



**Training Activities**  
**Global Strategy to Improve Agricultural and Rural Statistics**

Enumeration of Nomadic and Semi Nomadic (Transhumant) Livestock

*Users' guide – Training material*

2017

## **1. Background**

Given the importance of nomadic livestock in arid and semi-arid areas, the Action Plan to Implement the Global Strategy prioritized the revision and updating of the guidelines on the enumeration of nomadic and semi-nomadic (transhumant), which was initially prepared by the Statistics Division of the Food and Agriculture Organization of the United Nations (FAO) in 1992.

Since the publication of those guidelines, there has been revived interest in nomadic livestock statistics, which is based on the following: increased awareness of the importance of livestock production in rural economies and wealth generation; need to assess the impact of livestock production on the environment; and the pressing demand for quality cost-effective data for policy formulation, monitoring and evaluation related to the Sustainable Development Goals.

The review of the 1992 guidelines was also prompted by the emergence of new methods for assessing and estimating livestock resources and production parameters, such as the use of the Global Positioning System (GPS) and drone technology for georeferencing and recording data, and the use of computer assisted personal interviewing and computing technologies for entering, checking, analysing and displaying data.

From a methodological front, the enumeration of nomadic and semi-nomadic (transhumant) livestock has continued to be a complicated process because of the mobility of livestock and livestock holders, which creates the need for technical capacity at the country level to secure collection and compilation of quality statistics in a cost-effective way.

The Global Strategy to Improve Agricultural and Rural Statistics (GSARS or GS) in its work programme on livestock statistics revised, updated and published the guidelines for enumeration of nomadic and semi-nomadic (transhumant) livestock in 2016.

The new guidelines provide practical information and recommendations to country statisticians with the intention of serving as the reference document on technical and operational guidance on various aspects of enumeration of nomadic and semi-nomadic (transhumant) livestock in varying country conditions, especially those in developing countries.

The Global Strategy programme of work in livestock statistics also involves conducting research aimed at improving the availability and quality of livestock products and productivity statistics from household-based surveys in developing countries. This research is the basis for the input used in preparing of guidelines for household-based livestock products and productivity statistics.

Upon completion of the research and preparation for the guidelines, the Global Strategy will produce communications and advocacy material together with training material. Regarding nomadic and semi nomadic (transhumant livestock), the Global Strategy offers the following publications for free online and in hard copies:

- *Guidelines for Enumeration of Nomadic and Semi-Nomadic (Transhumant) Livestock* (available in English and French).
- PowerPoint training materials on enumeration of nomadic and semi-nomadic (transhumant) Livestock (available in English and to be disseminated in French).
- An eight-page communications/advocacy brochure on livestock statistics, which also covers the enumeration of nomadic and semi-nomadic (transhumant) livestock) (to be disseminated in English and French).

The training materials contribute to the objective of the Global Strategy to improve the capacity of countries to produce the minimum set of core agricultural data. They are for training in classrooms on enumeration of nomadic and semi-nomadic (transhumant livestock). The training materials, which are available for free on the Global Strategy website, aims to support continuous learning in enumeration of nomadic livestock. They can also be used to complement more comprehensive training on livestock statistics.

The present users' guide describes the intended objectives, content and target audience of the training material on the enumeration of nomadic and semi- nomadic (transhumant livestock) provided on the Global Strategy website. It provides recommendations on organizational aspects of training on enumeration of nomadic and semi nomadic (transhumant) livestock. An example of the course content and possible agenda is also included in the appendix.

## 2. Objectives of the training

### General objectives

The overall objective of the training on enumeration of nomadic and semi-nomadic (transhumant livestock) is to strengthen the technical capacity of statistical producers (statistical offices and other institutions involved in the production of agricultural statistics) to apply relevant methods in the collection and compilation of quality nomadic and semi-nomadic livestock statistics. This objective should be reached by:

- Improving relevant parties' understanding of concepts and methods used in collection and compilation of nomadic and semi-nomadic livestock;
- Providing instructions and tools to identify and apply appropriate methods to collect and compile statistics on nomadic and semi-nomadic livestock adapted to the individual country's capacities, objectives, nomadic practices and geographical setting;
- Building statisticians' capacity to develop surveys designs for sample-based surveys on enumeration of nomadic and semi-nomadic livestock; and
- Equipping statisticians with the appropriate estimators to compute indicators of interest on nomadic and semi-nomadic livestock statistics.

