes”.

The respondent is considered to have been “involved in agricultural activities” OR “farming” if he operated land for agricultural purposes or raised or tended livestock.

“Personally” refers to the personal experience or engagement of the respondent themselves and not to the experiences of other household members or the experience of the household as a unit.

The agricultural land or the livestock may be owned by the respondent or by someone else (who may be a household member or not).

Q7.1 is an important filter question to screen respondents who were personally involved in agriculture and land use in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked. If “no” (code 2), then the rest of questions in this module will be skipped; the interview will continue to module 8.

7.2 Was farming MAINLY performed...?

- a. **Measurement goal:** The aim of this question is to identify the purpose of the respondent’s personal engagement in any agricultural activities in the past 12 months.

- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

- c. Instructions:** Record one answer only. Ask the respondent's MAIN purpose of personally engaging in any agricultural activities or farming, i.e. is it for own use/consumption of the household, for sale/profit, for wage work, or for leisure, tradition, religion, or other purpose?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for final use by the producer, their household and/or their family. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a). Farming for own use/household consumption is known as subsistence farming.

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employment or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If the agricultural activities have multiple purposes, the enumerator should probe for the purpose that is most common.

7.3 In the past 12 months, did you individually make any income/monetary gains from agricultural activities related to farming, raising animals?

- a. Measurement goal:** The aim of this question is to know whether the respondent has personally made any income from the agricultural activities mainly done for own use/consumption or for sale.

- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months for own use/consumption or for sale/profit.

(Ask if Q7.2=1, 2 or 4)

- c. Instructions:** “Income or monetary gains” refers to payment from sale or profit or from rentals related to farming or raising animals.

If the respondent themselves made any individual income/monetary gains from those agricultural activities such as farming or raising animals in the past 12 months record “yes”. If another household member makes the income or monetary gains, then record “no”.

7.4 What is the approximate share of your individual income that came from Agriculture? (include income from selling, trading and handling these materials)

- a. Measurement goal:** The aim of this question is to estimate the proportion of individual income that comes from the respondent's personal engagement in agricultural activities.

- b. Filtering questions/respondent universe:** Ask if the respondent made any income/monetary gains from agricultural activities related to farming or raising animals in the past 12 months.

(Ask if Q7.2=3 or Q7.3=1)

- c. Instructions:** Ask the respondent to give an estimated proportion of their personal income that came from agriculture in the past 12 months. The approximate share includes individual income from selling, trading and handling materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don’t know” (code -98).

7.5 In the past three years, have you experienced any of the following soil degradation threats on the land you operate?

a. Measurement goal: The aim of this question is to know if the respondent has any experience of soil degradation threats in the agricultural land, he/she has been operating the past three years.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

c. Instructions: The reference period is the “past three years”, as opposed to the past 12 months. This is because soil degradation effects may only be noticeable in the longer term.

Enumerators should read out each item and record the code corresponding to the experience of respondent in the past three years. Record “none or the above” (code 7) ONLY if the respondent volunteers “none of the above”.

Multiple responses are allowed.

“Soil degradation” refers to the “change in the soil health status resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries” (FAO, 2022b).

“Soil erosion” or the loss of topsoil through wind or water erosion refers to the “natural process of soil loss or degradation that results in partial or complete loss of agricultural or livestock productivity. It can be naturally caused by the abrasive action of water or wind and enhanced by overgrazing, or by unsuitable cultivation practices” (FAO, 2022b).

“Reduction of soil fertility” is the decline in the “ability of a soil to sustain plant growth by providing essential plant nutrients and favourable chemical, physical and biological characteristics as a habitat for plant growth” (FAO, 2022b).

“Waterlogging, including by floods” refers to the “natural flooding and over-irrigation that brings water at underground levels to the surface. As a consequence, displacement of the air occurs in the soil with corresponding changes in soil processes and an accumulation of toxic substances that impede plant growth” (OECD, 2006).

“Salinization” refers to the process by which water-soluble salts accumulate in the soil (FAO, 2009). Salinization refers to the accumulation of salt in the soil (soil salinization) or in freshwater sources such as aquifers and wells (freshwater salinization).

“Pollution or chemical spill” refers to the contamination of environment brought by release of pollutants such as hazardous chemicals in solid, liquid or gas form.

7.6 What would you say is the proportion of land area affected by those soil degradation threats?

a. Measurement goal: The aim of this question is to estimate the proportion of agricultural land area operated by the respondent which has been affected by any soil degradation threats in the past three years.

b. Filtering questions/respondent universe: Ask if respondent experienced any soil degradation threats in the agricultural land being operated in the past three years.

(Ask if Q7.5=1 through 5, -96)

c. Instructions: Ask the respondent to give an estimated proportion of their agricultural land area which has been affected by any soil degradation threats that he/she identified in the previous question (Q7.5).

The estimated proportion should be based on the total land area of agricultural land holdings operated that have been affected by soil degradation threats.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of the land area. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don’t know” (code -98).

7.7 Did this land use water to irrigate crops during the past 3 years?

a. Measurement goal: The aim of this question is to know whether the agricultural land operated by the respondent used water to irrigate crops in the past three years.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

c. Instructions: Irrigation is the “application of water to soil for the purpose of supplying the moisture essential for plant growth (Pescod, 1992).”

Water is taken from sources nearby and brought to the agricultural land through irrigation channels, gates and canals, a pipe system, or watering cans. Water sources may be fresh water from wells, streams, or river, or from wastewater or directly from the household.

This is a modified yes/no question, in which the first category corresponds to an answer of “yes” and three categories that correspond to “no” and their reason for not using irrigation (codes 2, 3, 4).

If the respondent gives a generic “no”, probe the respondent to choose from three options as to why irrigation was not used for this land: “No, I don’t need irrigation” (code 2); “No, I can’t afford irrigation” (code 3); or “No, there is no water available” (code 4).

7.8 What would you say is the proportion of the land area that is irrigated?

a. Measurement goal: The aim of this question is to

estimate the proportion of irrigated agricultural land area operated by the respondent in the past three years.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.7=1)

c. Instructions: Ask the respondent to estimate the proportion of agricultural land area which has been irrigated in the past three years.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give the size of the land area. However, enumerators should not accept the actual value or land area. Do not accept range of amounts/values or size, or responses that are descriptions of land area.

If the respondent cannot give an estimate, record “don’t know” (code -98).

7.9 What type of water do you use to irrigate your agricultural land?

a. Measurement goal: The aim of this question is to identify the type of water used to irrigate agricultural land operated by respondent. Some types of water may carry environmental and health risks when used for land irrigation.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.7=1)

c. Instructions: Read out each option and record the code corresponding to the type of water used to irrigate respondent’s agricultural land in the past three years. If respondent mentions any other type of water, record “other” (code -96); there is no need to specify the other source.

Multiple responses are allowed.

“Fresh water” includes water from a stream, river, lake or well.

“Piped clean water” includes water that is distributed using a pressurized network that

is professionally operated and maintained, whether by the government, a private firm, or an organization in the community. The water is mechanically pushed through pipes to a location where it can be either collected or stored for later retrieval

“Wastewater” is used water that includes either domestic or industrial run-off.

“Greywater” includes water generated from households or establishments usually coming from bathroom sinks, showers, washing machines that do not contain serious contaminants.

“Rainwater” refers to water that has been collected from rain, snow or other form of precipitation.

7.10 Are you observing any reduction in the availability of water from your preferred irrigation source?

a. Measurement goal: The aim of this question is to determine if the respondent has observed any indication of reduction in the availability of water from their preferred irrigation source. The question can provide some proxy information on the effects of climate change and environmental degradation on water availability.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.7=1)

c. Instructions: This is a modified yes/no question, in which two categories correspond to “yes” and their observations of reduction in availability of water from their preferred irrigation source (codes 1 and 2) and one answer corresponds to “no” (code 0).

If the respondent did not observe any reduction in availability of irrigation water from their preferred source, record “No, water is always available in sufficient quantity when I need it” (code 0). If the respondent answers with a generic “yes”, the enumerator should probe if their answer is closer to because the water is “progressively going down/getting scarcer” (code 1) or “water is increasingly polluted” (code 2).

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

7.11 Are there organizations dealing with water allocation in the area where this land is located?

a. Measurement goal: The aim of this question is to determine the presence of any organizations dealing with water allocation in the area where the respondent’s agricultural land is located based on their own knowledge.

b. Filtering questions/respondent universe: Ask respondent who has observed reduction in the availability of water in their preferred source of irrigation water or noted that the water is increasingly polluted.

(Ask if Q7.10=1 or 2)

c. Instructions: Organizations in this question refers to groups formally organized either by the government, the private sector, a group of farmers or civil society. It may also refer to informal groups of farmers or water source providers.

Let the respondent interpret what “working well” means.

Read out each option and record the code corresponding to the respondent’s observation. This is a modified yes/no question.

If the respondent answers with a generic “yes”, the enumerator should probe whether the organization is working well or not.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”

7.12 Did this land use any synthetic or mineral fertilizer or animal manure/ slurry for crops during the past 12 months?

a. Measurement goal: The aim of this question is to determine whether any synthetic or mineral fertilizer or animal manure/slurry was used for crops in the land during the past 12 months

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

- c. **Instructions:** “Fertilizer” refers to a chemical or natural substance or material that is used to provide nutrients to plants, usually via application to the soil, but also to foliage or through water in rice systems, fertigation or hydroponics or aquaculture operations (FAO, 2022d). The use of fertilizers may sometimes carry environmental and health concerns.

“Synthetic or mineral fertilizers” are chemically derived fertilizers. These are different from “organic fertilizers,” which are derived from natural sources such as soil microbes or organic waste.

“Animal manure/ slurry” refers to organic matter derived from animal faeces and urine. This is typically referred to as “slurry” when solids are suspended in liquid, usually in a pit.

Read out each option and record the code corresponding to the respondent’s observation.

Record either “yes” (code 1) or “no” (code 0).

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

7.13 Are you aware of any environmental risks associated with the excessive use or misuse of fertilizer?

- a. **Measurement goal:** The aim of this question is to know whether the respondent is aware of any environmental risks associated with the excessive use or misuse of fertilizer.

- b. **Filtering questions/respondent universe:** Ask if respondent used any synthetic or mineral fertilizer or animal manure/slurry for crops during the past 12 months.

(Ask if Q7.12=1)

- c. **Instructions:** Record either “yes” (code 1) or “no” (code 0).

Respondents might volunteer to identify the environmental risks they are aware of or have observed – enumerators do not need to record this.

7.14 Have any specific measures been taken during the past 12 months to mitigate the environmental risks associated with the use

of synthetic and mineral fertilizers for this agricultural land?

- a. **Measurement goal:** The aim of this question is to know whether the respondent took any specific measures during the past 12 months to mitigate the environmental risks associated with the use of synthetic and mineral fertilizers for his/her agricultural land.

- b. **Filtering questions/respondent universe:** Ask if respondent who used any synthetic or mineral fertilizer or animal manure/slurry for crops during the past 12 months is aware of any environmental risks associated with its misuse.

(Ask if Q7.13=1)

- c. **Instructions:** “Mitigate” means to lessen the effect or make it less serious.

Record either “yes” (code 1) or “no” (code 0).

7.15 During the past 12 months, which specific measures were taken or adopted?

- a. **Measurement goal:** The aim of this question is to identify specific measures taken or adopted by respondent to mitigate environmental risks associated with the use of synthetic and mineral fertilizers during the past 12 months.

- b. **Filtering questions/respondent universe:** Ask if respondent has taken any specific measure to mitigate environmental risks associated with the use of synthetic and mineral fertilizers for their agricultural land.

(Ask if Q7.14=1)

- c. **Instructions:** Read out **each option** and record “yes” (code 1) or “no” (code 0) based on the specific environmental risk mitigation measures that were taken or adopted by respondent for his/her agricultural land.

Follow protocols (as per extension service/ retail directions/ local regulations) not exceeding recommended doses. This means that the respondent followed protocols or guidelines on what dosage should be used, thus ensuring that they do not use more fertilizers than necessary.

Use organic sources of nutrients (e.g. manure or composting residues) alone or in combination

with synthetic or mineral fertilizers. This refers to the use of organic sources of fertilizers, such as organic compost, livestock manures or poultry droppings and domestic waste. Organic sources may be used alone or in combination with synthetic or mineral fertilizers.

Use legumes as a cover crop, or component of a multicrop or pasture system to reduce fertilizer inputs. Cover crops, according to the Soil Science Society of America, are “close-growing crops that provides soil protection, seeding protection and soil improvement between periods of normal crop production”. Legumes are commonly used as cover crops. Commonly used legume cover crops include clover, crimson clover, vetch, peas, beans (Sustainable Agriculture Research and Education, 2022).

Distribute synthetic or mineral fertilizer application over the growing period. This entails the application of fertilizers in different times throughout the growing period, ensuring that there is no over concentration of fertilizer application.

Consider soil type and climate in deciding fertilizer application doses and frequencies. This requires the respondent to do some research on soil type and climate before they decide on what dose of fertilizer they should use and how often. This activity ensures that the fertilizer is applied within suitable conditions, such as that it would not result in run-off, including by preventing the application before severe weather.

Use soil sampling at least every 5 years to perform nutrient budget calculations. This activity indicates that the individual is actively sampling the soil every five years to perform nutrient budget calculations. The individual uses the soil sampling results to adjust the dosage and frequency of fertilizer application.

Perform site-specific nutrient management or precision farming. “Precision farming” refers to “a farming system that uses GPS technology involving satellites and sensors on the ground and intensive information management tools to understand variations in resource conditions within fields. This information is used to apply fertilizers and other inputs more precisely and to predict crop yields more accurately” (FAO, 2022c).

Use buffer strips along water courses. “Buffer strips” refer to “a strip of living trees and/or shrubs maintained mainly to provide shelter or to mitigate the impacts of actions on adjacent lands, to enhance aesthetic values, or as a best management practice” (FAO, 2022c).

7.16 During the past 12 months, were any pesticides used on this land for crop or livestock production?

a. Measurement goal: The aim of this question is to know whether respondent used any pesticides for their agricultural land for crop or livestock production during the past 12 months. The use of pesticides may sometimes carry environmental and/or health concerns.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

c. Instructions: Pesticides are chemical substances/materials used to “protect crop plants from competition from abundant but unwanted plants (i.e. weeds) and to protect crop plants and livestock from diseases and depredations by fungi, insects, mites and rodents” (Freedman, 1995).

Pesticides include insecticides, herbicides, fungicides, rodenticides, or biocides.

Record either “yes” (code 1) or “no” (code 0).

7.17 What type of pesticides were used on this land during the past 12 months?

a. Measurement goal: The aim of this question is to identify the type of pesticide used by respondent on their agricultural land during the past 12 months.

b. Filtering questions/respondent universe: Ask if respondent used any pesticides for crop or livestock production in their agricultural land during the past 12 months.

(Ask if Q7.16=1)

c. Instructions: Ask respondent to choose among the two options for the types of pesticides that he/she used for crop or livestock production








during the past 12 months, depending on their hazard risk.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”. Multiple responses are allowed.

Pesticides are generally known to be hazardous to human health and the environment, thus

pesticides must be properly labelled as to its proper application and its level of toxicity. The level of toxicity is indicated by signal words and hazard symbols.

Shown in the figure below is a summary of signal words and hazard symbols, adapted from the Canadian Center for Occupational Safety (2022).

| Four important symbols and words that show the potential hazards of pesticides. | | The hazard symbol will always appear INSIDE one of the shapes shown below. These shapes and their warning words tell you the degree of hazard of the pesticide. The greater the number of sides to the shape, the more hazardous the product. | | |
|---|--|---|--|-------------|
| Hazard Symbol | Signal Word | Hazard Degree | Warning Symbol | Signal Word |
|  | Poison (Hazard by oral, skin or inhalation routes; may cause irritation.) | Triangular shape means LOW hazard (3 sides) |  | Caution |
|  | Corrosive (Product is corrosive to the skin and eyes; can cause chemical burns. It is either an acid or alkali (caustic).) | Diamond shape means MODERATE hazard (4 sides) |  | Warning |
|  | Flammable (Pesticide has low flash point and is flammable or easily ignited.) | Octagonal shape means HIGH hazard (8 sides) |  | Danger |
|  | Explosive (Pesticide can explode (e.g. pesticide in pressurized cans).) | Check the label for special warnings about eye hazards and skin hazards. The front panel of the pesticide label may also contain warnings that tell you the product is corrosive to eyes, or is a skin or eye irritant. | | |

7.18 Are you aware of any environmental and health risks associated with the use of pesticides?

- a. Measurement goal:** The aim of this question is to determine whether respondent is aware of any environmental and health risks associated with the use of pesticides.
- b. Filtering questions/respondent universe:** Ask if respondent used any pesticides for crop or livestock production during the past 12 months.

(Ask if Q7.16=1)
- c. Instructions:** Record either “yes” (code 1) or “no” (code 0).

Respondents might volunteer to identify the environmental and health risks they are aware of or have observed – enumerators do not need to record this.

7.19 In the land you use for farming, have any specific measures been taken to protect people from pesticide-related health risks during the past 12 months?

- a. Measurement goal:** The aim of this question is to identify specific measures taken by the respondent to protect people from pesticide-related health risks during the past 12 months.
- b. Filtering questions/respondent universe:** Ask if respondent used any pesticides for crop or livestock production during the past 12 months.

(Ask if Q7.16=1)
- c. Instructions:** Read out each option and record the code corresponding to the respondent’s observation. This is a modified yes/no question. Codes 1–3 are considered “yes” and code 4 is “no”.

If respondent gives a generic “yes”, the enumerator should probe to specify which

of the three response options from codes 1–3 are applicable to them. Multiple responses are allowed only for codes 1–3.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

7.20 Were any of the following measures taken to avoid other environmental-related risks on the land you use for agriculture or livestock raising?

a. Measurement goal: The aim of this question is to determine whether respondent has taken any of the identified measures to avoid other environmental-related risks on the land used for agriculture or livestock raising.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

c. Instructions: Read out **each option** slowly and record “yes” (code 1) or “no” (code 0) based on the measures taken by the respondent to avoid environmental-related risks on the land that he/she is using for agriculture or livestock raising.

Adjustment of planting time. This entails aligning planting time with periods of ideal temperatures and rainfall to avoid crop damage or improve crop yield. This is a cultivation strategy in which the time for planting crops is adjusted – either shorten or prolong growing season – in consideration of the season, temperature and soil condition.

Application of crop spacing. “Crop spacing” refers to the distance between crops planted in a portion of an agricultural land.

Application of crop rotation. “Crop rotation” refers to the alternation of different crops by elds and by years, for example, the alternation of cereals (maize and wheat) followed by legumes (for example, beans) (United Nations Statistics Division, 1997).

Application of mixed cropping. “Mixed cropping” is a system of sowing two or three crops together on the same land, one being the main crop and the others the subsidiaries (United Nations Statistics Division, 1997).

Application of inter-cropping. “Inter-cropping” refers to growing two or more crops simultaneously on the same field. Crop intensification is in both time and space dimensions (United Nations Statistics Division, 1997).

Perform biological pest control. This refers to “pest management strategy making use of living natural enemies, antagonists or competitors and other self-replicating biotic entities” (Kenis, et. al, 2019).

Use of biopesticides. “Biopesticides” are certain types of pesticides derived from such natural materials as animals, plants, bacteria and certain minerals. For example, canola oil and baking soda have pesticidal applications and are considered biopesticides” (EPA, 2022b).

Adopting pasture rotation to suppress livestock pest population. This means that only one portion of pasture is grazed at a time while the remainder of the pasture rests”.

Systematic removal of plant parts attacked by pests. This is part of an integrated pest management strategy, in which individuals regularly monitor, document and remove pests.