### Expected outcome

After the training, participants will be better equipped to:

- Understand concepts and methods used in collection and compilation of nomadic and semi nomadic livestock;
- Identify and apply appropriate methods to collect and compile indicators for nomadic and semi nomadic livestock;
- Improve data quality through selection and use of appropriate sample survey designs and estimators for nomadic and semi nomadic livestock statistics;
- Sustain gained technical capacity through continuous self-learning using Global Strategy knowledge resources available online and peer-to-peer knowledge transfer.

## 3. Course content

The topics covered by the training material are the following:

### **Module 1:** General information and advocacy

1. Definition of nomadism and semi-nomadism (transhumance).
2. Why enumerate nomadic and semi-nomadic (transhumant) livestock.
3. Integrating enumeration of nomadic and semi-nomadic (transhumant) livestock into the mainstream Agricultural Survey Framework.
4. General recommendations for the enumeration of nomadic and semi-nomadic (transhumant) livestock.

**Module 2: Enumeration methods for nomadic & Seminomadic Livestock**

1. Methods for enumeration of nomadic and semi-nomadic (transhumant) livestock.
2. Data collection tools.
3. Indicative cost of enumerating nomadic and semi-nomadic (transhumant) livestock.

**Module 3: Survey designs and estimators**

## Introduction

1. Survey designs and estimators for ground surveys
  - 1.1 Introduction
  - 1.2 Survey design for enumeration points
  - 1.3 Deciding which sampling design to use for ground survey of enumeration points
  - 1.4 Decision tree for survey design for ground survey of enumeration points
  - 1.5 Estimators for enumeration points
  - 1.6 Survey design for ethnic groups/clans
  - 1.7 Estimators for ethnic groups and clans
  - 1.8 Estimators for proportions
2. Survey designs and estimators for aerial surveys
  - 2.1 Survey design – general considerations
  - 2.2 Survey design for total aerial counts (block counts)
  - 2.3 Survey design for sample counts
  - 2.4 Survey design for sample counts – cost comparison
  - 2.5 Estimators

**Exercises**

Hands-on exercises in small groups on:

- Selecting methods to enumerate nomadic and semi nomadic livestock
- Selecting a survey design for enumeration of nomadic and semi nomadic livestock

## 4. Course design and delivery

**Delivery mode**

The course should be organized through the combination of the following:

- Lectures on specific technical topics;
- Country examples; and
- Hands-on exercises in small groups on:
  - Selecting methods to enumerate nomadic and semi nomadic (livestock);
  - Selecting survey design for enumeration of nomadic and semi nomadic (livestock).

To increase understanding, it is important to ensure that there is interaction between the trainers and trainees and among the trainees themselves. For this reason, questions, interventions and peer-to-peer discussions are encouraged and expected to be part of the training. Furthermore,

trainees are to be reminded that they are expected to master other agricultural statistics topics through continuous learning by using online resources, training material and guidelines available on the Global Strategy website (<http://gsars.org/en/tag/Livestock/>).

Detailed country examples are not given in the training material. Trainers should select and emphasize case studies and country examples relevant to the participants needs as practical examples for demonstration and discussion of the various aspects of enumeration nomadic and semi-nomadic (transhumant) livestock. In the guidelines for the enumeration of nomadic and semi-nomadic livestock, several case studies and country examples are given from which some can be selected and reviewed in detail as part of the training.

### **Length of the training**

The training material has been designed to support a two (2) days of training. However, it can be adjusted according to the training needs and prevailing circumstances.

### **Number of trainers and requirements**

A trainer with experience in general agricultural data collection aspects, such as surveys and censuses, and statistical dissemination with mastery/specialization in nomadic and semi nomadic livestock statistics is ideal to deliver this training.