Adherence to label directions for pesticide application. Pesticides are required to use labels to indicate the recommended dosage and frequency of application. This entails adherence to – or following – the directions as shown in the labels.

Maintenance and cleansing of spray equipment after use. This activity ensures that the residual pesticides are removed from the equipment after every use. Proper maintenance also ensures efficiency in application.

Use one pesticide no more than two times or in mixture in a season to avoid pesticide resistance. Individuals often mix pesticides to ensure efficiency in application, that is, based on optimum application based on local pest and environmental conditions. However, some mixing practices often lead to pesticide resistance – using the same pesticide repeatedly over a time period to control a pest may result in the pest developing resistance, or they can no longer be controlled by the same pesticide. According to the Pesticide Environmental Stewardship: “Resistance is

defined as a change in the sensitivity of a pest population to a pesticide, resulting in the failure of a correct application of the pesticide to control the pest. Resistance can develop when the same pesticide or similar ones with the same mode of action are used over and over again. It often is thought that pests change or mutate to become resistant.”

Use of traditional knowledge for sustainable crop management (e.g. trimming leaves, angling roots so saltwater drains off, etc.). This is one strategy in sustainable agriculture in which an individual uses traditional or indigenous system of knowledge in agriculture for crop management. These practices are passed down from generation to generation and are gathered from the experiences and practices of individuals or their farming community.

Slash and burn is a way of preparing an agricultural land for cultivation through cutting and then burning vegetation.

Land fallowing. A fallow agricultural land is an “arable land not under rotation that is set aside for a period of time ranging from one to five years before it is cultivated again; or land, usually under permanent crops, meadows, or pastures, that is not being used for such purposes for a period of at least one year. Arable land that is normally used for the cultivation of temporary crops, but temporarily used for grazing, is included” (United Nations Statistics Division, 1997).

7.21 In this land, are there areas covered by natural or diverse vegetation, including any of the following?

- a. Measurement goal:** The aim of this question is to identify whether there are any areas in the land used by the respondent that are covered by natural or diverse vegetation. The presence of natural vegetation is essential to prevent biodiversity loss and for climate change mitigation.
- b. Filtering questions/ respondent universe :** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

- c. Instructions:** “Vegetation” refers to the collection of plants or trees that are usually found in an area.

Read out each option and record “yes” (code 1) or “no” (code 0) based on the type of natural or diverse vegetation which covers any areas of respondent’s agricultural land.

“Natural pasture or grasslands” refers to the large open area of land covered with grass that is “primarily used for the production of adapted, domesticated forage plants for livestock” (EPA, 2022a).

“Wildflower strips” are a portion of the land used to grow wildflowers to mitigate impacts of intensive agricultural developments and activities.

“Stone or wood heaps” are a pile of stones or woods.

“Trees or hedgerows” include a fence, or a border formed by a row of closely planted shrubs or bushes.

“Natural ponds or wetlands” include any natural or not man-made area of land that is saturated with water.

7.22 What would you say is the share of this land area covered by natural areas of vegetation?

- a. Measurement goal:** The aim of this question is to estimate proportion of agricultural land area that is covered by natural areas of vegetation.
- b. Filtering questions/respondent universe:** Ask if the agricultural land area is covered by any type of natural or diverse vegetation.

(Ask if Q7.21=1 through 5)

- c. Instructions:** Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give the size of the land area. However, enumerators should not accept the actual value or land area. Do not accept range of amounts/values or size, or responses that are descriptions of land area.

If the respondent cannot give an estimate, record “don’t know” (code -98).

7.23 What is the percentage of the area where you farm on which crop rotation or crop/pasture rotation involving at least two different crops/pastures of two different plant genus is practiced?

a. Measurement goal: The aim of this question is to estimate the proportion of agricultural land area which is used for crop rotation or crop/pasture rotation involving at least two different crops/pastures of two different plant genus. Crop rotation is important to protect the health and fertility of the land utilized.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

c. Instructions: Crop rotation refers to a “system of growing different kinds of crops in recurrent succession on the same land” (Martin, Leonard and Stamp, 1976).

Accept only numeric answers. Probe if necessary.

7.24 During the past 12 months, did the land produce crops/ livestock that are certified organic or undergoing organic certification process?

a. Measurement goal: The aim of this question is to identify whether there are any crops/livestock produced in agricultural land during the past 12 months that are certified organic or undergoing organic certification process.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

c. Instructions: FAO defines “organic agriculture” as a holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles and soil biological activity (FAO, 2022f).

Organic farming (crops or livestock) uses fertilizers or pesticides that are environmentally friendly.

Farmers or producers must be certified to have their agricultural products considered as “organic” or “organically farmed”.

Read out each option and record the code corresponding to the respondent’s observation. This is a modified yes/no question. Codes 1-3 are considered “yes” and code 4 is “no”.

If respondent gives a generic “yes”, the enumerator should probe to specify which of the three response options from codes 1-3 are applicable to them. Multiple responses are allowed only for codes 1-3.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

7.25 What is the organic certification number? (please write out)

a. Measurement goal: The aim of this question is to verify the organic certification of produced crops/livestock in agricultural land of respondent. This serves as a validation question for the organic status of the agricultural products.

b. Filtering questions/respondent universe: Ask respondent whose farming system is certified as organic or is undergoing organic certification.

(Ask if Q7.24=1 through 3)

c. Instructions: Ask respondent for the specific organic certification number of produced crops/livestock in agricultural land during the past 12 months.

Write out the number which corresponds to each certified organic crop/livestock including those that are still in process.

If the respondent has a certificate but does not remember the details of it, the enumerator should ask politely if they may check the certification. Record accordingly.

7.26 Who typically makes decisions about land-related activities such as the use of pesticides, fertilizers and related environmental-risk management?

a. Measurement goal: The aim of this question is to identify the decision maker on land-related

activities such as the use of pesticides, fertilizers and related environmental-risk management related to agricultural activities. While in some instances landowners have higher decision-making power, in others land operators make decisions. Who makes decisions is important to ascertain who chooses practices that are essential for environmental protection or that may contribute to degradation.

- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

- c. Instructions:** Ask respondent on who typically makes decisions about land-related activities such as the use of pesticides, fertilizers and related environmental-risk management. Ask whether the decision maker for the agricultural land the respondent is himself/herself, the landowner, or someone else. If respondent identifies several people who make decisions, select the person that makes decisions most often.
- d.** It is possible that the land is owned by the respondent themselves or by another person (the landowner). There are farms with “operators” or “managers” who manage the farm on behalf of the landowner. They may also engage agricultural or farming consultants. In family operations, the family member that owns the land may be different from that that operates the land.

7.27 Did you use medically important antimicrobials as growth promoter for your livestock during the past 12 months?

- a. Measurement goal:** The aim of this question is to know whether respondent used medically important antimicrobials as growth promoter for their livestock during the past 12 months.
- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1)

- c. Instructions:** “Antimicrobials” or “antibiotics” are therapeutic drugs used to treat infectious diseases caused by bacteria, fungi, or virus in

livestock. “Antimicrobials” are also often used in livestock production as growth supplements.

Record either “yes” (code 1) or “no” (code 0).

If respondent says “no”, verify if he/she means “no, he/she did not use” or “no, he/she is not raising livestock”. If respondent says he/she is not raising livestock, record “I don’t raise livestock” (code -99) and go to next module.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

7.28 Who makes decisions regarding the use of these products?

- a. Measurement goal:** The aim of this question is to identify the decision maker on using medically important antimicrobials as growth promoter for livestock during the past 12 months. Who makes decisions pertaining the use of these products is important to understand who influences practices that may be environmentally detrimental and have health effects.
- b. Filtering questions/respondent universe:** Ask if respondent’s agricultural land is using medically important antimicrobials as growth promoter for livestock during the past 12 months.
- c. Instructions:** Ask whether the decision maker is the respondent himself/herself, the livestock owner, or someone else. If respondent identifies several people who make decisions, select the person that makes decisions most often.

It is possible that the livestock is owned by the respondent themselves or by another person (the livestock owner). There are livestock farms with “operators” or “managers” who manage the livestock on behalf of the owner. They may also engage agricultural or farming consultants, such as livestock veterinarians or technicians.

7.29 Who in this household typically takes care of the animals you own or raise?

- a. Measurement goal:** The aim of this question is to identify who typically takes care of the livestock animals owned or raised by the respondent.

- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

- c. Instructions:** Read out each livestock code. If respondent mentions any other type of livestock animals that they own/raise, record under code "L11 - Other".

For each type of livestock animal, only ONE ANSWER should be recorded. If caretaking task is shared by more than one person, ask respondent to choose the most relevant answer only by probing for the household member who typically takes care of the animals.

Note that codes 2-6 should be consistent with the answers in questions on the respondent's individual characteristics.

Enumerators should probe to verify if the respondent does not have a spouse/partner (code 0) in Q3.2 BUT answers either "my male partner" (code 2), "my female partner" (code 3), or "me and my partner jointly" (code 4).

Enumerators should probe to verify if the respondent does not have a child BUT respondent answers "my daughter" (code 5) or "my son" (code 6).

If respondent mentions a household member that is not included in the options, record "others" (code -96).

Record "don't know" (code -98) ONLY if the respondent volunteers "I don't know".

7.30 Do you utilize genetic engineering, ionizing, radiation, or sewage sludge to care for these animals?

- a. Measurement goal:** The aim of this question is to know whether respondent is utilizing genetic engineering, ionizing, radiation, or sewage sludge to care for his/her livestock animals. Some of these practices may be damaging for livestock health, human health and the overall environment.
- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

Instructions: "Genetic engineering" refers to the deliberate modification of the characteristics of an organism (in this case the animals) by manipulating genetic material, typically used to make animals more resistant to disease. "Ionizing" is a procedure utilized to reduce the spread of bacteria in livestock by converting substances into ions. "Sewage sludge" refers to semiliquid obtained from the processing of municipal sewage.

Record either "yes" (code 1) or "no" (code 0). If respondent's answers differ for different livestock animal products, indicate what applies for the majority of his/her animals.

Record "don't know" (code -98) ONLY if the respondent volunteers "I don't know".

7.31 Do your animal management practices conserve natural resources and biodiversity?

- a. Measurement goal:** The aim of this question is to determine if the respondent utilizes animal management practices in livestock raising that conserve natural resources and biodiversity.
- b. Filtering questions/respondent universe:** Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.
- c. Instructions:** Examples of animal management practices that conserve natural resources and biodiversity include switching grazing locations, preventing overgrazing, managing animal waste through specialized facilities, preventing run-off to waterways and other similar practices that aim to protect, preserve and restore environmental resources.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

"Biodiversity" refers to a variety of living creatures on Earth and the complexity of ecology in which these creatures exist."

Record either "yes" (code 1) or "no" (code 0). If respondent's answers differ for different livestock animal products, indicate what applies for the majority of livestock animals.

Record "don't know" (code -98) ONLY if the respondent volunteers "I don't know".

7.32 Are these animals allowed year-round access to the outdoors (except under specific conditions such as inclement weather)?

a. Measurement goal: The aim of this question is to determine whether the livestock animals are given year-round access to the outdoors. Outdoor access for animals is known to promote their health and the quality of the animal products.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

c. Instructions: Record either “yes” (code 1) or “no” (code 0).

If respondent’s answers differ for different livestock animals, indicate what applies for the majority.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

When animals are normally allowed access to the outdoors, except in situations of inclement weather or other exceptional situations, record “yes”.

7.33 Are these animals provided of shade, spacious shelter (sufficient space for animals to lie down), space for exercise, clean drinking water, sheltered pits/heaps to collect manure, direct sunlight and clean, dry bedding?

a. Measurement goal: The aim of this question is to know whether respondent’s animals are provided of shade, spacious shelter (sufficient space for animals to lie down), space for exercise, clean drinking water, sheltered pits/heaps to collect manure, direct sunlight and clean, dry bedding. Access to these features is known to promote animal health and enhance the quality of the animal product.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

c. Instructions: If respondent’s answers differ for different livestock animals, indicate what applies for the majority.

If respondent answers “yes” (code 1), probe if ALL seven conditions included in the question wording is met: these animals provided of (1) shade, (2) spacious shelter, (3) space for exercise, (4) clean drinking water, (5) sheltered pits/heaps to collect manure, (6) direct sunlight and (7) clean, dry bedding.

If ANY one of these seven (7) conditions are not met: record “no” (code 0).

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

7.34 Are these animals fed a 100% organic diet, except for trace minerals and vitamins used to meet their nutritional requirements?

a. Measurement goal: The aim of this question is to determine whether the livestock animals are fed a 100% organic diet.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

c. Instructions: Clarify with respondent that a diet is still considered as 100% organic if it includes trace minerals and vitamins that are used to meet nutritional requirements for animals.

Record either “yes” (code 1) or “no” (code 0).

If respondent’s answers differ for different livestock animals, indicate what applies for the majority.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

To be certified organic livestock the animals must only be fed with 100% certified organic feed. “Organic diet” for livestock animals refer to use of feeds whose ingredients are grown without synthetic chemicals, including man-made pesticides and fertilizers, genetically modified organisms (GMOs), hormones or antibiotics.

7.35 Are these animals managed without antibiotics, growth hormones, mammalian or avian by-products or other feed ingredients such as urea, manure or arsenic compounds?

a. Measurement goal: The aim of this question is to determine whether animals are managed without antibiotics, growth hormones, mammalian or avian by-products or other feed ingredients such as urea, manure, or arsenic compounds.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

c. Instructions: If respondent's answers differ for different livestock animals, indicate what applies for the majority.

If respondent answers "yes" (code 1), probe if ALL three (3) conditions included in the question wording is met: (1) antibiotics, (2) growth hormones, (3) mammalian or avian by-products or other feed ingredients such as urea, manure, or arsenic compounds.

If ANY one of these 3 conditions are met: record "no" (code 0).

Record "don't know" (code -98) ONLY if the respondent volunteers "I don't know".

"Antibiotics" are any "medicines that fight infections caused by bacteria in humans and animals by either killing the bacteria or making it difficult for the bacteria to grow and multiply" (CDC, 2022).

Growth hormones refer to the "group of hormones, secreted by the mammalian pituitary gland, that stimulates protein synthesis and growth of the long bones in the legs and arms. They also promote the breakdown and use of fats as an energy source, rather than glucose" (FAO, 2001).

Mammalian or avian by-products are ingredients that are derived from animals after some processing.

"Urea" is a solid component of mammalian urine; synthesized from ammonia and carbon dioxide and used as fertilizer and in animal feed and in plastics.

Manure or arsenic compounds contains "organic material that is used to fertilize land, usually consisting of the faeces and urine of domestic livestock, with or without litter such as straw, hay, or bedding. Some countries also use human excrement (night soil)" (FAO, 2017). "Arsenic" refers to a "naturally occurring element that is found in combination with either inorganic or organic substances to form many different compounds" (CDC, 2009).

7.36 Are these animals allowed to freely graze/feed in pastures?

a. Measurement goal: The aim of this question is to determine if the livestock animals raised by respondent are allowed to freely graze/feed in pastures.

b. Filtering questions/respondent universe: Ask if respondent personally engaged in agricultural activities or farming in the past 12 months.

(Ask if Q7.1=1 OR Q7.27=1 or 0 or -98)

c. Instructions: Record either "yes" (code 1) or "no" (code 0).

If respondent's answers differ for different livestock animals, indicate what applies for the majority. If the animals are only allowed to graze freely during select seasons, mark what applies most of the time.

If respondent answers "no" (code 0), go to next module.

7.37 Are these pastures owned by yourself or someone you know, or is this wild land?

a. Measurement goal: The aim of this question is to identify if pastures where animals are allowed to freely graze/feed are wild/undeveloped land or not. The role of wild land is rarely recognized or monetized in animal production, but it carries essential environmental importance.

b. Filtering questions/respondent universe: Ask if respondent's animals are allowed to freely graze/feed in pastures.

(Ask if Q7.36=1)

c. Instructions: Note that we are expecting an

answer that refers to the “ownership” of the pastureland being used.

Record “myself or someone I know” (code 1) if the pasture is a privately owned pastureland, either by the respondent themselves or someone that they know personally.

“Wild land” refers to lands that are not cultivated or natural areas usually used and protected. Examples of wild lands include native forage producing land, native forest, native mangrove, etc. These are usually owned by the state or by private individuals.

If respondent’s answers differ for different livestock animals, indicate what applies for the majority.

If the respondent answers “wild land” (code 2), go to next module.

7.38 Do you fence off areas of the pasture and allow rotation of the animals on several pieces of land to prevent overgrazing?

- a. Measurement goal:** The aim of this question is to determine if the respondent fences off areas of the pasture and allow rotation of the animals on several pieces of land to prevent overgrazing. Rotation is an important measure to promote conservation and prevent land degradation.
- b. Filtering questions/respondent universe:** Ask if the pastures where their livestock animals are allowed to freely graze/feed in pastures are owned by the respondent or someone they know.

(Ask if Q7.37=1)

- c. Instructions:** Record either “yes” (code 1) or “no” (code 0).

If respondent’s answers differ for different livestock animals, indicate what applies for the majority.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

4.11 | Module 8 Environment-related livelihoods

This module compiles specific information from populations engaged in fishing, aquaculture, collecting plants, gathering firewood/timber, hunting, using wild forests, mining, oil pumping, collecting water, processing/preserving food and beverages, and storage and garbage picking/sorting/recycling. It asks questions on whether the engagement in these environment-related livelihoods is income-generating, on harvesting practices, changes in the availability of natural resources over time (due to climate change, environmental degradation or other factors), biodiversity loss, environmentally detrimental practices around each of these livelihoods, recycling and reusing of gear and participation in natural resource management and related decision-making. As in module 7, this module gathers information from all individuals engaging in these practices, regardless of whether or not they engage for pay or profit, and thus this information may not be comparable with some statistics derived from labour force surveys or agricultural surveys. Furthermore, depending on the prevalence of these environment-related livelihoods in each country, it is possible that the survey sampling strategy needs to make use of oversampling or small area estimation to obtain reliable estimates.

Livelihood refers to the means in which an individual earns income or other resources to support the basic necessities in life, such as food, shelter, clothing, etc. People depend on environmental resources within their own communities for their own livelihoods.

(Introduction) I will now proceed to ask some questions about your livelihood. These pertain to your engagement in forestry, fisheries, mining, garbage management and other environment-related activities, both for pay or profit and for household consumption. My questions pertain to your own individual livelihoods and not those of other household members.

- a. Measurement goal:** Introduction statement.
- b. Filtering questions/respondent universe:** Applies to all respondents.
- c. Instructions:** Read out loud to the respondent.

The questions in this section are about the respondent’s own engagement in environment-

related livelihoods in the past 12 months.

The enumerator should emphasize that the questions are about the respondent's OWN individual or personal livelihoods. In cases where the respondent's livelihood relates to involvement in a family-owned business, remind respondent to answer the questions thinking about their individual involvement.

FISHING

8.1 In the past 12 months, did YOU go fishing or harvesting shellfish, seaweed or other aquatic animals/plants?

- a. Measurement goal:** The aim of this question is to determine if the respondent was involved in harvesting aquatic animals/plants in the past 12 months.
- b. Filtering questions/respondent universe:** Applies to all respondents.
- c. Instructions:** The question pertains to the engagement of the respondent in fishing or harvesting of other forms of sea life or aquatic animals/plants. This includes the catching of fish and other aquatic animals or plants, such as shellfish (molluscs, crustaceans), other aquatic animals, or seaweed and other aquatic plants and any other aquatic life, either from marine environments or from fresh water (except for aquaculture, which is captured in subsequent questions).

The respondent should refer to their OWN engagement and not the engagement of any other member of the household.

The time frame is the past 12 months.

Q8.1 is an important filter question to screen respondents who were personally involved in fishing in the past 12 months. If respondent answers "yes" (code 1), then follow-up questions will be asked.

8.2 Was fishing and harvesting MAINLY performed...?

- a. Measurement goal:** The aim of this question is to identify the main purpose of fishing and harvesting performed in the past 12 months.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** Record one answer only. Ask the respondent's MAIN purpose of personally engaging in **fishing and harvesting**, i.e. is it for own use/consumption of the household, for sale/profit, or for wage work, for leisure, tradition, religion, or other purpose?

"For own use/consumption of the household" is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of fishing/harvesting (ILO, 2022a).

"For sale/profit" refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

"Wage work" is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). "Leisure, religion, tradition or other" refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

8.3 In the past 12 months, did you individually make any income/monetary gains from activities related to fishing/harvesting of aquatic animals/plants?

- a. Measurement goal:** The aim of this question is to determine if the respondent made any income/monetary gains from activities related to fishing/harvesting of aquatic animals/plants.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants and did it for own use or for sale/profit.

(Ask if Q8.1=1 and Q8.2=1, 2 or 4)

- c. Instructions:** Income or monetary gain refers to profit or money that the respondent earned from fishing/harvesting of aquatic animals/plants.

The enumerator should ask for the income or monetary gain of the respondent and not of the household.

8.4 What is the approximate share of your individual income that came from it? (Include income from selling, trading and handling these materials)

- a. Measurement goal:** The aim of this question is to estimate the proportion of respondent's personal income that came from activities related to fishing/harvesting aquatic animals/plants.

- b. Filtering questions/respondent universe:** Ask if the respondent individually made any income or monetary gain from fishing/harvesting aquatic animals/plants.

(Ask if Q8.2=3 or Q8.3=1)

- c. Instructions:** The enumerator should ask for the **approximate or estimated** proportion of respondent's personal income that came from activities related to fishing/harvesting aquatic animals/plants. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income - enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record "don't know" (code -98).

8.5 To identify your fishing/harvesting sites, size and type of catch, do you look at official/formal information regarding fish stock status

- a. Measurement goal:** The aim of this question is to determine if the respondent looks at official/formal information regarding fish stock status to identify their fishing/harvesting sites, size and type of catch. Monitoring fish stock status information and following official guidance on where to fish or not to fish, supports fish stock conservation.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** "Fish stock" refers to the population of particular species of fish.

"Official/formal information regarding fish stock status" are types of information that came from legitimate institutions such as government.

Read out each option and record the code corresponding to the respondent's observation. This is a modified yes/no question, in which the reasons for "no" are included in the response categories for codes 1 and 2:

No, I don't know where to find that information (code 1);

No, I don't believe the information is accurate (code 2).

If respondent says, "I don't know," probe whether this is because they "do not know where to find the information," in which case record code 1. Otherwise, record "don't know" (code -98).

8.6 Has the size of your catch decreased, increased or remained unchanged since you started fishing there?

- a. Measurement goal:** The aim of this question is to identify whether the size of the respondent's catch decreased, increased, or remained unchanged since they started fishing there.

This is a proxy question to identify whether biodiversity loss may be taking place in the fishing/harvesting sites.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** This question asks about the estimated size or volume of the catch, not the amount in monetary terms.

Fish catch (or catch), as defined by Eurostat (2019), refers to catches of fishery products including fish, molluscs, crustaceans and other aquatic animals, residues and aquatic plants, that are taken: for all purposes (commercial, industrial, recreational and subsistence), by all types and classes of fishing units (fishermen, vessels, gear, etc.) and that are operating in inland, fresh and brackish water areas and in inshore, offshore and high-seas fishing areas. Production from aquaculture is excluded.

The point of reference is at around the time of the interview, as compared to when the respondent started fishing in the particular site, whether this was 50 years ago or as recent as 12 months ago.

8.7 Has the total amount resources (e.g. time, equipment, effort) you allocate to fishing/harvesting, increased or remained unchanged since you started fishing there?

- a. Measurement goal:** The aim of this question is to identify if the total amount of resources that the respondent allocates to fishing/harvesting, increased or remained unchanged since they started fishing there. Asking this question is important in combination with the previous question, as changes in catch may be due to changes in the resources invested, rather than biodiversity loss, in some cases.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** This question asks about the estimated total amount of resources spent or allocated for fishing activities. There is no need for the enumerator to probe for the exact amount of resources allocated as the question only needs information on changes over time.

The question pertains to resources used at the time of the interview, as compared to when the respondent started fishing in the same location, whether this was 50 years ago or as recent as 12 months ago

8.8 Do you fish/harvest in the same sites you fished 10 years ago? If several responses apply, select the most relevant only

- a. Measurement goal:** The aim of this question is to determine if the respondent fishes/harvests in the same sites they used 10 years ago. Changes in fishing sites may be an indicator of fish stock depletion or biodiversity loss.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** Emphasize the time frame, “10 years ago”.

Read out each option and record the code corresponding to the respondent’s observation. If several responses apply, select the most relevant only, from code 0 through code 6.

This is a modified yes/no question, in which the reasons for “no” are included in the response categories for codes 0, 2, 3, 4, 5 and 6. If the respondent says “yes” record code 1. If the respondent gives a generic “no” probe for specific answer:

No, previous fisheries are now depleted or have low productivity (code 0);

No, previous fisheries are now polluted (code 2);

No, I found a more productive location (code 3);

No, I found a more convenient location (code 4);

No, rules and regulations prevent me from

fishing there (code 5);

No, I didn't use to fish then (code 6).

Note the difference between depletion, low productivity and pollution, whereby depletion indicates unavailability of the target species, low productivity refers to limited availability of the target species, while pollution indicates that, although the target species may be at the site, it may be unhealthy to consume it due to contamination.

8.9 Of your average daily catch, what would you say is the proportion of by-catch/unwanted catch?

a. Measurement goal: The aim of this question is to determine the proportion of by-catch/unwanted catch of the respondent in their average daily catch. A large share of by-catch typically indicates fish stock depletion or use of inadequate fishing methods.

b. Filtering questions/respondent universe: Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

c. Instructions: "By-catch" refers to fish or marine animals that were caught unintentionally when fishing for another species. Higher shares of by-catch are often associated with biodiversity loss.

The enumerator should ask for the **approximate or estimate** proportion of by-catch/unwanted catch in their daily catch.

Accept only numeric answers in percentage format. Probe if necessary.

Enumerators should not accept the actual values or volume.

Record in percentage.

8.10 Has the proportion of by-catch increased in the past 10 years

a. Measurement goal: The aim of this question is to determine whether the proportion of by-catch increased in the past 10 years. Higher shares of

by-catch are often associated with biodiversity loss.

b. Filtering questions/respondent universe: Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

c. Instructions: Emphasize the time frame, "10 years ago".

Read out each option and record the code corresponding to the respondent's observation.

Note of the wording for code 2, "No, it has not increased" – this is not equivalent to "decreased" as the focus is on whether the proportion increased or not.

8.11 Do you generate and submit reports of your total catch, by species?

a. Measurement goal: The aim of this question is to determine whether the respondent generates and submits a report of their total catch, by species. This helps support fish stock monitoring and promoting conservation.

b. Filtering questions/respondent universe: Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

c. Instructions: Reports are usually submitted to accredited organizations or institutions that work with fisheries.

Read out each option and record the code corresponding to the respondent's observation. Record one answer only.

This is a modified yes/no question, in which there are categories that correspond to "yes". If the respondent gives a generic "yes" answer, the enumerator should probe for specific answer from the following:

- Yes, I submit reports on the total catch for the main species and secondary species (code 1);

- Yes, I submit reports of the total catch only for the main species (code 2);
- I submit reports of the total catch but not by species (code 3);
- I submit reports but not after every fishing trip (code 4).

When the respondent gives a generic “no,” verify if this is because they “do not usually submit reports” (code 5).

The main species refers to the target species that the respondent aimed to capture. If a catch targeting one species resulted in more individuals of a different species, the main species would still be the target species.

8.12 What fishing methods do you typically employ? (select all that apply)

- a. Measurement goal:** The aim of this question is to determine what fishing methods the respondent typically employs. This question is important in combination with the by-catch questions to determine whether the shares of by-catch may be influenced by fishing method.
- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** Respondent may select as many as all methods that apply.

Read out each option and record the code corresponding to the respondent’s answer.

Record either “yes” (code 1) or “no” (code 2).

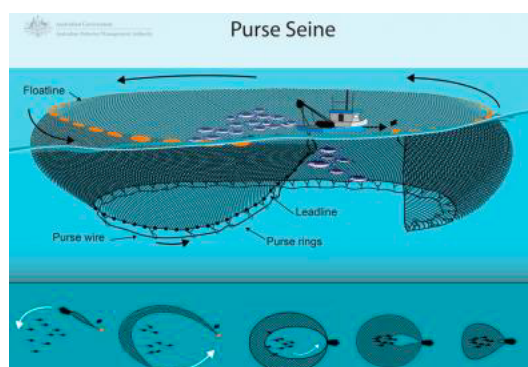
Discussed below are the different fishing methods, including applicable illustrations, adapted from the Australian Fisheries Management Authority and NOAA.

8.11.a Purse seine

Seine fishing is a fishing method in which a net – seine – is deployed around an entire area or school of fish. Purse seine fishing is a technique in which a seine is used to capture fish species close to the surface.

8.11.b Trawling

Trawling is a fishing method in which trawl nets are towed by one or more boats. Trawl nets are typically dragged through the bottom of the ocean/lake, or in mid-water.



8.11.c Gillnets

Gillnetting is a fishing method that uses gillnets – a wall of netting that hangs in the water column, typically made of nylon and held with regularly spaced floaters.

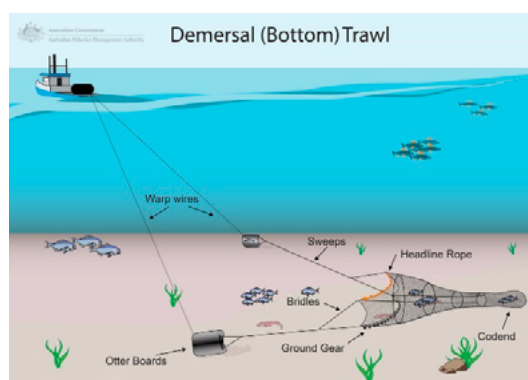
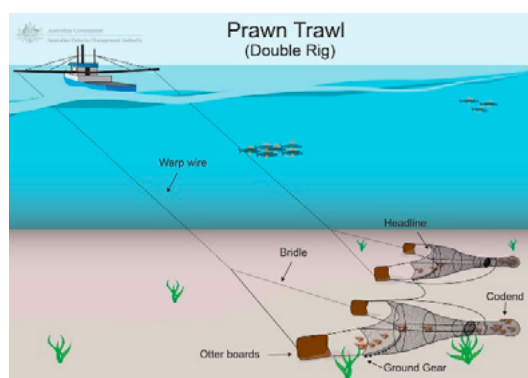


Photo source: Australian Fisheries Management Authority and US NOAA Fisheries

8.11.d Line fishing

Line fishing may refer to short or long line fishing. Long-line fishing is a fishing method that involves setting up a large number of short lines carrying hooks, which are attached to a longer main line at regular intervals. The short lines are suspended horizontally at a predetermined depth with the help of surface floats (OECD, 2022).

Short line fishing is a common type of minor line fishing, used by recreational fishers or by subsistence fishers. They use minor lines, which are short lines and only have a small number of hooks.

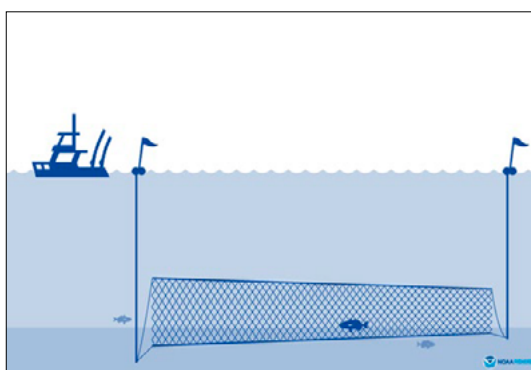
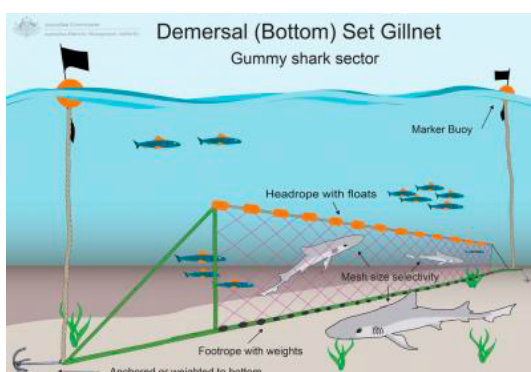
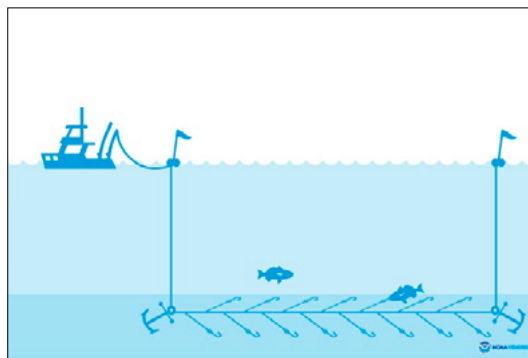
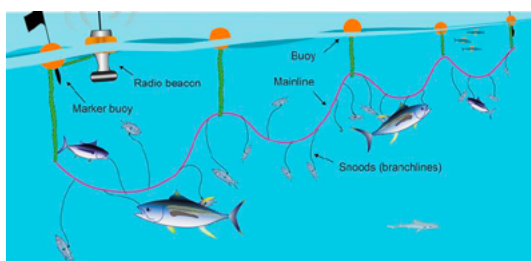


Photo source: Australian Fisheries Management Authority and US NOAA Fisheries

8.11.e Pole fishing

Pole fishing consists of a fibreglass pole with a barbless lure attached. As fish are hooked on the lure, they are hauled over the fisher's shoulder onto the deck. This method is typically used by recreational fishers in shallow waters.



8.11.f Fishing traps

Fishing traps are typically three-dimensional wire, wood or ceramic devices that are submerged in water to catch fish and other marine animals.

Fish traps are usually used to catch fish species that live on or near the sea floor, normally on seamount and continental slope waters 300-700 metres deep. Fish traps may also be used to catch invertebrates such as shrimp, lobster or octopus.

Fish traps also include fish aggregating devices (FAD), which are floating objects designed to attract pelagic fish like marlin, tuna and mahi-mahi.

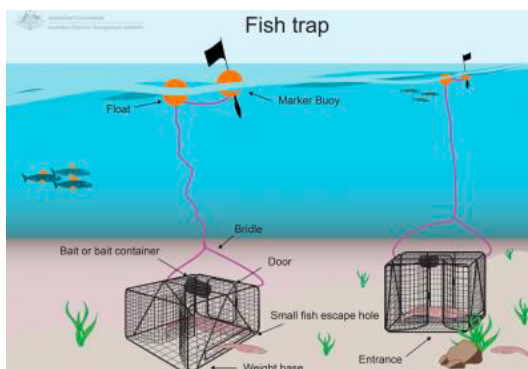


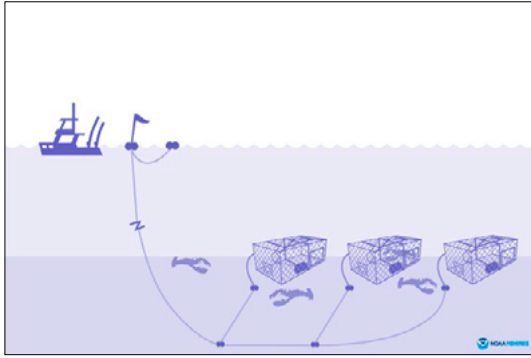
Photo source: Australian Fisheries Management Authority and US NOAA Fisheries

8.11.g Diving/ harpoon fishing

Diving or harpoon fishing is a method in which the diver uses a harpoon or a spear-like tool to catch a fish by impaling it.

8.11.h Dynamite fishing

Dynamite fishing is the use of dynamite and other explosives to stun or kill fish.



8.11.i Gleaning (hand collection)

Gleaning or hand collection is a method used in which fish or marine animals are picked up, taken off structures or dug out by hand. This method is usually used in shallow coastal waters and fresh waters or in habitats exposed during low tide.

8.11.j Dredging

Dredging is a fishing method in which a dredge – or a harvester – is dragged across the sea floor, either scraping or penetrating the bottom (NOAA, 2022).

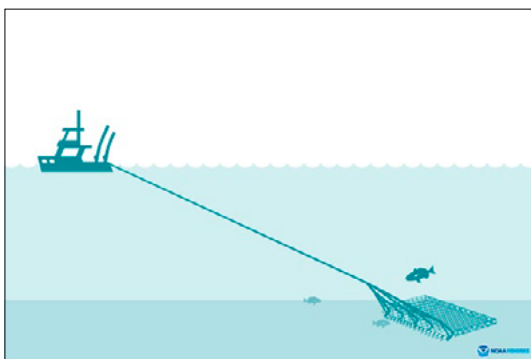
Dredges or harvesters are made of steel frame covered with steel mesh which is towed from the sea floor. It is usually used to collect shellfish, such as oysters, scallops, or clams, from the sea floor.

8.11.k Cast nets

Cast net fishing involves the use of cast nets, or circular nets with small weights distributed around its edge. The net is cast or thrown by hand in such a manner that it spreads out while it's in the air before it sinks into the water.

8.11.l Line traps

Line trap fishing is a method in which fish or shellfish are trapped by a line with hooks



8.13 Do you have (or are you currently in the process of obtaining) certification for sustainable or eco-friendly fishing/harvesting practices being implemented during the past 12 months?

a. Measurement goal: The aim of this question is to determine whether the respondent has a certification for sustainable or eco-friendly fishing/ harvesting practices being implemented during the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

c. Instructions: The certificates are awarded to those applicants who comply with sustainable and eco-friendly fishing practices and regulations in each country. Fishers and harvesters can apply for certificates issued by accredited organizations and institutions that oversee mechanisms and practices pertaining to sustainable fishing/harvesting.

Enumerators should emphasize the time period is during the past 12 months.

Record either “yes” (code 1) or “no” (code 2).

If the respondent does not have a certificate (code 0) or does not know about it (code -98), proceed to Q8.16.

8.14 What is the certification number and certification body?

a. Measurement goal: The aim of this question is to identify the certification number and certification body where the respondent received the certificate for sustainable and eco-friendly fishing/harvesting practice. This is a validation question to confirm the information provided in the previous question.

b. Filtering questions/respondent universe: Ask if the respondent has certification or in the process of obtaining certification for sustainable

or eco-friendly fishing/harvesting during the past 12 months.

(Ask if Q8.13=1)

- c. Instructions:** Enumerators should encode the certificate number and name of the body who issued the certificate.

If the respondent has a certificate but does not remember the details of it, the enumerator should ask politely if they may check the certification. Record accordingly.

8.15 What do you do with damaged or spent fishing gear after use?

- a. Measurement goal:** The aim of this question is to distinguish what the respondent does with damaged or spent fishing gear after use. When fishing gear is discarded at sea, it is known to affect other marine species, some of which may be endangered.

- b. Filtering questions/respondent universe:** Ask if the respondent went fishing or harvesting shellfish, seaweed, or other aquatic animals/plants.

(Ask if Q8.1=1)

- c. Instructions:** For “bring to recycling or reusing facility” (code 3): Only damaged or spent fishing gear brought to recycling or reusing facility should be considered as recycled/reused.

8.16 In the past 12 months, did YOU do any sorting, cleaning, or processing of fish, shellfish, seaweed or other freshly harvested aquatic animal/plant or engage in related activities?

- a. Measurement goal:** The aim of this question is to determine whether the respondent did any sorting, cleaning, or processing of fish, shellfish, seaweed or other freshly harvested aquatic animal/plant or engaged in related activities in the past 12 months. Gender roles may determine who engages in harvesting versus cleaning, sorting, or selling the fish.

- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** Respondent may be engaged

in pre-harvest, post-harvest and marketing activities during the past 12 months.

If respondent did not engage in these or any related activities, go to Q8.21.

8.17 Please indicate the exact activities in which you engaged

- a. Measurement goal:** The aim of this question is to identify the exact sorting, cleaning or processing activities the respondent engaged with in the past 12 months. Gender roles may determine who engages in harvesting versus cleaning, sorting, or selling the fish.

- b. Filtering questions/respondent universe:** Ask if respondent did any sorting, cleaning, or processing of fish, shellfish, seaweed or other freshly harvested aquatic animal/plant or engaged in related activities in the past 12 months.

(Ask if Q8.16=1)

- c. Instructions:** Read out each option and record the code corresponding to the respondent's answer.

The examples in parenthesis are not usually read to respondents. But, if necessary, the enumerator may read the examples in parenthesis.

In some cases, the respondents will only mention the exact or specific activity, instead of the actual categories of pre-harvest, post-harvest, or marketing. If this happens, it will be up to the enumerator to identify which category a specific activity should fall into.

- **“Pre-harvest activities”** include net mending, preparing bait, setting hooks, preparing aquaculture ponds, preparing aquaculture structures before deployment or any other similar activities.
- **“Post-harvest activities”** include offloading boats, sorting catch, cleaning/picking nets, sorting aquaculture harvest, processing/smoking/ drying or otherwise transforming product.
- **“Marketing activities”** include selling to buyers, in markets, to restaurants, buying/ selling products as an intermediary, fishmonger or fish/ seafood/ seaweed wholesaler.

Enumerators should note “other” if the respondent mentions specific activities other than the examples or which cannot be easily classified into pre, post-harvest and marketing activities.

8.18 Were these activities MAINLY performed...?

a. Measurement goal: The aim of this question is to identify the main purpose of the fishing-related activities that the respondent engaged with.

b. Filtering questions/respondent universe: Ask if respondent did any sorting, cleaning, or processing of fish, shellfish, seaweed or other freshly harvested aquatic animal/plant or engaged in related activities in the past 12 months.

(Ask if Q8.16=1)

c. Instructions: Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in fishing-related activities, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition religion or other purposes?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for final use by the producer, their household and/or their family. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

8.19 In the past 12 months, did you individually make any income/monetary gains from activities related to fishing or harvesting of sea animals/plants (including processing)?

a. Measurement goal: The aim of this question is to determine if the respondent made any income/monetary gains from pre-harvest, post-harvest and marketing activities related to fishing/harvesting of aquatic animals/plants.

b. Filtering questions/respondent universe: Ask if respondent did any sorting, cleaning, or processing of fish, shellfish, seaweed or other freshly harvested aquatic animal/plant or engaged in related activities in the past 12 months, for own use, family use or sale/profit.

(Ask if Q8.16=1 and Q8.18=1, 2 or 4)

c. Instructions: Income or monetary gain refers to profit or money that the respondent earned from fishing-related activities.

The enumerator should ask for the individual or personal income or monetary gain of the respondent and not of the household.

If the respondent did not gain any income or money from the activities (code 0), proceed to Q8.21.

8.20 What is the approximate share of your individual income that came from ...? (include income from selling, trading and handling these materials)

a. Measurement goal: The aim of this question is to estimate the proportion of respondent’s personal income that came from activities related to pre-harvest, post-harvest or marketing activities related to fish and other aquatic animals/plants.

b. Filtering questions/respondent universe:

Ask if respondent did any sorting, cleaning, or processing of fish, shellfish, seaweed or other freshly harvested aquatic animal/plant or engaged in related activities in the past 12 months.

(Ask if Q8.16=1, 8.18=3 or 8.19=1)

c. Instructions: The enumerator should ask for the approximate or estimated proportion of respondent's personal income that came from the fishing-related activities. These includes income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income - enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record "don't know" (code -98).

The enumerator should record in approximate percentage.

8.21 Do you participate in any fishery management group or any other body where you can contribute to fish stock management or sustainable resource management in the area where you fish and/or to promoting sustainable fishing/harvesting methods?

a. Measurement goal: The aim of this question is to determine whether the respondent participates in any fishery management group or any other body where they contribute to fish stock management or sustainable resource management in the area where they fish and/or to promoting sustainable fishing/harvesting methods.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: Fishery management group may refer to any organization or institution that promotes sustainable fishing/harvesting methods.

AQUACULTURE

8.22 In the past 12 months, did you tend to aquaculture (farming of fish or other aquatic animals or plants)?

a. Measurement goal: The aim of this question is to determine if the respondent has been involved in aquaculture in the past 12 months.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: "Aquaculture" refers to the "farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated" (Edwards and Demaine, 1998). Aquaculture covers both inland and coastal farming of aquatic organisms.

The time frame should be within the past 12 months.

Q8.22 is an important filter question to screen respondents who were personally involved in aquaculture in the past 12 months. If respondent answers "yes" (code 1), then follow-up questions will be asked.

The enumerator should emphasize the time period of in the past 12 months.

The respondent should refer to their OWN engagement and not the engagement of any other member of the household.

If the respondent did not tend to aquaculture in the past 12 months, proceed to Q8.32.

8.23 Was aquaculture MAINLY performed...?

a. Measurement goal: The aim of this question is to determine the main purpose of tending to aquaculture in the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

- c. **Instructions:** Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in tending to aquaculture, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion or other purpose?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for final use by the producer, their household and/or their family. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If the respondent answered it is for wage work (code 3), go to Q8.25.

8.24 In the past 12 months, did you individually make any income/monetary gains from activities related to aquaculture?

- a. **Measurement goal:** The aim of this question is to determine if the respondent made any income/monetary gains from activities related to aquaculture.

- b. **Filtering questions/respondent universe:** Ask if the respondent tended to aquaculture in the past 12 months for own use or for sale/profit.

(Ask if Q8.22=1 and Q8.23=1, 2 or 4)

- c. **Instructions:** Income or monetary gain refers to profit or money that the respondent earned from tending aquaculture.

The enumerator should ask for their individual or personal income or monetary gain of the respondent and not of the household.

If the respondent did not gain any income or money from the activities (code 0), proceed to Q8.26.

8.25 What is the approximate share of your individual income that came from it? (Include income from selling, trading and handling these materials)

- a. **Measurement goal:** The aim of this question is to estimate the proportion of the respondent’s personal income that came from activities related aquaculture.

- b. **Filtering questions/respondent universe:** Ask if the respondent individually made any income/monetary gains from activities related to aquaculture.

(Ask if Q8.24=1 or 8.23=3)

- c. **Instructions:** The enumerator should ask for the approximate or estimated proportion of respondent’s personal income that came from activities related to aquaculture. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don’t know” (code -98).

8.26 What is the size of your aquaculture pond/ area?

a. Measurement goal: The aim of this question is to determine the size of the aquaculture pond or area. Larger ponds are typically more environmentally damaging than smaller ponds. There may also be gender differentials regarding the affordability of owning a larger pond.

b. Filtering questions/respondent universe: Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

c. Instructions: The enumerator should ask for the **approximate or estimated** size of pond or area where respondent tends aquaculture.

The enumerator should record in approximate size and unit of measure. Unit of measures may refer to the length, weight, or capacity (volume) of the pond or area.

Respondents might give the size of the land area. However, enumerators should not accept the actual values or land area. Do not accept range of amounts/values or size, or responses that are descriptions of land area.

If the respondent cannot give an estimate, record “don't know” (code -98).

The unit of measurement should be consistent for all similar questions in this questionnaire.

8.27 Where is your aquaculture pond/ area located?

a. Measurement goal: The aim of this question is to identify the location of the aquaculture pond or area. Aquaculture operations that are located near water bodies and other environmental resources may be more environmentally damaging.

b. Filtering questions/respondent universe: Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

c. Instructions: “Land” means the aquaculture pond or area is located inland, usually in converted lands.

“Ocean” means the aquaculture pond or area is located in or adjacent to the ocean.

“River” means the aquaculture pond is located by a river or part of a river.

8.28 What is the share of animals or plants that you estimate escape from your aquaculture area?

a. Measurement goal: The aim of this question is to determine the share of animals or plants that the respondent estimates to escape from the aquaculture area. Larger shares of escapees may be an indication of negative environmental externalities of the aquaculture operation.

b. Filtering questions/respondent universe: Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

c. Instructions: The enumerator should ask for the **approximate or estimate** of the animals or plants that escaped from the aquaculture area.

Accept only numeric answers in percentage format. Probe if necessary.

Enumerators should not accept the actual values or volume.

Record in percentage.

8.29 Do you use pesticides or antibiotics in your aquaculture operation?

a. Measurement goal: The aim of this question is to determine whether the respondent uses pesticides or antibiotics or both in their aquaculture operation. If used, these may contribute to environmental degradation.

b. Filtering questions/respondent universe: Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

c. Instructions: Pesticides, a substance used to control pests and antibiotics, substances used to prevent or treat infectious diseases, are chemicals that are typically used to eliminate parasites and other pests and prevent diseases

in aquatic animals/plants. While the use of such chemicals has led to an increase in productivity in aquaculture, its excessive use could lead to serious effects on human health and on the environment.

Read out each option and record the code corresponding to the respondent's observation. Record only one answer.

This is a modified yes/no question. If the respondent gives a generic "yes," the enumerator must probe for a specific answer and then record only one answer.

- Yes, both pesticides and antibiotics (code 1)
- Yes, only pesticides, not antibiotics (code 2)
- Yes, only antibiotics, not pesticides (code 3)

8.30 Do you use feed in your aquaculture operation?

- a. Measurement goal:** The aim of this question is to determine if the respondent uses feed in their aquaculture operation. If used, this may contribute to environmental degradation.
- b. Filtering questions/respondent universe:** Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

- c. Instructions:** Feeds are typically granules or pellets designed to meet the nutritional needs of aquaculture animals/plants. These feeds contain nutrients such as protein, cereal and mineral needed to grow fish and other aquatic animals.

Record either "yes" (code 1) or "no" (code 2).

8.31 Who makes decisions regarding the use of these products? [if various, select the person who does it most often]

- a. Measurement goal:** The aim of this question is to identify who makes the decisions regarding the use of feeds and other products in their aquaculture operation. Understanding gender roles in decision-making can help identify who contributes to environmental conservation or degradation.

- b. Filtering questions/respondent universe:** Ask if the respondent tended to aquaculture in the past 12 months.

(Ask if Q8.22=1)

- c. Instructions:** If the respondent answers "several people", probe for the person that often makes the decision.

Ask respondent about who typically makes decisions about the use of feeds and other products in their aquaculture operation. Ask whether the decision maker is the respondent himself/herself, the pond owner, or someone else. If respondent identifies several people who make decisions, select the person that makes decisions most often.

It is possible that the pond is owned by the respondent themselves or by another person (the pond owner). There are ponds with "operators" or "managers" who manage the pond on behalf of the pond owner. They may also engage aquaculture consultants.

COLLECTING PLANTS, TIMBER, WILDLIFE AND OTHER FOREST PRODUCTS

8.32 In the past 12 months, did you gather wild edible plants, insects or their products [such as mushrooms, fruits, berries, nuts, seeds and other wild plants, insects, honey...]?

- a. Measurement goal:** The aim of this question is to determine if the respondent gathered wild food, such as wild edible plants, insects, or their products, in the past 12 months.

- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** "Wild edible plants" may refer to plants, insects (or their products, such as honey), mushrooms, fruits, berries, nuts, seeds and other products found in wild environments, such as forests, plains, mangroves and other uncultivated locations.

The respondent should refer to their OWN engagement and not of any member of the household.

The reference period for this question is 12 months prior to the survey.

Q8.32 is an important filter question to screen respondents who were personally involved in gathering wild foods in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not gather any wild edible plants, insects or their products in the past 12 months (code 0), proceed to Q8.36.

If the respondent only gathered wild animals, code 0 as well, as this will be reflected in the hunting section below. Similarly, if the respondent only gathered wild non-edible plants, code 0.

8.33 Was gathering wild food MAINLY performed...?

- a. **Measurement goal:** The aim of this question is to determine the main purpose of gathering wild edible plants, insects and their products.
- b. **Filtering questions/respondent universe:** Ask if the respondent gathers wild edible plants, insects or their products.

(Ask if Q8.32=1)

- c. **Instructions:** Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in **gathering wild edible plants, insects or their products**, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion or other purposes?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a). Farming for own use/household consumption is known as subsistence farming.

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If the respondent says it is for wage work, go to Q8.35.

8.34 In the past 12 months, did you individually make any income/monetary gains from these products?

- a. **Measurement goal:** The aim of this question is to determine if the respondent made any income/monetary gains from activities related to gathering wild edible plants, insects, or their products.
- b. **Filtering questions/respondent universe:** Ask if the respondent gathers wild edible plants, insects, or their products, for own use or sale/profit.

(Ask if Q8.32=1 AND 8.33=1, 2 or 4)

- c. **Instructions:** Income or monetary gain refers to profit or money that the respondent earned from gathering wild edible plants, insects, or their products.

The enumerator should ask for the individual or personal income or monetary gain of the respondent and not of the household.

8.35 What is the approximate share of your individual income that came from gathering wild plants, insects and their products (including income from selling, trading and handling these materials)?

- a. **Measurement goal:** The aim of this question is to estimate the proportion of the respondent’s individual or personal income that came from gathering wild edible plants, insects and their products.

- b. Filtering questions/respondent universe:** Ask if the respondent individually makes any income/monetary gains from gathering wild edible plants, insects, or their products.

(Ask if Q8.34=1 or Q8.33=3)

- c. Instructions:** The enumerator should ask for the **approximate or estimated** proportion of personal income that came from gathering wild edible plants, insects and their products. These include income from selling, trading and handling the materials. This refers to an individual's personal income only and not to the household income.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don't know” (code -98).

8.36 In the past 12 months, did you gather firewood, timber, or other wild plant-based fuels [shrubs, branches]?

- a. Measurement goal:** The aim of this question is to determine if the respondent gathered firewood, timber, or other wild plant-based fuels in the past 12 months..
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Firewood and other wild plant-based fuels are unprocessed sources of fuel. These may be any wood material, such as logs, shrubs or branches gathered from a forested area or in wild lands.

The respondent should refer to their OWN engagement and not of any member of the household.

The time reference period is the 12 months prior to the survey.

Q8.32 is an important filter question to screen respondents who were personally involved in gathering firewood and wild plant-based fuels

in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not gather any firewood or wild plant-based fuel in the past 12 months, proceed to Q8.40.

8.37 Was gathering fuels MAINLY performed...?

- a. Measurement goal:** The aim of this question is to determine the main purpose of gathering firewood or wild plant-based fuels.

- b. Filtering questions/respondent universe:** Ask if the respondent gathers firewood or wild plant-based fuels.

(Ask if Q8.36=1)

- c. Instructions:** Record one answer only. Ask the respondent's MAIN purpose of personally engaging in **gathering firewood or wild plant-based fuels**, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion or other purpose?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022a).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to

instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If respondent says it is for wage work, go to Q8.39.

8.38 In the past 12 months, did you individually make any income/monetary gains from these fuel products?

a. Measurement goal: The aim of this question is to determine if the respondent made any income/monetary gains from activities related to gathering wild plant-based fuel products.

b. Filtering questions/respondent universe: Ask if the respondent gathers firewood or wild plant-based fuels for own use or for sale/profit.

(Ask if Q8.36=1 and Q8.37=1, 2 OR 4)

c. Instructions: Income or monetary gain refers to profit or money that the respondent earned from gathering firewood or wild plant-based fuels.

The enumerator should ask for the individual income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money from gathering firewood or wild plant-based fuels (code 2), go to Q8.40.

8.39 What is the approximate share of your individual income that came from gathering firewood and other plant-based fuels (including income from selling, trading and handling these materials)?

a. Measurement goal: The aim of this question is to estimate the proportion of respondent's personal income that came from gathering firewood and other wild plant-based fuels.

b. Filtering questions/respondent universe: Ask if the respondent individually makes any income/monetary gains from the firewood or wild plant-based fuels.

(Ask if Q8.38=1 or 8.37=3)

c. Instructions: The enumerator should ask for the **approximate or estimated** proportion of respondent's personal income that came from activities related to gathering firewood and other plant-based fuels. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don't know” (code -98).

8.40 In the past 12 months, did you gather other non-edible wild plant products [such as saps, resins, bark, bamboo, rattan, thatch grass, palm leaves or other construction materials or fibres]?

a. Measurement goal: The aim of this question is to determine if the respondent gathered other non-edible wild plant products in the past 12 months. Relying on wild plant products may be highly affected by climate change.

b. Filtering questions/respondent universe: Ask all respondents.

c. Instructions: “Non-edible plant products” include saps, resins, bark, bamboo, rattan, thatch grass, palm leaves or other construction materials or fibres.

The respondent should refer to their OWN engagement and not of any member of the household.

The time frame should be within the past 12 months.

Q8.40 is an important filter question to screen respondents who were personally involved in gathering other non-edible plant products in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not gather any of these other non-edible wild plant products in the past 12 months, proceed to Q8.44.

8.41 Was gathering non-edible wild plant products MAINLY performed...?

a. Measurement goal: The aim of this question is to determine the main purpose of gathering non-edible wild plant products in the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent gathers non-edible wild plant products.

(Ask if Q8.40=1)

c. Instructions: Record one answer only. Ask the respondent's MAIN purpose of personally engaging **in gathering non-edible wild plant products**, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion or other purposes?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If respondent says it is for wage work, go to Q8.43.

8.42 In the past 12 months, did you individually make any income/ monetary gains from these wild plant products?

a. Measurement goal: The aim of this question is to determine if the respondent made any income/monetary gains from activities related to gathering non-edible wild plant products.

b. Filtering questions/respondent universe: Ask if the respondent gathers non-edible wild plant products for own use or for sale/profit.

(Ask if Q8.40=1 and Q8.41=1, 2 or 4)

c. Instructions: Income or monetary gain refers to profit or money that the respondent earned from gathering non-edible wild plant products.

The enumerator should ask for the individual income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money from gathering (code 0), go to Q8.44.

8.43 What is the approximate share of your individual income that came from these wild plant products (including income from selling, trading and handling these materials)?

a. Measurement goal: The aim of this question is to estimate the proportion of the respondent's individual or personal income that came from gathering non-edible wild plant products.

b. Filtering questions/respondent universe: Ask if the respondent individually make any income/ monetary gains from wild plant products.

(Ask if Q8.42=1 or 8.41=3)

c. Instructions: The enumerator should ask for the approximate or estimated proportion of personal income that came from gathering non-edible wild plant products. These include income from selling, trading and handling the materials. This refers to an individual's personal income only and not to the household income.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don’t know” (code -98).

8.44 In the past 12 months, did you hunt or harvest any forest animals [birds, snakes, frogs, deer, rodents, monkeys, bears, wild cats, rabbits, lizards, etc.]?

- a. **Measurement goal:** The aim of this question is to determine if the respondent hunted or harvested any forest animals in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Forest animals include birds, snakes, frogs, deer, rodents, monkeys, bears, wild cats, rabbits, lizards among many other. Enumerators should record if the respondent mentioned other animals.

The respondent should refer to their OWN engagement and not of any member of the household.

The time frame should be within the past 12 months.

Q8.32 is an important filter question to screen respondents who were personally involved in hunting or gathering forest animals in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not hunt or harvest in the past 12 months (code 0), proceed to Q8.49.

8.45 In the past 12 months, did you go hunting for any of the following?

- a. **Measurement goal:** The aim of this question is to determine the group of animals hunted in the forest in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask if the respondent hunted or gathered forest animals in the past 12 months.

(Ask if Q8.44=1)

- c. **Instructions:** Enumerators should read out **each item** and record the code corresponding to respondent’s answer.

Multiple responses are allowed.

Enumerators should note that the options provided are groups of animals. If the respondent provides a specific animal, the enumerator should record based on the groups. Therefore, it is important that enumerators know what animals can be categorized into these groups:

- **Mammals:** Goat, sheep, rats, deer, monkeys, bats, racoons, rabbits, fox, bears, boars, etc.
- **Reptiles:** Lizards, turtles, snake, geckos, etc.
- **Amphibians:** Frogs, salamanders, etc.
- **Birds:** Turkeys, pheasants, chickens, ducks, geese, fowls, hawks, etc.

8.46 Was hunting MAINLY performed...?

- a. **Measurement goal:** The aim of this question is to determine the main purpose of hunting and gathering forest animals in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask if the respondent hunted or gathered forest animals in the past 12 months.

(Ask if Q8.44=1)

- c. **Instructions:** Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in hunting and gathering forest animals, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion or other purposes?

- **“For own use/consumption of the household”** is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

- **“For sale/profit”** refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.
- **“Wage work”** is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).
- All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.
- If respondent says it is for wage work, go to Q8.48

8.47 In the past 12 months, did you individually make any income/monetary gains from activities related to hunting?

- Measurement goal:** The aim of this question is to determine if the respondent made any income/monetary gains from activities related to hunting.
- Filtering questions/respondent universe:** Ask if the respondent hunted or gathered forest animals in the past 12 months for own use or for pay/profit.

(Ask if Q8.44=1 and Q8.46= 1, 2 or 4)

- Instructions:** Income or monetary gain refers to profit or money that the respondent earned from hunting forest animals

The enumerator should ask for the individual income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money from hunting or harvesting forest animals (code 0), go to Q8.49

8.48 What is the approximate share of your individual income that came from hunting (including income from selling, trading and handling these materials)?

- Measurement goal:** The aim of this question is to estimate the proportion of respondent’s individual or personal income that came from hunting or gathering forest animals.
- Filtering questions/respondent universe:** Ask if the respondent individually made any income/monetary gains from hunting or gathering forest animals.

(Ask if Q8.46=3 or 8.47=1)

- Instructions:** The enumerator should ask for the **approximate or estimated** proportion of personal income that came from hunting or gathering forest animals. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don’t know” (code -98)

8.49 In the past 12 months, did you gather forest products (such as leaves, seeds, bark, wood, feathers, bones, other animal materials) for the creation of cultural products [such as crafts, garments, jewellery, rugs, ornaments, musical instruments, performances or related products]?

- Measurement goal:** The aim of this question is to determine if the respondent gathered forest products for the creation of cultural products. This question is of particular relevance in the Pacific region or among indigenous population, who may utilize forest products for the creation of cultural products, regardless of whether it is for pay, profit or not.

- Filtering questions/respondent universe:** Ask all respondents.

- Instructions:** Forest products include leaves,

seeds, bark, wood, feathers, bones and other animal materials. Cultural products include crafts, garments, jewellery, rugs, ornaments, musical instruments, performances, or related products.

The respondent should refer to their OWN engagement and not of any member of the household.

The time frame should be within the past 12 months.

Q8.49 is an important filter question to screen respondents who were personally involved in gathering forest products to create cultural products in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not gather forest products in the past 12 months (code 0), proceed to Q8.53.

8.50 Was the gathering of these products MAINLY performed...?

a. Measurement goal: The aim of this question is to determine the main purpose of gathering forest products to create cultural products in the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent gathered forest products to create cultural products in the past 12 months.

(Ask if Q8.49=1)

c. Instructions: Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in **gathering forest products to create cultural products**, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion or other purposes?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If respondent says it is for wage work, go to Q8.52.

8.51 In the past 12 months, did you individually make any income/ monetary gains from activities related to these cultural products?

a. Measurement goal: The aim of this question is to determine if the respondent made any income/ monetary gains from activities related to the creation of cultural products from gathered forest products.

b. Filtering questions/respondent universe: Ask if the respondent gathered forest products to create cultural products in the past 12 months for own use or for pay/profit.

(Ask if Q8.49=1 and 8.50=1, 2 or 4)

c. Instructions: Income or monetary gain refers to profit or money that the respondent earned from cultural products made from gathered forest products.

The enumerator should ask for the individual or personal income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money from cultural products (code 0), go to Q8.53.

8.52 What is the approximate share of your individual income that came from these cultural products (including income from selling, trading and handling these materials)?

a. Measurement goal: The aim of this question is to estimate the proportion of respondent's individual or personal income that came from cultural products made from gathered forest products.

b. Filtering questions/respondent universe: Ask if the respondent individually make any income/monetary gains from cultural products made from gathered forest products.

(Ask if Q8.51=1 or 8.50=3)

c. Instructions: The enumerator should ask for the **approximate or estimated** proportion of personal income that came from cultural products made from gathered forest products. These include income from selling, trading and handling the materials. This refers to an individual's personal income only and not to the household income.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don't know” (code -98).

8.53 In the past 12 months, did you perform any of the activities mentioned above (collecting plants, fuel, animals, other forest materials) in wild forest areas/wild pastures/wild wooded land (natural forest, not artificially planted, including wild mangroves)?

a. Measurement goal: The aim of this question is to determine if, in the past 12 months, the respondent collected plants, fuel, animals, other forest materials in wild forest areas/ wild pastures/wild wooded land (e.g. land that was never developed), as opposed to artificially planted or managed land (e.g. land that was never developed). Wild land is essential to environmental conservation and this question

aims to capture whether it also contributes to the livelihoods of people.

b. Filtering questions/respondent universe: Ask all respondents

c. Instructions: Wild forest areas, wild pastures or wild wooded land refer to land that has not been cultivated, such as natural forest and wild mangroves, that have not been affected by human-driven plantation or cultivation. Enumerators may remind the respondent of the following activities mentioned in questions ahead of Q8.53:

- Gathering wild food, such as wild edible plants, insects, or their products;
- Gathering firewood, timber, or other wild plant-based fuels;
- Gathering other non-edible wild plant products;
- Hunting or harvesting any forest animals;
- Gathering forest products for the creation of cultural products.

8.54 In the past 12 months, did you bring your animals to graze in wild forest areas, pastures or wooded land?

a. Measurement goal: The aim of this question is to determine if the respondent brought their animals to graze in wild forest areas, wild pastures, or wild wooded land in the past 12 months.

b. Filtering questions/respondent universe: Ask all respondents

c. Instructions: Record either “yes” (code 1) or “no” (code 0).

If the respondent brought their animals to graze in pastures or wooded land that have been artificially planted or managed, record code 0.

If the respondent did not gather forest products (Q8.49=0) **AND** did not bring their animals to graze in wild forest areas, pastures, or wooded land (code 0), go to Q8.59.

8.55 Did you put in place any of the following measures to ensure the availability of the forest resources in the long term? [if several measures have been used, use that used most frequently]

- a. Measurement goal:** The aim of this question is to determine whether the respondent has put in place measures to ensure the availability of the forest resources in the long term.
- b. Filtering questions/respondent universe:** Ask if the respondent collected plants, fuel animals or other forest materials in wild pastures/ wild wooded land in the past 12 months, or if the respondent brought animals to graze in wild forest areas

(Ask if Q8.53=1 or 8.54=1)

- c. Instructions:** Read out each option and record the code corresponding to the respondent's answer.

The enumerator should only record one response.

If multiple measures are used, the enumerator should probe for the most frequently used.

- **Replanting or repopulating.** Replantation or repopulation is the practice of reintroducing native plant species in an area, or the entry of plants where they have already established a habitat. This is commonly used to restore an area to its natural ecosystem.
- **Selection of specimen** refers to the practice of leaving eggs, young animals, seedlings, etc. untouched or unharvested. This allows the restoration of an ecosystem.
- **Fallowing or intermittent collection.** Fallowing is a crop rotation technique in which an area of land is not used for a long time so that the soil regains its fertility. According to OECD, "Fallowing is the management practice of leaving land in an uncropped state for a period of time prior to sowing another crop. Its purpose is to allow for the accumulation and retention of water and mineralized nutrients in the soil and generally to also allow for weed control." Similarly, "intermittent collection" may refer to collection of specimens from wild forests only during certain seasons to allow for repopulation.

- **Following rules/guidance for regeneration and protection of ecosystems,** such as periodic/temporary closing of select areas. This refers to individuals who adhere to or follow government or other rules put in place to ensure the regeneration and protection of forest ecosystems. For instance, following public guidelines that require that selected parts of the area are closed to allow natural recovery, limit the number of specimens that can be collected from the forest, abide by moratoriums on the harvest of some species, refrain from smoking near fire-prone forested areas, etc.
- **Alternating grazing periods and/or grazing locations.** This is a land management technique aimed to mitigate the overuse of lands used for grazing of livestock. This entails the adjustment in the grazing period - the length of time that grazing livestock or wildlife occupy a specific land area - to match the available forage and to allow natural re-growth of the pasture (Teague and Kreuter, 2020).

8.56 What is the approximate size of the wild forest/ pasture/ wooded land area you used?

- a. Measurement goal:** The aim of this question is to determine the size of the wild forest/pasture/ wooded land area the respondent used.
- b. Filtering questions/respondent universe:** Ask if the respondent collected plants, fuel animals or other forest materials in wild pastures/wild wooded land in the past 12 months, or if the respondent brought animals to graze in wild forest areas.

(Ask if Q8.53=1 or 8.54=1)

- c. Instructions:** The enumerator should emphasize the need to provide an approximate or estimated size of the wild forest/pasture/wooded land area used by the respondent.

The unit of measurement could either be in square kilometre (km²) or in the country-specific measurement standard, such as hectare (ha) or acre.

Accept only numeric variables.

8.57 Would you say that the wild area you use [forest, pastures, wooded land] has changed in the past 10 years?

- a. Measurement goal:** The aim of this question is to determine whether the wild area that the respondent use has changed in the past 10 years. This is a proxy question to ascertain the level of environmental degradation in wild areas.
- b. Filtering questions/respondent universe:** Ask if the respondent collected plants, fuel animals or other forest materials in wild pastures/ wild wooded land in the past 12 months, or if the respondent brought animals to graze in wild forest areas.

(Ask if Q8.53=1 or 8.54=1)

- c. Instructions:** Read out clearly. Let the respondent take time to answer.

Read out each option and record the code corresponding to the respondent's answer.

The enumerator should only record one response.

This is a modified yes/no question, in such that the answer is not a generic "yes" or "no". The responses provided correspond to the extent of change that has occurred in the wild area used for grazing. If the respondent gives a generic "yes," the enumerator must probe for a specific answer and then record only one answer. If the respondent produces "no" or "it hasn't changed" record code 0.

8.58 What is the MAIN use of wild forest/ pastures/ wild wooded land [including mangroves] for you? [pick one only. The main use should be that for which the respondent spends the most time]

- a. Measurement goal:** The aim of this question is to determine the main use of wild forest/ pastures/ wild wooded land to the respondent.
- b. Filtering questions/respondent universe:** Ask if the respondent collected plants, fuel animals or other forest materials in wild pastures/wild wooded land in the past 12 months, or if the respondent brought animals to graze in wild forest areas.

(Ask if Q8.53=1 or 8.54=1)

- c. Instructions:** Read out clearly. Let the respondent take time to answer.

As explained in previous questions:

Timber or firewood refers to tree trunks, branches, shrubs and other wood. It can be collected for own use (e.g. fuel for the home) or for other use (e.g. if the person engages in logging as a job, for instance).

Edible plants and fungi refer to mushrooms, flowers, leaves, fruits and other forest materials that are safe for human consumption.

Wildlife refers to any animals, including insects.

Animal products include honey, bee combs, eggs, larvae and any other products created by forest animals or insects.

Non-edible plants and construction materials refer to branches, leaves, rocks and other forest products that may be used for the creation of roofs, clothes, food wrapping and any other purpose other than eating.

Other forest products would include leaves, seeds, bark, feathers bones and others.

Read out each option and record the code corresponding to the respondent's answer.

The enumerator should only record one response.

If the respondent chooses several uses, ask for the MAIN use or which they spent the most time with.

8.59 Do you participate in any forest groups or communal land governance groups?

- a. Measurement goal:** The aim of this question is to determine if the respondent participates in any forest groups or communal land governance groups.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Any forest group or communal land

refers to institutions that implement systems for governance of communal lands and resources. Although these groups may exist at national or provincial levels, most forest groups typically cover select localities or particular forest or wild land areas..

FOOD AND BEVERAGE PROCESSING/ PRESERVATION AND STORAGE

8.60 In the past 12 months, did you process or preserve food for storage [such as flour, dried fish, dried vegetables, spices, butter, cheese, ...]?

- a. **Measurement goal:** The aim of this question is to determine if the respondent processes or preserves food for storage. Processing food includes creating flour, drying fish, drying vegetables and spices, creating butter and cheese, fermenting or pickling foods and others.
- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** Record either “yes” (code 1) or “no” (code 0).

The respondent should refer to their OWN engagement and not of any member of the household.

The time frame should be within the past 12 months.

Q8.60 is an important filter question to screen respondents who were personally involved in the processing or preservation of food for storage in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not process or preserve food for storage in the past 12 months (code 0), go to Q8.64.

8.61 [8.60] Was the processing or preserving food for storage MAINLY performed...?

- a. **Measurement goal:** The aim of this question is to determine the main purpose of processing or preserving food for storage in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask if the respondent processed or preserved food for

storage in the past 12 months.

(Ask if Q8.60=1)

- c. **Instructions:** Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in **processing or preserving food for storage**, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion, or other purposes?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

- **“For sale/profit”** refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.
- **“Wage work”** is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If respondent says it is for wage work, go to Q8.63.

8.62 In the past 12 months, did you individually make any income/ monetary gains from these activities?

- a. **Measurement goal:** The aim of this question is to determine if the respondent made any income/monetary gains from activities related to processing or preserving food for storage.

- b. Filtering questions/respondent universe:** Ask if the respondent processed or preserved food for storage in the past 12 months for own use or for sale/profit.

(Ask if Q8.60=1 and Q8.61=1, 2 or 4)

- c. Instructions:** Income or monetary gain refers to profit or money that the respondent earned from processing or preserving food for storage.

The enumerator should ask for the individual or personal income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money processing or preserving food for storage (code 0), go to Q8.64.

8.63 What is the approximate share of your individual income that came from it? (including income from selling, trading and handling these materials)

- a. Measurement goal:** The aim of this question is to determine the proportion of the respondent's individual or personal income that came from processing or preserving food for storage

- b. Filtering questions/respondent universe:** Ask if the respondent individually makes any income/monetary gains from processing or preserving food for storage.

(Ask if Q8.62=1 or Q8.61=3)

- c. Instructions:** The enumerator should ask for the **approximate or estimated** proportion of personal income that came from processing or preserving food for storage. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don't know” (code -98).

8.64 In the past 12 months, did you pick, sort or recycle any garbage, refuse or leftover besides garbage produced by your own household?

- a. Measurement goal:** The aim of this question is to determine if the respondent picked, sorted, or recycled any garbage, refuse or leftover besides garbage produced by their own household in the past 12 months.

- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** The respondent should refer to their OWN engagement and not of any member of the household.

The time frame should be within the past 12 months.

Q8.64 is an important filter question to screen respondents who were personally involved in garbage picking/sorting/recycling in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

Garbage picking refers to the sifting through waste to salvage discarded items that may still be reused or recycled. Garbage picking is done either in streets, in dumpsters or in landfills.

Sorting refers to the segregation of waste according to material or recyclability. For example, wastes are typically categorized into organic waste, paper, plastic, glass, metal, wood, clothing and textile, bricks and insert waste, batteries and e-waste. Sorting may be done by hand, or with the help of tools, sorting machines or conveyor belts.

Recycling, according to the United States Environmental Protection Agency, is the process of “collecting and processing materials that would otherwise be thrown away as trash and turning them into new products”. Waste materials are extracted and converted into new materials. For example, newspapers are often recycled into cartons, paper plates, or building insulation. Plastic bottles are usually recycled to make new bottles, plastic lumber, or other plastic-made materials, such as toys.

8.65 Was picking, sorting or recycling of garbage, refuse or leftover MAINLY performed...?

a. Measurement goal: The aim of this question is to determine the main purpose of garbage picking/sorting/recycling in the past 12 months in the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

c. Instructions: Record one answer only. Ask the respondent's MAIN purpose of personally engaging in garbage picking/sorting/recycling, i.e. is it for own use/consumption of the household, for sale/profit, for wage work or for leisure, tradition, religion, or other purposes?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for final use by the producer, their household and/or their family. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

If respondent says it is for wage work, go to Q8.67.

8.66 In the past 12 months, did you individually make any income/ monetary gains from these activities?

a. Measurement goal: The aim of this question is to determine if the respondent made any income/monetary gains from activities related to garbage picking/sorting/recycling in the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months for own use or for sale/profit.

(Ask if Q8.64=1 and Q8.65=1, 2 or 4)

c. Instructions: Income or monetary gain refers to profit or money that the respondent earned from picking, sorting, or recycling of garbage, refuse or leftover.

The enumerator should ask for the individual or personal income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money from picking, sorting, or recycling of garbage, refuse or leftover (code 0), go to Q8.68.

8.67 What is the approximate share of your individual income that came from garbage? (including income from selling, trading and handling these materials)

a. Measurement goal: The aim of this question is to estimate the proportion of the respondent's individual or personal income that came from garbage picking/sorting/recycling.

b. Filtering questions/respondent universe: Ask if the respondent individually made any income/monetary gains from picking, sorting, or recycling of garbage, refuse or leftover.

(Ask if Q8.65=3 or Q8.66=1)

c. Instructions: The enumerator should ask for the **approximate or estimated** proportion of personal income that came from garbage picking/sorting/recycling. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don’t know” (code -98).

8.68 Did anyone else in your household receive remuneration (monetary or in-kind) for these activities you performed?

a. Measurement goal: The aim of this question is to determine if anyone else in the household received remuneration (monetary or in-kind) for the activities performed. In some instances, several family members may carry out the recycling and garbage sorting activities, but only one of them obtains remuneration directly. This question helps capture intra-household inequalities.

b. Filtering questions/respondent universe: Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

c. Instructions: This is a modified yes/no question, in which there are two categories that correspond to “yes”. If the respondent gives a generic “yes” answer, the enumerator should probe for specific answer from the following:

- Yes, my husband/wife/partner (code 2);
- Yes, someone else (code 3).

8.69 For equal amounts and types of refuse, do you receive the same amount of remuneration/ wage as everyone else in the recycling facility or selling point you use?

a. Measurement goal: The aim of this question is to determine if the respondent received the same amount of remuneration/wage as everyone else in the recycling facility or selling point they use. Gender roles and discrimination may result in women and men having access to different materials or different pay for the same materials.

b. Filtering questions/respondent universe: Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

c. Instructions: Read out each option and record the code corresponding to the respondent’s answer.

This is a modified yes/no question, with five responses categories offered.

One category corresponds to “yes”:

- Yes, remuneration is identical regardless of the characteristics of the seller (code 1).

Four categories correspond to “no”. If the respondent gives a generic “no,” the enumerator must probe for a specific answer and then record only one answer:

- No, men receive higher remuneration (code 2);
- No, women receive higher remuneration (code 3);
- No, experienced garbage pickers (long-term clients) receive higher remuneration (code 4);
- No, someone else receives higher remuneration (code 5).

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

8.70 What are the main materials you collect/ sort/ recycle most often?

a. Measurement goal: The aim of this question is to determine the type of materials the respondent collect/sort/recycle most often. Gender norms and other factors may influence access to high value materials.

b. Filtering questions/respondent universe: Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

c. Instructions: Record one response only.

If the respondent answers several materials, ask for the material they **most often** collect/sort/recycle.

Record “don’t know” (code -98) ONLY if the respondent volunteers “I don’t know”.

- **Cardboard, plastic, or other low-value materials.** These are the most commonly used materials for household and industrial uses, particularly in packaging, and are considered low value in terms of recyclability or reusability. **Carboards** are paper-based products such as corrugated boxes or cartons, such as those found in shoe boxes or cereal boxes, among many other products.
- **Plastics** are synthetic materials that are used in almost all aspects of life and industry, from household items to packaging to consumer products to agriculture. Examples of plastic packaging include water bottles, grocery bags, bottles of cleaning products, plastic film, many yogurt cups and straws, nylon and polyester clothing, etc.
- **Scrap metal, aluminium, or other high value materials.** Scrap metals are considered high value materials because these are high in demand in industries, such as factories and production.
- These materials also have an infinite recycling life – they can be recycled repeatedly without losing its quality. The most common (and valuable) materials are **copper** (electrical wiring, cell phones and other electromagnetic devices), **aluminium** (aluminium cans, grills, cookware, or wires), **brass** (doorknobs, trophies, hinges, brass pipes) and **stainless steel** (cars, appliances). Other high-value materials include, for instance, rare earth minerals included in cell phones and other electronics.

8.71 Do you use any equipment to perform this activity?

- a. Measurement goal:** The aim of this question is to determine if the respondent uses equipment

to perform garbage picking/sorting/recycling and the type of equipment used.

- b. Filtering questions/respondent universe:** Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

- c. Instructions:** Read out each option and record the code corresponding to the respondent’s answer.

Record either “yes” (code 1) or “no” (code 2).

- **Mostly sacks, bags, baskets.** These materials are used to collect the garbage and transport it from one place to another.
- **Carts or bicycles.** Carts are usually made of wood or metal and are pushed forward or pulled. Carts and bicycles are used to transport garbage.
- **Small, motorized vehicles.** These may include motorcycle-driven carts, sidecars or small vans used to transport garbage.
- **Protective gear.** These include heavy duty-gloves, masks, goggles or safety shoes that would protect individuals from waste materials, which could be hazardous.

8.72 Do you mostly perform this activity alone or with someone else?

- a. Measurement goal:** The aim of this question is to determine whether the respondent perform garbage picking/sorting/recycling alone or with someone else.

- b. Filtering questions/respondent universe:** Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

- c. Instructions:** Record one response only.

If the respondent usually performs this activity with multiple people, ask for the person with whom they do this activity **most often**.

8.73 Have you ever been in a situation when you felt unsafe picking, sorting, or recycling garbage (including at recycling and selling points)?

- a. Measurement goal:** The aim of this question is to determine whether the respondent ever felt unsafe in garbage picking/sorting/recycling.
- b. Filtering questions/respondent universe:** Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

- c. Instructions:** The respondent may recall any situation when they felt unsafe in performing the tasks, either mentally and physically, due to harassment and abuse by fellow workers or strangers, or due to insecurity in the area, including the widespread use of sharps, knives, guns or narcotics.

Record either “yes” (code 1) or “no” (code 2). If the response is “yes” do not probe further to find out the type of source of insecurity or lack of safety.

8.74 As a result of garbage picking/ sorting/ recycling, have you experienced any of the following?

- a. Measurement goal:** The aim of this question is to determine whether the respondent experienced any safety or health concerns in garbage picking/sorting/recycling. Engaging in these activities may have safety or health concerns in some cases.
- b. Filtering questions/respondent universe:** Ask if the respondent picked, sorted, or recycled any garbage, refuse or leftover in the past 12 months.

(Ask if Q8.64=1)

- c. Instructions:** Accept only numeric answers in percentage format. Probe if necessary.

If the respondent cannot give an estimate, record “don’t know” (code -98).

Exposure to waste materials or improper waste handling may result in skin or other external diseases, digestive and other internal diseases. Some diseases and conditions are acute, lasting

only a short time, while others are chronic, or long-lasting.

- **Skin or other external diseases** include rashes, burns, inflammation, itchiness, or other skin changes.
- **Digestive conditions and internal diseases** may include gastrointestinal disorders (such as diarrhoea, gastroenteritis, or vomiting), respiratory problems (asthma, cough, bronchitis), or musculoskeletal issues (e.g. bone and joint pain, back and neck pain, inflammatory disease such as systemic lupus, etc.).
- Waste pickers may also suffer from **social stigma**, or the negative or discriminatory attitudes towards people because of their characteristics or occupation. Waste pickers tend to be very poor or ethnic minorities or those who did not have any education. These socio-economic characteristics, coupled with an occupation that involves picking up waste and garbage, often result in their stigmatization. They may be harassed, heckled or discriminated.
- **Severe injury, trauma and amputation** refers to deep cuts and lacerations, concussions, or any injuries leading to the removal of a body part, such as a finger, toe, hand, foot, arm, or leg..

MINING/OIL PUMPING

8.75 In the past 12 months, did you mine or extract materials such as [oil, gold, copper, stones, coal...]?

- a. Measurement goal:** The aim of this question is to determine if the respondent engaged in mining in the past 12 months.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** Record either “yes” (code 1) or “no” (code 0).

Mining, according to the International Standard Industrial Classification of all Economic Activities (ISIC), is the extraction of minerals occurring naturally as solids (coal and ores), liquids (petroleum) or gases (natural gas). Extraction can be achieved by different

methods such as underground or surface mining, well operation, seabed mining, etc.

The respondent should refer to their OWN engagement and not that of any member of the household.

The time frame should be within the past 12 months.

Q8.75 is an important filter question to screen respondents who were personally involved in mining in the past 12 months. If the respondent answers “yes” (code 1), then follow-up questions will be asked.

8.76 Was mining or extracting materials such as [oil, gold, copper, stones, coal...] MAINLY performed...?

a. Measurement goal: The aim of this question is to identify the main purpose of mining or extracting activities in the past 12 months.

b. Filtering questions/respondent universe: Ask if the respondent was involved in mining or extracting materials.

(Ask if Q8.75=1)

c. Instructions: Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in **mining or extracting minerals**, i.e. is it for own use/consumption of the household, for sale/profit, or for wage work, for leisure, tradition, religion, or other purpose?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wage work” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

8.77 In the past 12 months, did you individually make any income/monetary gains from these activities?

a. Measurement goal: The aim of this question is to determine if the respondent made any income/monetary gains from activities related to **mining or extracting minerals**.

b. Filtering questions/respondent universe: Ask if the respondent was involved in mining or extracting materials and did it for own use or for sale/profit.

(Ask if Q8.75=1 and Q8.76=1, 2 or 4)

c. Instructions: Income or monetary gain refers to profit or money that the respondent earned from **mining or extracting minerals**.

The enumerator should ask for the income or monetary gain of the respondent and not of the household.

8.78 What is the approximate share of your individual income that came from it? (include income from selling, trading and handling these materials)

a. Measurement goal: The aim of this question is to estimate the proportion of respondent’s personal income that came from activities related to **mining or extracting minerals**

b. Filtering questions/respondent universe: Ask if the respondent individually made any income or monetary gain from mining or extracting minerals.

(Ask if Q8.77=1 and Q8.76=3)

- c. **Instructions:** The enumerator should ask for the approximate or estimated proportion of respondent's personal income that came from activities related to mining or extracting minerals. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record "don't know" (code -98).

8.79 Have you followed any of the following practices in tandem with your mining/oil pumping activities?

- a. **Measurement goal:** The aim of this question is to determine if the respondent conducted any of the mining practices with their mining or oil pumping activities.

- b. **Filtering questions/respondent universe:** Ask if the respondent was involved in mining or extracting materials.

(Ask if Q8.75=1)

- c. **Instructions:** The practices enumerated refer to practices that characterize sustainable mining practices or could damage the environment.

Enumerators should read out each item and record the code corresponding to respondent's answer.

- **Waste rocks** consist of rock and target minerals in concentrations too low for economic recovery. They may range from sand to large boulders.
- **Tailings** are residue from mining, or materials left over after separating valuable from uneconomic materials of an ore.
- **Biosolids** are organic matter recycled from sewage, typically used in agriculture as a top layer of soil, instead of manure or other fertilizer.

- **Bacterial contaminants** in the context of mining refer to microorganisms that may colonize and inhabit mine waste.

8.80 Have you experienced any of the following issues in the past 12 months?

- a. **Measurement goal:** The aim of this question is to determine if the respondent experienced any health problems associated with mining or extraction activities, or their source of livelihood was affected by aftereffects of mining.

- b. **Filtering questions/respondent universe:** Ask if the respondent was involved in mining or extracting materials.

(Ask if Q8.75=1)

- c. **Instructions:** Enumerators should read out each item and record the code corresponding to respondent's answer.

- **Respiratory disease** refers to mining-related diseases of the respiratory system. The most common are lung cancers, pneumoconiosis and chronic obstructive pulmonary disease (COPD).

- **Mining-related skin diseases** include dermatitis, or skin cancer.

- **Liver problems** may refer to liver cancer and other diseases of the liver, such as cirrhosis, decline in liver function.

- **Oesophagus problems** are diseases of the oesophagus, which connects the throat to the stomach. These include oesophageal cancer or esophagitis.

- Mining could also **directly impact the animals** located near the mining site, such as **livestock**. For instance, it could cause poisoning or foot-and-mouth disease, or contamination of their food and water sources. Tailings from mine could cause heavy metal poisoning or toxic metal accumulation in livestock.

- The environment near mining sites could also result in the **increase in population of pests, insects or crustaceans**, which in turn would affect the productivity of one's harvest or catch.

WATER COLLECTION

8.81 In the past 12 months, did you fetch water?

- a. **Measurement goal:** The aim of this question is to determine if the respondent fetched water from a surrounding source outside of their homes in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask all respondents
- c. **Instructions:** The respondent should refer to their OWN engagement and not of any member of the household.

The time frame should be within the past 12 months.

Q8.81 is an important filter question to screen respondents who were personally involved in fetching water in the past 12 months. If respondent answers “yes” (code 1), then follow-up questions will be asked.

If the respondent did not fetch water in the past 12 months (code 0), go to Q8.86.

8.82 Was fetching water MAINLY performed...

- a. **Measurement goal:** The aim of this question is to determine the main purpose of fetching water from a source in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask if the respondent fetched water in the past 12 months.

(Ask if Q8.81=1)
- c. **Instructions:** Record one answer only. Ask the respondent’s MAIN purpose of personally engaging in fetching water, i.e. is it for own use/consumption of the household, for sale/profit, or for wage work, for leisure, tradition, religion, or other purpose?

“For own use/consumption of the household” is when the household or an individual performs activities to produce goods or services intended for **final use by the producer, their household and/or their family**. Even if some goods or services are sold, this should still be considered as own use/consumption of the household if this was the main purpose of production (ILO, 2022).

“For sale/profit” refers to a type of work in which an individual performs activities to produce goods and services that are aimed for the market (or market-oriented activities). The main purpose of the production is for the market, in exchange for cash income. These are usually considered as self-employed or self-employment.

“Wagework” is when an individual is in employment or performs activities for another individual or an enterprise and in exchange receive remuneration that is payable in cash (wages or salaries) or in kind (produce, goods).

All other purposes should be included under leisure, tradition, religion or other (code 4). “Leisure, religion, tradition or other” refers to instances of performing this activity for the purpose of enjoyment, or in line with traditional beliefs, heritage or other social or faith-related practices.

8.83 In the past 12 months, did you individually make any income/monetary gains from activities?

- a. **Measurement goal:** The aim of this question is to determine if the respondent made any income/monetary gains from activities related to fetching water in the past 12 months.
- b. **Filtering questions/respondent universe:** Ask if the respondent fetched water in the past 12 months for own use or for sale/profit.

(Ask if Q8.81=1 and Q8.82=1, 2 or 4)
- c. **Instructions:** Income or monetary gain refers to profit or money that the respondent earned from fetching water.

The enumerator should ask for the individual or personal income or monetary gain of the respondent and not of the household.

If the respondent did not gain income or money from fetching water (code 0), go to Q8.85.

8.84 What is the approximate share of your individual income that came from it? (including income from selling, trading and handling these materials)

- a. **Measurement goal:** The aim of this question is to estimate the proportion of respondent’s

personal income that came from activities related to fetching water.

- b. Filtering questions/respondent universe:** Ask if the respondent individually made any income or monetary gain from fetching water.

(Ask if Q8.83=1 and Q8.82=3)

- c. Instructions:** The enumerator should ask for the **approximate or estimated** proportion of respondent's personal income that came from activities related to fetching water. These include income from selling, trading and handling the materials.

Accept only numeric answers in percentage format. Probe if necessary.

Respondents might give an amount or value of income – enumerators should not accept these responses. Do not accept range of amounts/values or responses that are descriptions of amount/value.

If the respondent cannot give an estimate, record “don't know” (code -98).

8.85 During the past 12 months, have you ever felt unsafe or worried about your surroundings in the process of water or firewood collection?

- a. Measurement goal:** The aim of this question is to determine if the respondent ever felt unsafe or worried when they were fetching water.

- b. Filtering questions/respondent universe:** Ask if the respondent fetched water in the past 12 months.

(Ask if Q8.81=1 or Q8.83=0)

- c. Instructions:** This is a modified yes/no question, in which there are two categories that correspond to “yes”. If the respondent gives a generic “yes” answer, the enumerator should probe how often did they feel unsafe:

- Yes, I have felt unsafe at least once (code 1);
- Yes, I have often felt unsafe (code 2).

8.86 Do you participate in any water management committees?

- a. Measurement goal:** The aim of this question is to determine if the respondent has participated in any water management committees.

- b. Filtering questions/respondent universe:** Ask all respondents.

- c. Instructions:** Water management committees are organizations dealing with setting up rules for water distribution, installation of hydraulic wells, pumps and drills, keeping water equipment in good condition and collecting income resulting from the sale of water if applicable. They may be part of any level of government or be set up as users associations.

4.12 | Module 9 Asset ownership

This module includes a sequence of questions to assess ownership of agricultural land at the individual level, including questions on available documentation of land owned, type of document, name listed on document, right to sell land and right to bequeath any land. It also asks the respondent to indicate the size of the land they own, whether they own large land or fishing equipment, multiple questions about ownership of dwelling and questions to ascertain whether they have access to bank account and financial assets. These questions are important in the context of the gender-environment nexus as they help ascertain an individual's capacity to cope with sudden environmental hazards that may have repercussions on their livelihoods.

An asset, according to the 2008 System of National Accounts, is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time.

(Introduction) The following questions pertain to different assets you may personally own, including your home, agricultural land, agricultural equipment and others. Please note most of these questions are about ownership and not use.

- a. **Measurement goal:** Introduction statement.
- b. **Filtering questions/respondent universe:** Applies to all respondents.
- c. **Instructions:** Read out loud to the respondent.

Emphasize “personally own” – which means that the respondent owns the assets, whether or not they use this or not.

9.1 Do you currently own or hold use rights for any agricultural land (including pastoral land), either alone or jointly with someone else? [if more than one parcel, refer to the largest]

- a. **Measurement goal:** The aim of this question to identify if the respondent owns or holds use rights for any agricultural land (including pastoral land), either alone or jointly with someone else. Agricultural land can be used as collateral to ask for loans or start a new business and thus increases capacity to cope with disasters.

- b. **Filtering questions/respondent universe:** Ask all respondents.
- c. **Instructions:** This question specifically asks of ownership of agricultural lands. Agricultural land is “used primarily for the production of plant or animal crops, including arable agriculture, dairying, pasturage, apiaries, horticulture, floriculture, viticulture, animal husbandry and the necessary lands and structures needed for packing, processing, treating, or storing the produce” (European Environment Agency, 2022).

“Ownership,” as used in in this question, may, refer to either reported ownership or documented ownership. Reported ownership is when an individual may consider themselves owning a land, even though they do not. Documented ownership means an individual has formal (legal) documentation to claim ownership. The enumerator may not explain this distinction to the respondent. The enumerator should let the respondent decide whether to claim ownership of asset as self-reported (or “as claimed by the respondent”) or to only report documented assets (United Nations Statistics Division, 2019).

Rights to use any agricultural land are applied to legitimate institutions such as the Land Registry to ensure that agricultural operations and other activities are regulated by laws designed to protect the environment. “Rights to use” may refer to lease or rental arrangements, or customary rights.

“Yes, alone” means that the respondent by himself/herself owns a or has rights to use an agricultural land, whether or not they have document for this. This is also known as “sole ownership”.

“Yes, with someone else” indicates joint ownership of an agricultural land, whether with family or relatives or with other people, whether or not they have document for this. This is also known as “joint ownership”.

“No” means the respondent does not personally own or have rights to use agricultural land.

If the respondent owns rights to more than one agricultural land, their answer of either “Yes, alone” (code 1) or “Yes, with someone else” (code 2) should be determined by the largest

land they identify. The enumerator should re-ask the question and probe for the ownership of the largest land they identify.

If the respondent does not own or hold use rights (“no” or code 0), proceed to Q9.8.

Record one answer only. If the respondent says they own land (code 1) AND shares a joint ownership (code 2), the enumerator should probe the type of ownership for the largest parcel of agricultural land they own.

9.2 Is there a document for any of the agricultural land you own or hold use rights to that is issued by or registered at the Land Registry/ Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract?

a. Measurement goal: The aim of this question is to determine if the respondent have a document for **any** of the agricultural land they own or hold use rights to that is issued by or registered at the Land Registry/Cadastral Agency. This is a follow up question to confirm ownership of the land.

b. Filtering questions/respondent universe: Ask if the respondent owns or has use rights for any agricultural land.

(Ask if Q9.1=1 or 2)

c. Instructions: This question intends to measure documented ownership, or when an individual has formal (legal) documentation of ownership of any agricultural land they claim to own, whether individually or jointly. The types of documents may be a title deed, certificate of ownership, certificate of hereditary acquisition, lease, or rental contract. The name of documents varies by country according to their land tenure system.

The enumerator does not need to see any of these documents to verify a respondent’s answer. Some respondents may volunteer to show their documents to the enumerator for verification. The enumerator should politely inform the respondent that this is not necessary.

If the respondent does not have any document of ownership or use rights, go to Q9.5.

9.3 What type of documents are there for the agricultural land you own or hold use rights to? (list up to three) [LIST OF DOCUMENTS PROVIDED IS INDICATIVE. INCLUDE ALL DOCUMENTS RECOGNIZED BY NATIONAL LAW ACCORDING TO NATIONAL LAND TENURE SYSTEM]

a. Measurement goal: The aim of this question is to specify the type of documents that the respondent has for any of the agricultural land they own or hold rights to. This is a follow-up question to confirm ownership of the land. This question may serve as a validation question for ownership.

b. Filtering questions/respondent universe: Ask if the respondent has documents for any of the agricultural land they own or hold use rights to.

(Ask if Q9.2=1)

c. Instructions: The types of documents may be a title deed, certificate of ownership, certificate of hereditary acquisition, lease, or rental contract. The name of documents varies by country according to their land tenure system. The following documents may be considered formal titles, according to the FAO Multilingual thesaurus on land tenure (FAO, 2003):

- **Title deed:** “a written or printed instrument that effects a legal disposition”
- **Certificate of customary tenure:** an official state document indicating the owner or holder of the land because customary law has recognized that particular person as the rightful owner. It can be used as proof of legal right over the land. These certificates include, among others, certificates of customary ownership and customary use.
- **Certificate of occupancy or land certificate:** “A land certificate is a certified copy of an entry in a land title system and provides proof of the ownership and of encumbrances on the land at that time”
- **Registered certificate of hereditary acquisition**
- **Purchase agreement:** a contract between a seller and a buyer to dispose of land

- **Registered certificate of perpetual/long term lease:** “a contractual agreement between a landlord and a tenant for the tenancy of land. A lease or tenancy agreement is the contractual document used to create a leasehold interest or tenancy”
- **Registered short term (less than three years) rental contract**
- **Certificate issued for adverse possession or prescription** is a certificate indicating that the adverse possessor acquires the land after a prescribed statutory period.

These documents may also be used to claim ownership or rights to use:

- **Survey plan** is a specialized map that shows the legal boundaries and natural features of a parcel of land. In some countries, a survey plan is used temporarily as proof of ownership while a land is in the process of being registered or a change in ownership is being registered in a land registry.
- **Rental contract registered:** a rental contract is an agreement between a landlord or property owner and a tenant, in which the tenant has the right to use and occupy a property for a short time. A rental contract has to be registered as a public document to be valid (usually either notarized or registered with a title agency).
- **Lease, registered:** a lease agreement is an agreement between a landlord or property owner and a tenant, in which the tenant has the right to use and occupy a property for a short time. A contract has to be registered as a public document to be valid (usually either notarized or registered with a title agency).

Read out each item.

The enumerator should record up to three (3) main documents that the respondent has. Fewer than three is accepted.

Record any other documents mentioned by the respondent that may be recognized by the country’s laws according to its own national land tenure system.

The enumerator does not need to see any of these documents to verify a respondent’s answer. Some respondents may volunteer to show their documents to the enumerator for verification. The enumerator should politely inform the respondent that this is not necessary.

9.4 Is your name listed on any of the documents as owner or rights use holder?

a. Measurement goal: The aim of this question is to determine if the respondent’s name is listed on **any** of the documents as owner or rights use holder. This is a follow up question to confirm ownership of the land.

b. Filtering questions/respondent universe: Ask if the respondent has document for any of the agricultural land they own or hold use rights to.

(Ask if Q9.2=1)

c. Instructions: Record “yes” (code 1) if the respondent’s name is listed on **any** of the documents identified in Q9.3. Otherwise, record “no” (code 2).

The enumerator does not need to see any of these documents to verify a respondent’s answer. Some respondents may volunteer to show their documents to the enumerator for verification. The enumerator should politely inform the respondent that this is not necessary.

9.5 Do you have the right to sell any of the agricultural land you own or hold use rights to, either alone or jointly with someone else?

a. Measurement goal: The aim of this question is to determine whether the respondent has a right to sell **any** of the agricultural land they own or hold use rights to, either alone or jointly with someone else. This is a follow-up question to confirm ownership of the land. It is also a recovery question for people who noted they own land but do not have documents.

b. Filtering questions/respondent universe: Ask if the respondent owns or has use rights for any agricultural land.

(Ask if Q9.1=1 or 2 and if Q9.2=0)

- c. **Instructions:** The enumerator should emphasize the respondent's **right to sell** the land they own or hold use rights to, whether or not they have documents of ownership or right to use.

The right to sell is the “ability of an individual to transfer the asset in question permanently, in return for cash or in-kind benefits. This right may be held jointly with one or more individuals. The right to sell an asset is the right most commonly associated with ownership, but the concept is not applicable in areas where laws or social norms preclude the sale of assets, such as land” (United Nations Statistics Division, 2019).

9.6 Do you have the right to bequeath any of the agricultural land you own or hold use rights to, either alone or jointly with someone else?

- a. **Measurement goal:** The aim of this question is to determine whether the respondent has the right to bequeath any of the agricultural land they own or hold use rights to, either alone or jointly with someone else. This is a follow up question to confirm ownership of the land.
- b. **Filtering questions/respondent universe:** Ask if the respondent owns or has use rights for any agricultural land.

(Ask if Q9.1=1 or 2)
- c. **Instructions:** The enumerator should emphasize the **respondent's right to bequeath or to give by will after their death** the land they own or hold use rights to, whether or not they have documents of ownership or right to use.

The right to bequeath an asset is the “ability of individuals to give the asset in question, by oral or written will, to other persons after their death. This right may be held jointly with one or more individuals. The right to bequeath is also an alienation right, one that may be more universal than the right to sell, since in many contexts owners can bequeath assets to their children or other persons even if they are prohibited from selling them” (United Nations Statistics Division, 2019).

9.7 What is the size of the total agricultural land you own?

- a. **Measurement goal:** The aim of this question is to identify the total size of the agricultural land the

respondent owns both for those they own alone or jointly with someone else. Gender norms may result in women owning smaller plots than men in some instances.

- b. **Filtering questions/respondent universe:** Ask if the respondent owns or has use rights for any agricultural land.

(Ask if Q9.1=1 or 2)

- c. **Instructions:** The unit of measurement could either be in square kilometre (km²) or in the country-specific measurement standard, such as hectare (ha) or acre.

If less than 1 km², record the amount in m² and indicate the unit of measurement. If less than 1 m² record “00”. If unknown, record “don't know” (code -98).

The answer should include **ALL agricultural land** owned by the respondent, either on their own or jointly with someone else.

Note that there is a separate category for agricultural lands that are owned alone and for agricultural lands that are jointly owned. The enumerator should probe separately.

The enumerator should specify whether the land is “owned alone” or “jointly” (per Q9.1) and record accordingly.

If the respondent is not able to give an exact total size, ask for the estimated size.

Record only numeric variables.

9.8 Do you own any large agricultural equipment, such as tractors, ploughs, irrigation systems or trailers?

- a. **Measurement goal:** The aim of this question is to determine if the respondent owns any large agricultural equipment or machinery, such as tractors, ploughs, irrigation systems or trailers. These materials can contribute to furthering economic profit and coping with the effects of climate change, and they can be used as collateral to secure small loans.
- b. **Filtering questions/respondent universe:** Ask all respondents.

- c. **Instructions:** Respondents may own agricultural equipment or machinery even if they do not own any agricultural land.

“Large agricultural equipment or machinery” may refer to farming vehicles, such as tractors, combine or harvester, or all-terrain vehicle (ATV) or utility task vehicle (UTV), including tractor attachments, such as plows, seeders, balers and other attachments. The respondent may also mention other examples of agricultural equipment or tools that they own.

It is suggested that countries prepare a list of “large agricultural equipment or machinery” that may be more relevant to their country context. Below are examples of animal-powered or machine-powered equipment according to FAO:

- **Animal-powered equipment,** such as wooden plough, steel plough, cultivator, disk harrow, seed/fertilizer drill, leveller, animal cart, animal-operated irrigation devices.
- **Machine-powered equipment:** machines for general farm use, such as combustion engine or electric generator; tractors, bulldozers or over vehicles, such as trucks or boats; crop machinery and equipment, including those used for land preparation and planting (such as power tiller, plough, cultivators or planters), crop maintenance (such as manure spreader, irrigation equipment, fertilizing broadcaster, water pump), crop harvesting (such as baler, mower, harvester, picker), or post-harvest (such as thresher, grain cleaner of sorters). Also included are livestock machinery, such as milking machine, dairy machine or incubator and aquaculture machinery and equipment.

The respondent may own the equipment or machinery exclusively or jointly with someone else, who may be household members or non-household members.

If the respondent does not own any equipment (code 0) or refuses to respond (code -99), proceed to Q9.13.

9.9 Please list each piece of large agricultural equipment that you own exclusively or jointly with someone else

- a. **Measurement goal:** The aim of this question is to have a complete listing of each piece of large agricultural equipment that the respondent owns exclusively or jointly with someone else.

- b. **Filtering questions/respondent universe:** Ask if the respondent owns any large agricultural equipment.

(Ask if Q9.8=1)

- c. **Instructions:** The enumerator should list down as many equipment as applicable.

If the respondent owns several units of a particular large agricultural equipment, record per piece. For example, the respondent owns two tractors, this should be recorded as two tractors, listed individually as “tractor 1” and “tractor 2”. Large agricultural equipment **does not** include shovels, wheel barrels or small tools.

9.10 Does anyone jointly own this [agricultural equipment] with you, including household members and non-household members? (record for every piece)

- a. **Measurement goal:** The aim of this question is to determine whether each piece of large agricultural equipment owned by the respondent is owned exclusively (sole ownership) or jointly owned with someone else.

- b. **Filtering questions/respondent universe:** Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.9.

- c. **Instructions:** The respondent may jointly own the equipment with one or more people, who may be household and non-household members.

Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.9.

9.11 Do you have the right to sell this [agricultural equipment]? (record for every piece)

- a. **Measurement goal:** The aim of this question is to determine if the respondent has the right to sell each piece of large agricultural equipment they own. This can provide further insights on the type of ownership.

- b. Filtering questions/respondent universe:** Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.9.
- c. Instructions:** If the respondent only answers “yes”, the enumerator should probe whether the right is by the respondent exclusively (“yes, alone,” code 1) or jointly with other persons (“yes, jointly with one or more persons,” code 2).

If the respondent answers “no,” the enumerator should probe whether this is because “no, someone else has the rights” (code 3) or “no, it cannot be sold” (code 4). Note that the wording “someone else has the rights” (code 3) refers to other people who do not jointly own the unit with the respondent.

Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.9.

9.12 Do you have the right to bequeath this [agricultural equipment]? (record for every piece)

- a. Measurement goal:** The aim of this question is to determine if the respondent has the right to bequeath each piece of large agricultural equipment they own.
- b. Filtering questions/respondent universe:** Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.9.
- c. Instructions:** If the respondent only answers “yes”, the enumerator should probe whether the right is by the respondent exclusively (“yes, alone,” code 1) or jointly with other persons (“yes, jointly with one or more persons,” code 2).

If the respondent answers “no,” the enumerator should probe whether this is because “no, someone else has the rights” (code 3) or “no, it cannot be sold” (code 4). Note that the wording “someone else has the rights” (code 3) refers to other people who do not jointly own the unit with the respondent.

Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.9.

9.13 Do you own any large fishing equipment, such as boats, radars, dredgers, fish tugs, motors, trawling nets, etc.?

- a. Measurement goal:** The aim of this question is to determine if the respondent owns any large fishing equipment such as boats, radars, dredgers, fish tugs, motors, trawling nets, etc. These materials can contribute to furthering economic profit and coping with the effects of climate change, and they can be used as collateral to secure small loans.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** The respondent may own the equipment exclusively or jointly with someone else, who may be household members or non-household members.

If the respondent does not own any equipment (code 0) or refuses to respond (code -99), proceed to Q9.18.

9.14 Please list each piece of large fishing equipment that you own exclusively or jointly with someone else

- a. Measurement goal:** The aim of this question is to have a complete listing of each piece of large fishing equipment that the respondent owns exclusively or jointly with someone else.
- b. Filtering questions/respondent universe:** Ask if the respondent owns any large fishing equipment.

(Ask if Q9.13=1)

- c. Instructions:** “Large fishing equipment” includes fishing vessels (boat or ship, fish tugs), fishing gears (nets, including trawls and dredges, or traps) and other equipment or devices, such as radars, sonars, harvesting machines, fish finders, etc.

The enumerator should list down as many equipment as applicable.

If the respondent owns several units of a particular large fishing equipment, record per piece. For example, the respondent owns two boats, this should be recorded as two boats, listed individually as “boat 1” and “boat 2”.

The enumerator should list down as many equipment as applicable.

9.15 Does anyone jointly own this [fishing equipment] with you, including household members and non-household members? (record for every piece)

- a. Measurement goal:** The aim of this question is to determine if the respondent owns the large fishing equipment jointly with someone else.
- b. Filtering questions/respondent universe:** Ask for EACH piece of large agricultural equipment identified by the respondent in Q 9.14.
- c. Instructions:** The respondent may jointly own the equipment with one or more people, who may be household and non-household members.

Ask for EACH piece of large fishing equipment identified by the respondent in Q9.14.

9.16 Do you have the right to sell this [fishing equipment]? (record for every piece)

- a. Measurement goal:** The aim of this question is to determine if the respondent has the right to sell each piece of large fishing equipment they own.
- b. Filtering questions/respondent universe:** Ask for EACH piece of large fishing equipment identified by the respondent in Q9.14.
- c. Instructions:** If the respondent only answers “yes”, the enumerator should probe whether the right is by the respondent exclusively (“yes, alone,” code 1) or jointly with other persons (“yes, jointly with one or more persons,” code 2).

If the respondent answers “no,” the enumerator should probe whether this is because “no, someone else has the rights” (code 3) or “no, it cannot be sold” (code 4). Note that the wording “someone else has the rights” (code 3) refers to other people who do not jointly own the unit with the respondent.

Ask for EACH piece of large fishing equipment identified by the respondent in Q9.14

9.17 Do you have the right to bequeath this [fishing equipment]? (record for every piece)

- a. Measurement goal:** The aim of this question is to determine if the respondent has the right to bequeath each piece of large fishing equipment they own.
- b. Filtering questions/respondent universe:** Ask for EACH piece of large agricultural equipment identified by the respondent in Q9.14.
- c. Instructions:** If the respondent only answers “yes”, the enumerator should probe whether the right is by the respondent exclusively (“yes, alone,” code 1) or jointly with other persons (“yes, jointly with one or more persons,” code 2).
- d.** If the respondent answers “no,” the enumerator should probe whether this is because “no, someone else has the rights” (code 3) or “no, it cannot be sold” (code 4). Note that the wording “someone else has the rights” (code 3) refers to other people who do not jointly own the unit with the respondent.

Ask for EACH piece of large fishing equipment identified by the respondent in Q9.14.

9.18 Do you own this dwelling?

- a. Measurement goal:** The aim of this question is to determine if the respondent owns the dwelling where the interview is taking place, whether exclusively (sole ownership) or jointly owned with someone else, or not.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** A “dwelling” is a unit with rooms or multiple rooms that may be occupied by one household or more. A structure or a building may contain several dwelling units, which should be distinguished by separate doors or entrance structures. A dwelling unit is a single unit providing complete, independent living facilities for one or more people.

If the respondent only answers “yes”, the enumerator should probe whether the dwelling unit is owned exclusively by the respondent (yes, alone,” code 1) or jointly with other persons

(“yes, jointly with one or more persons,” code 2).

Record “no, someone else is the owner” (code 3) the cases in which the respondent is renting the dwelling unit (whether being paid in money or in services) or is living there for free. If the dwelling unit is owned by someone else (code 3) or the respondent refuses to respond (code -99), proceed to Q9.23.

9.19 Is there an ownership document for the dwelling?

- a. **Measurement goal:** The aim of this question is to determine if the respondent has a document of ownership for the dwelling unit that they own.
- b. **Filtering questions/respondent universe:** Ask if the respondent owns the dwelling exclusively or jointly with someone else.

(As if Q9.18=1 or 2)
- c. **Instructions:** The types of documents should be a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract. Note that the name of documents varies by country.

9.20 Are you listed as an owner on the ownership document for the dwelling?

- a. **Measurement goal:** The aim of this question is to identify if the respondent is listed as the sole owner in the ownership document for the dwelling, or they share ownership with someone else.
- b. **Filtering questions/respondent universe:** Ask if the respondent owns the dwelling exclusively or jointly with someone else.

(As if Q9.18=1 or 2)
- c. **Instructions:** Documents may contain a different name from the respondent as they may only be borrowing or using the land of someone else.

Record “yes” (code 1) if the respondent’s name the sole owner as listed in the document.

Some respondents may volunteer to show their documents to the enumerator for verification.

The enumerator should politely inform the respondent that this is not necessary.

9.21 Do you have the right to sell this dwelling?

- a. **Measurement goal:** The aim of this question is to determine whether the respondent has the right to sell the dwelling unit that they own or they share ownership with someone else.
- b. **Filtering questions/respondent universe:** Ask if the respondent owns the dwelling exclusively or jointly with someone else.

(As if Q9.18=1 or 2)
- c. **Instructions:** The enumerator should emphasize the respondent’s **right to sell** the dwelling unit, whether or not they have documents of ownership or share ownership with someone else.

9.22 Do you have the right to bequeath this dwelling?

- a. **Measurement goal:** The aim of this question is to determine whether the respondent has the bequeath the dwelling unit that they own or they share ownership with someone else.
- b. **Filtering questions/respondent universe:** Ask if the respondent owns the dwelling exclusively or jointly with someone else.

(As if Q9.18=1 or 2)
- c. **Instructions:** The enumerator should emphasize the respondent’s **right to bequeath** the dwelling unit, whether or not they have documents of ownership or share ownership with someone else.

9.23 Do you currently own any of the following: a bank account, a microfinance account, an informal savings programme, stocks and shares, a pension fund, life insurance or another type of account?

- a. **Measurement goal:** The aim of this question is to determine if the respondent owns any financial assets, such as accounts or financial products. This is an indicator of access to financial services, both formal and informal.

- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** “Financial assets” are also referred to as “accounts” or “financial instruments”. An account can be used to save money, to make or to receive payments, or to receive wages or financial help. It can be at a bank, credit union or another type of formal financial institution, such as in stock or shareholdings, pension funds, or insurance accounts. An account can also be in informal financial institutions, such as informal savings groups or group savings accounts.

A standard list of formal financial assets/accounts is provided below (OECD, 2013):

- Currency and deposits
- Bonds and other debt securities
- Net equity in own unincorporated businesses
- Shares and other equity
 - Shares in corporations
 - Other equity
- Mutual funds and other investment funds
- Life insurance funds
- Pension funds
 - Social insurance pension funds
 - Private pension funds

Informal financial assets may include loans, gifts and other finances obtained from friends, neighbours and other people through saving groups, group savings accounts and other money lending schemes.

The respondent may own multiple assets from a bank account, a microfinance account, an informal savings program, stocks and shares, a pension fund, life insurance to another type of account.

The respondent may feel hesitant to answer Q9.23 through Q9.25. The enumerator should assure the respondent that their responses will be confidential, and that they will not be asked to provide account information.

If the respondent does not own any type of financial asset or account (code 0), proceed to the next module.

9.24 Please list each financial asset that you own (bank account, microfinance account, savings programme, stocks, shares, pension fund, life insurance, other), exclusively or jointly.

- a. Measurement goal:** The aim of this question is to have a complete listing of each financial asset that the respondent owns exclusively or jointly with someone else.
- b. Filtering questions/respondent universe:** Ask if the respondent owns any financial asset or account.
- (Q9.23=1)
- c. Instructions:** The enumerator should list as many financial assets as applicable.

If the respondent owns several units of a particular type of financial asset or product, record per piece. For example, the respondent has two (2) accounts, this should be recorded as two accounts, listed individually as “account 1” and “account 2”.

Interview should record the type of financial asset (whether they are bank account, microfinance account, savings program, stocks, shares, pension fund, life insurance, or others).

The respondent may feel hesitant to answer Q9.23 to 9.25. The enumerator should assure the respondent that their responses will be confidential, and that they will not be asked to provide account information.

9.25 Is your name on the account as an owner?

- a. Measurement goal:** The aim of this question is to determine whether each financial asset owned by the respondent is owned exclusively (sole ownership) or jointly owned with someone else.
- b. Filtering questions/respondent universe:** Ask for EACH financial asset identified by the respondent in Q9.24.

- c. **Instructions:** The respondent may jointly own the financial asset with one or more people, who may be household and non-household members.

Ask for EACH financial account mentioned by the respondent in Q9.24.

4.13 | Module 10 Decision-making and mobility

The questions in module 10 aim to ascertain gender differences in agency, including by collecting information on decision-making processes within the household on various aspects related to purchasing or spending, livelihood, environmental practices and mobility (transportation). It is a short module including questions around the individual's agency for the usage of money and garbage management practices at home.

This module also includes multiple questions around means of transportation, including to ascertain the individual's dependence on public transportation, private vehicles and the frequency of their use, which can help assess their environmental footprint in the context of daily commutes.

10.1 Who in your household decides how the money you earn will be used?

- a. **Measurement goal:** The aim of this question is to identify the household member who decides how the respondent's earnings are used.

- b. **Filtering questions/respondent universe:** Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present.

(Ask if Q3.4=1 or 2)

- c. **Instructions:** Record one answer only.

If respondent answers, "sometimes myself, sometimes my partner," code as "me and my partner jointly" (code 3).

10.2 Who usually makes decisions regarding purchases of farm animals?

- a. **Measurement goal:** The aim of this question is to identify the household member who decides regarding purchases of farm animals.

- b. **Filtering questions/respondent universe:** Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present.

(Ask if Q3.4=1 or 2)

- c. **Instructions:** Record one answer only.

If respondent answers, "sometimes myself, sometimes my partner," code as "me and my partner jointly" (code 3).

If respondent's household does not purchase farm animals or have not yet done this, record "We haven't made any decisions on this matter" (code 5).

10.3 Who usually makes decisions regarding purchases of agriculture and farming products?

- a. **Measurement goal:** The aim of this question is to identify the household member who decides regarding purchases of agriculture and farming products.

- b. **Filtering questions/respondent universe:** Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present..

(Ask if Q3.4=1 or 2)

- c. **Instructions:** Agriculture and farming products include seeds, pesticides, antibiotics, fishing nets, or other similar things.

If respondent answers, "sometimes myself, sometimes my partner," code as "me and my partner jointly" (code 3).

If respondent's household does not purchase agriculture and farming products or have not yet done this, record "We haven't made any decisions on this matter" (code 5).

10.4 Who usually makes decisions regarding the selling of farming products?

a. Measurement goal: The aim of this question is to identify the household member who decides regarding selling of farming products.

b. Filtering questions/respondent universe: Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present.

(Ask if Q3.4=1 or 2)

c. Instructions: Farming products include farming yields, animals, excess products from subsistence farming, or other similar products.

If respondent answers, “sometimes myself, sometimes my partner,” code as “me and my partner jointly” (code 3).

If respondent’s household does sell farming products or have not yet done this, record “We haven’t made any decisions on this matter” (code 5).

10.5 Who usually makes decisions regarding purchases of petrol/ gas/ fuel?

a. Measurement goal: The aim of this question is to identify the household member who decides regarding purchases of petrol/gas/fuel.

b. Filtering questions/respondent universe: Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present.

(Ask if Q3.4=1 or 2)

c. Instructions: “Petrol/gas/fuel” refers to petroleum products, gasoline or other fuel products used as automobile engine fuel.

If respondent answers, “sometimes myself, sometimes my partner,” code as “me and my partner jointly” (code 3).

If respondent’s household does not use petrol/gas/fuel for automobile use, have not yet done this, record “We haven’t made any decisions on this matter” (code 5).

10.6 Who usually makes decisions regarding household garbage management?

a. Measurement goal: The aim of this question is to identify the household member who decides regarding household garbage management.

b. Filtering questions/respondent universe: Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present.

(Ask if Q3.4=1 or 2)

c. Instructions: Household garbage management refers to recycling, disposal, or other related practices.

If respondent answers, “sometimes myself, sometimes my partner,” code as “me and my partner jointly” (code 3).

If respondent’s household does not practice household garbage management, record “We haven’t made any decisions on this matter” (code 5).

10.7 Who usually makes decisions regarding your daily use of means of transportation?

a. Measurement goal: The aim of this question is to identify the household member who decides regarding the respondent’s daily use of means of transportation. Decisions around mobility are a key indicator for women’s agency.

b. Filtering questions/respondent universe: Ask if respondent has a partner (either married or living with a partner [cohabitating]) at present.

(Ask if Q3.4=1 or 2)

c. Instructions: Making decisions on daily use of transportation includes deciding whether to use car vs. motorcycle vs. public transportation, or any other decisions related to household’s transportation.

If respondent answers, “sometimes myself, sometimes my partner,” record “me and my partner jointly” (code 3).

If respondent’s household does not practice household garbage management, record “We haven’t made any decisions on this matter” (code 5).

10.8 In a normal day, do you typically use public transportation?

- a. Measurement goal:** The aim of this question is to determine whether the respondent uses public transportation in a normal day and, if so, how often. In addition, if the respondent does not use public transportation, what are their reasons for not using public transportation. This question sheds light on the different contributions of women and men to environmental degradation via their mobility patterns. It also sheds light on agency and access to private vehicles.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** “Public transportation” or “public transit” refers to the system of trains, buses, ferries and other forms of transportation that charge fixed fares, run on fixed routes and are available to the public. These forms transport groups of people at the same time.

Record one answer only.

If respondent answers, “Yes” or “Yes, I use public transportation” the enumerator should probe if this is done “sometimes” (code 1) or “often” (code 2). If respondent uses public transportation, proceed to Q10.9 [10.12].

If the respondent answers “No” or “No, I do not use public transportation, the enumerator must record “no”, with the specific reason for not doing so. Codes 3–9 refer to the reasons why the respondent could be for not using public transportation. If there are multiple reasons, the enumerator should probe for the most common reason applicable. If respondent does not use public transportation, proceed to Q10.10 [10.13].

| | | |
|--|---|---|
| Yes, I use public transportation sometimes | 1 | Typically USES public transportation |
| Yes, I use public transportation often | 2 | |
| No, I use a private vehicle | 3 | Typically DOES NOT USE public transportation |
| No, I don't need to go far | 4 | |
| No, I cannot afford public transportation | 5 | |
| No, no public transportation exists near my home | 6 | |
| No, no public transportation reaches the desired destination | 7 | |
| No, I don't feel safe in public transportation | 8 | |
| No, public transportation is too slow or inconvenient | 9 | |

10.9 [10.12] What kind of public transportation do you typically use the most?

- a. Measurement goal:** The aim of this question is to identify the kinds of public transportation typically used the most by respondent.
- b. Filtering questions/respondent universe:** Ask if respondent uses public transportation sometimes or often in a normal day.

(Ask if Q10.8=1 or 2)

- c. Instructions:** Record one answer only.

If there are multiple modes used typically, the enumerator should probe for the mode that the respondent uses the most or most often.

If respondent mentions any other kind of public transportation that he/she is using, record “other” (code -96).

10.10 [10.13] What private mean of transportation do you use the most? (Excludes public transit)?

- a. Measurement goal:** The aim of this question is to identify what private means of transportation is used by the respondent the most.
- b. Filtering questions/respondent universe:** Ask all respondents.
- c. Instructions:** “Private means of transportation” refers to both motorized and non-motorized forms of transportation. “Private” means the mode of transportation is owned by the respondent or by the household or household members.

Shared car use within household or with other people the respondent is an acquaintance of, such as carpooling, can be considered “private transportation”. Sharing cars or vans that are commercially registered for shared transportation, such as Uber, Lyft, Grab or Gojek, are not private means of transportation.

Record one answer only.

If there are multiple modes used, the enumerator should probe for the mode that the respondent uses the most or most often.

If respondent mentions any other kind of private transportation that they use the most, record “other” (code -96). Responses should not include any public transit.

Record “none” (code 7) ONLY if the respondent volunteers “None” after hearing all the response options. If the respondent answers “None”, this is the end of interview.

10.11 [10.14] How often do you personally use a private vehicle?

- a. Measurement goal:** The aim of this question is to determine how frequently the respondent uses a private vehicle for transportation.
- b. Filtering questions/respondent universe:** Ask if respondent does NOT typically use public transportation in a normal day.

(Ask if Q10.10 [10.13] =1 through 5 or -96)

- c. Instructions:** Read out **each option** and record based on the respondent’s answer.

This is the last question for this module.

4.14 End of questionnaire

Enumerators must answer these questions IMMEDIATELY after the completion of interviews in the household. These are important questions from which survey paradata are known.

ENUMERATOR: ENTER RESPONSE CODE FOR COMPLETION STATUS OF INDIVIDUAL QUESTIONNAIRE: Reason(s) the interview was not fully completed or not administered should be explained.

| | | |
|--------------------------|----|--------------------|
| Completed | 11 | → Continue |
| Partially completed | 12 | → End of interview |
| Non-contact | 21 | → End of interview |
| Not interviewed, refusal | 22 | → End of interview |
| Other non-response | 23 | → End of interview |

| | | |
|---------------------------------------|----|--------------------|
| Unoccupied dwelling | 31 | → End of interview |
| Residents of dwelling absent | 32 | → End of interview |
| Demolished | 33 | → End of interview |
| New dwelling under construction | 34 | → End of interview |
| Status changed | 35 | → End of interview |
| Listing error | 36 | → End of interview |
| Not interviewed, non-household member | 37 | → End of interview |

- a. Measurement goal:** This question is used to complete response rate for the survey.
- b. Filtering questions/respondent universe:** Answer for all questionnaires.
- c. Instructions:** “Completed” means that the respondent answered ALL question items.

“Partially completed” refers to questionnaires that are not answered completely (that is, less than 100%).

End-2. Manner in which individual interview conducted

- a. Measurement goal:** This question is used to determine the sequence to which the respondents in the household were interviewed.
- b. Filtering questions/respondent universe:** Answer for all questionnaires..
- c. Instructions:** Record only one response.

End-3. Enumerator: did you have to revisit the household, in order to interview the respondent?

- a. Measurement goal:** This question is used to determine if the interview was completed in one visit or in multiple visits.

b. Filtering questions/respondent universe: Answer for all questionnaires..

c. Instructions: Record “yes” (code 1) if the interview was completed in one visit.

Record “no” (code 2) if the interview was completed in multiple visits (more than one).

End-4. Enumerator: indicate the number of revisits you made to the household, in order to interview respondent.

a. Measurement goal: This question is used to determine the number of visits needed to complete an interview with the respondent.

b. Filtering questions/respondent universe: Answer for all interviews completed in multiple visits (more than one visit).

c. Instructions: Record only numeric values.

End-4. Enumerator: do you have any remarks regarding this individual questionnaire? Please write down the remarks indicating the section and question number to which they apply.

a. Measurement goal: This question is used for enumerators to give ANY remarks about the questionnaire, including any comments or difficulties encountered during the interview.

b. Filtering questions/respondent universe: Answer for all questionnaires.

c. Instructions: It is suggested that enumerators use this question to provide feedback about the interview and the questionnaire implementation.

5. References

- Abu, M., S.N.A. Codjoe and J. Sward (2014). Climate change and internal migration intentions in the forest-savannah transition zone of Ghana. *Population and Environment*, No. 35, pp. 341-364. Available at <https://doi.org/10.1007/s11111-013-0191-y>
- Australian Academy of Science (2022). *1. What is climate change?* Available at www.science.org.au/learning/general-audience/science-climate-change/1-what-is-climate-change
- Canadian Center for Occupational Safety (2022). *Pesticides - Labels*. Available at www.ccohs.ca/oshanswers/chemicals/pesticides/labels.html
- Centers for Disease Control and Prevention (CDC) (2022). *Antibiotic Prescribing and Use*. Available at www.cdc.gov/antibiotic-use/index.html
- Edwards, P. and H. Demaine (1998). *Rural Aquaculture: Overview and Framework for Country Reviews*. FAO: Bangkok. Available at www.fao.org/3/x6941e/x6941e00.htm#Contents
- European Environment Agency (2018). *Glossary: Eutrophication*. Available at <https://www.eea.europa.eu/archived/archived-content-water-topic/wise-help-centre/glossary-definitions/eutrophication>
- European Environment Agency (2022). *Agricultural Land. GEMET - Environmental Thesaurus*. Available at www.eionet.europa.eu/gemet/en/concept/202
- Eurostat (2019). *Glossary: Fish catch*. Available at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Fish_catch
- Food and Agriculture Organization (FAO) (1993). *Forest Resources Assessment 1990: Tropical Countries*. Rome: FAO
- Food and Agriculture Organization (FAO) (2003). *Multilingual Thesaurus on Land Tenure*
- Food and Agriculture Organization (FAO) (2022a). *AGROVOC Multilingual Thesaurus*. Available at <https://agrovoc.fao.org/browse/agrovoc/en/>
- Food and Agriculture Organization (FAO) (2022b). *FAO Soils Portal*. Available at www.fao.org/soils-portal/en/
- Food and Agriculture Organization (FAO) (2022c). *FAO Term Portal*. Available at www.fao.org/faoterm/en/
- Food and Agriculture Organization (FAO) (2022d). *Global Soils Doctor Programme*. www.idd.go.th/WEB_Lancang/TH/Manual/Eng/GlobalsoildoctorfertilizerEng.pdf
- Food and Agriculture Organization (FAO) (2022e). *Livestock Systems*. Available at www.fao.org/livestock-systems/en/
- Food and Agriculture Organization (FAO) (2022f). *Organic Agriculture*. Available at www.fao.org/organicag/oa-faq/oa-faq1/en/
- Freedman, B. (1995). *Environmental Ecology: The Ecological Effects of Pollution, Disturbance, and Other Stresses*. Elsevier Science
- International Labour Organization (ILO) (2012). *The International Standard Classification of Occupations-ISCO-08*. Available at www.ilo.org/ilostat-files/ISCO/newdocs-08-2021/ISCO-08/ISCO-08%20EN%20Vol%201.pdf
- International Labour Organization (ILO) (2022a). *Forms of work: An overview of the latest statistical standards*. Available at <https://ilostat.ilo.org/resources/concepts-and-definitions/forms-of-work/>
- International Labour Organization (ILO) (2022b). *What is a green job?* Available at www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm
- Martin, J.H., W.H. Leonard and D.L. Stamp (1976). *Principles of Field Crop Production*. Third edition. New York, NY: Macmillan Publishing Co
- Massachusetts Emergency Management Agency (2022). *Public Health Emergencies*. Available at www.mass.gov/info-details/public-health-emergencies
- Office of the United Nations High Commissioner for Human Rights (OHCHR) (2019). *A Human Rights-based Approach to Data*. Available at <https://www.ohchr.org/sites/default/files/Documents/Issues/HRIIndicators/GuidanceNoteonApproachtoData.pdf>

- Organisation for Economic Co-operation and Development (OECD) (2002). *Employers - ILO. Glossary of Statistical Terms*: <https://stats.oecd.org/glossary/detail.asp?ID=772#:~:text=Employers%20are%20those%20workers%20who,in%20their%20business%20as%20employees>
- Pescod, M.B. (1992). Wastewater treatment and use in agriculture. Irrigation and drainage. Paper No. 47
- Sustainable Agriculture Research and Education (SARE) (2022). *Legume Cover Crops*. Available at www.sare.org/publications/managing-cover-crops-profitably/legume-cover-crops/
- Teague, R., and U. Kreuter (2020). Managing grazing to restore soil health, ecosystem function, and ecosystem services. *Frontiers in Sustainable Food Systems*. 4:534187
- UN Women (2020). *Model questionnaire: Measuring the nexus between gender and environment*. Available at <https://data.unwomen.org/publications/model-questionnaire-measuring-nexus-between-gender-and-environment>
- United Nations Children's Fund (UNICEF) (2021). *Multiple Indicator Cluster Survey (MICS) Instructions for Interviewers*. Available at <https://mics.unicef.org/tools#data-collection>
- United Nations Children's Fund (UNICEF) and World Health Organization (WHO) (2005). Preparation of pictorial illustrations on access to water supply and sanitation facilities for use in national household surveys. Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. Available at <https://mics.unicef.org/tools#data-collection>
- United Nations Children's Fund (UNICEF) and World Health Organization (WHO) (2018). Core questions on drinking water, sanitation, and hygiene for household surveys: 2018 update. Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. Available at <https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf>
- United Nations Convention to Combat Desertification (UNCCD) (2022). *Land Degradation Neutrality*. Available at www.unccd.int/land-and-life/land-degradation-neutrality/overview
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (2012). International Standard Classification of Education 2011. Available at <https://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>
- United Nations Environmental Programme (UNEP) (2022). *Green Economy*. Available at www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy
- United Nations Office for Disaster Risk Reduction (UNDRR) and International Science Council (ISC) (2020). Hazard Definition and Classification Review-Technical Report. Available at www.undrr.org/publication/hazard-definition-and-classification-review-technical-report
- United Nations Office for Disaster Risk Reduction (UNDRR) and International Science Council (ISC) (2021). Hazard Information Profiles: Supplement to the Hazard Definition and Classification Review-Technical Report. Available at www.undrr.org/publication/hazard-information-profiles-hips
- United Nations Statistics Division (1997). *Glossary of Environment Statistics Glossary of Environment Statistics, Studies in Methods, Series F, No. 67*. United Nations, New York, 1997
- United Nations Statistics Division (2008). *International Standard Industrial Classification of All Economic Activities (ISIC)*. United Nations: New York
- United Nations Statistics Division (2016) International Classification of Activities for Time-Use Statistics (ICATUS). Available at <https://unstats.un.org/unsd/gender/timeuse/23012019%20ICATUS.pdf>
- United Nations Statistics Division (2019). *Guidelines for Producing Statistics on Asset Ownership*
- United Nations Statistics Division (2022). *SDG Indicators: Metadata repository*. Available at <https://unstats.un.org/sdgs/metadata/files/Metadata-05-0a-01.pdf>
- United Nations (1973). *Manual VII - Methods of Projecting Households and Families*
- United Nations (2013). *Fundamental Principles of Official Statistics*. Available at https://unstats.un.org/unsd/dnss/hb/E-fundamental%20principles_A4-WEB.pdf
- United Nations (2022). *What Is Climate Change?* Available at www.un.org/en/climatechange/what-is-climate-change

United States Department of Labor (2002). *Apprenticeship*. Available at www.dol.gov/agencies/eta/apprenticeship

United States Environmental Protection Agency (EPA) (2022a). Agricultural Pasture, Rangeland and Grazing. Available at www.epa.gov/agriculture/agricultural-pasture-rangeland-and-grazing

United States Environmental Protection Agency (EPA) (2022b). Biopesticides. Available at www.epa.gov/agriculture/agricultural-pasture-rangeland-and-grazing

United States National Oceanic and Atmospheric Administration (NOAA) (2022a). What is a harmful algal bloom? Available at www.noaa.gov/what-is-harmful-algal-bloom

United States National Oceanic and Atmospheric Administration (NOAA) (2022b). Fishing Gear and Risks to Protected Species. Available at www.fisheries.noaa.gov/national/bycatch/fishing-gear-and-risks-protected-species

Washington Group on Disability Statistics (2022). Short Set on Functioning (WG-SS). Available at www.washingtongroup-disability.com/question-sets/wg-short-set-on-functioning-wg-ss/

World Bank (n.d.). *Metadata Glossary*. Available at <https://databank.worldbank.org/metadataglossary/all/series>

World Health Organization (WHO) (2022a). *Gender and Health*. Available at www.who.int/health-topics/gender#tab=tab_1

World Health Organization (WHO) (2022b). Influenza (avian and other zoonotic). Available at www.who.int/health-topics/influenza-avian-and-other-zoonotic#tab=tab_1

World Health Organization (WHO) and UNICEF (2016). *Household Energy Use: Draft Catalogue of Cooking, Heating and Lighting Fuels and Technologies*