### **Number of trainees**

It depends on the scope of the training, in terms of countries covered (at regional workshops) or country needs. This also varies based on whether the training is delivered in a seminar/workshop or classroom setting. It is recommended that the number of trainees be sufficient to ensure interaction among trainees and the trainers and that most of the stakeholders requiring the training are reached. Generally, these conditions are met in a classroom of 15 to 25 participants.

## **5. Course material**

The training material is composed of a set of three PowerPoint presentations:

- 1) The first set of presentations is for general information and advocacy and corresponds to the content of module 1:
  - a. Definition of nomadism and semi-nomadism (transhumance)
  - b. Why enumerate nomadic and semi-nomadic (transhumant) livestock
  - c. Integrating enumeration of nomadic and semi-nomadic (transhumant) livestock into the mainstream Agricultural Survey Framework
  - d. General recommendations for the enumeration of nomadic and semi-nomadic (transhumant) livestock
- 2) The second set of presentations corresponds to the second training module and covers the methods for enumeration of nomadic and semi - nomadic (transhumant) livestock.

- 3) The third set of presentations is more technical. It covers the third module on survey designs and estimators for enumeration methods of nomadic & seminomadic (transhumant) livestock.

Some exercises are embedded in the PowerPoint presentations:

- 1) One exercise on enumeration methods for nomadic and semi nomadic (livestock) is in the second set of slides
- 2) One exercise on survey design for enumeration of nomadic and semi nomadic (livestock) is in the third set of slides

The supporting material to be reviewed by the participants prior to and during the training consists of documents available on <http://gsars.org/en/tag/Livestock/> :

- [Guidelines for the Enumeration of Nomadic and Semi-Nomadic \(Transhumant\) Livestock](#) (English and French)
- [Methodological Report on Improving Methods for Estimating Livestock Production and Productivity](#) (English)
- [Fieldwork Report and Summary Data Analysis on Improving Methods for Estimating Livestock Production and Productivity](#) (English)
- Guidelines on Livestock Products and Productivity (to be published soon)
- 8-page brochure on livestock statistics (to be published soon)

Finally, the participants should be given at the end of the training an evaluation sheet, on which they will be able to give feedback on the course and identify the areas where further training could be provided.

## **6. Target audience**

The course is designed to bring together data producers and users with interest in livestock statistics, in particular in the enumeration of nomadic and semi-nomadic (transhumant) livestock. The training should therefore be open to decision makers, survey managers, trainers of field staff, data analysts, researchers, teaching staff and students at training centres of statistics and agriculture. Core stakeholders are officers from the national statistical system or statistical department at local government and the ministry of agriculture responsible for agriculture data production and teachers and students of agriculture statistics in countries where nomadic and semi-nomadic livestock production systems exist.

More precisely, the first two modules are more general and can be relevant to the following audience:

- Senior managers of agricultural ministries and national statistics offices (NSO);
- Statisticians, survey manager/supervisors and analytical/technical teams in agricultural ministries and NSOs; and
- Researchers, teaching staff and students of agricultural statistics in training centres.

Given the technical nature of the third module, the content on the survey designs and estimators is more suitable for:

- Statisticians, survey manager/supervisors and analytical/technical teams in agricultural ministries and NSOs;
- Researchers, teaching staff and students of agricultural statistics in training centres

## **7. Relationship with other research and training activities by Global Strategy**

The Global Strategy also plans to develop training material for an integrated general training on livestock statistics that will cover in broader details cost-effective methodologies to collect and compile good quality livestock-related statistics for all types of livestock (sedentary, nomadic and semi-nomadic (transhumant). The training material on the enumeration of nomadic and semi-nomadic will be integrated into this broader training.

In addition, guidelines and training material on enumeration of nomadic and semi-nomadic livestock as well as guidelines and training material on household-based livestock products and productivity touch on some topics that are covered in greater detail by other research lines, guidelines and training materials of the Global Strategy, for example, use of computer-assisted technology in data collection, construction of an agricultural master sampling frame and using administrative data in agricultural statistics system.. It is therefore recommended that training centres, NSOs and ministries of agriculture expand their technical knowledge base by accessing and exploring training material and guidelines also available for free on Global strategy website (<http://gsars.org/en/resource-center/>).The related topics for which guidelines and training material have already been developed are:

- Master sampling frame for agricultural statistics (guidelines and training material)
- Computer assisted personal interview technology for agriculture statistics (training material)
- Integrated survey framework (guidelines)
- Linking population and housing censuses with agricultural censuses (guidelines and e-learning tool)
- Estimating greenhouse gas Emissions in agriculture (guidelines)
- Towards the System of Environmental-Economic Accounting 2015, Agricultural, Forestry and Fisheries (guidelines)
- International classifications for agricultural statistics (guidelines)

## 8. References

**Global Strategy to Improve Agricultural and Rural Statistics.** 2016. *Guidelines for Enumeration of Nomadic and Semi-Nomadic (Transhumant) Livestock*. Rome, FAO. 113 pp. (available at <http://gsars.org/wp-content/uploads/2016/08/Guidelines-for-the-Enumeration-of-Nomadic-and-Semi-Nomadic-Livestock-06.pdf>).

\_\_\_\_\_ 2016. *Improving methods for estimating livestock production and productivity – Test state: fieldwork report and summary data*. Working paper no. 13. 132 pp. (available at . <http://gsars.org/en/improving-methods-for-estimating-livestock-production-and-productivity-test-stage-fieldwork-report-and-summary-data-analysis/>)

\_\_\_\_\_ 2017. *Improving methods for estimating livestock production and productivity: methodological report*. Technical Report Series GO-23\_2017. Rome, FAO 173 pp. (available at <http://gsars.org/wp-content/uploads/2017/05/TR-04.05.2017-Improving-Methods-for-Estimating-Livestock-Production-and-Productivity.pdf>)

\_\_\_\_\_ forthcoming. *Guidelines on Livestock Products and Productivity*. Rome, FAO.

\_\_\_\_\_ forthcoming. Brochure on livestock statistics. Rome, FAO.

**Appendix:** An example of an agenda for a regional or country training workshop

Time	Topics
<b>Day 1</b>	
08:00 – 09:00	<b>Registration</b>
09:00 – 10:15	<b>Opening session/photo session</b> <ul style="list-style-type: none"> <li>• Welcome remarks</li> <li>• Opening remarks</li> <li>• Orientation: Workshop objectives , structure and expected results</li> <li>• Introductions [participants, resource persons and support team]</li> </ul> group photo
10:15 – 10:30	<b>Break</b>
10:30 – 10:45	<b>Introduction: Training/course objectives and expected outcomes, and course design and delivery</b>  <u>Introductory presentation</u>
10.45-12.00	<b>Module 1: General information and advocacy</b> <ul style="list-style-type: none"> <li>– Definition of nomadism and semi-nomadism (transhumance)</li> <li>– Why enumerate nomadic and semi-nomadic (transhumant) livestock</li> <li>– Integrating enumeration of nomadic and semi-nomadic (transhumant) livestock into mainstream an agricultural survey framework</li> <li>– General recommendations for the enumeration of nomadic and semi-nomadic (transhumant) livestock</li> </ul> <u>60-minutes presentation and 15 minutes discussion</u>
12:00 – 14:00	<b>Lunch</b>
14:00 – 15:00	<b>Module 2: Enumeration methods for nomadic and semi=nomadic livestock</b> <ul style="list-style-type: none"> <li>– Methods for enumeration of nomadic and semi-nomadic (transhumant) livestock</li> </ul> <u>50 minutes presentation and 10 minutes discussion</u>
15:00 – 15:15	<b>Break</b>

Time	Topics
15:15 – 16:00	<p><b>Module 2: Enumeration methods for nomadic and semi-nomadic livestock</b></p> <ul style="list-style-type: none"> <li>– Methods for enumeration of nomadic and semi-nomadic (transhumant) livestock</li> <li>– Hands-on exercises in small groups on: <ul style="list-style-type: none"> <li>○ Selecting methods to enumerate nomadic and semi nomadic (livestock)</li> </ul> </li> </ul> <p><u>10 minutes presentation, 20 minutes exercises and 10 minutes discussion</u></p>
16.00-17.00	<p><b>Module 2: Enumeration methods for nomadic and semi-nomadic livestock</b></p> <ul style="list-style-type: none"> <li>– Data collection tools</li> <li>– Indicative cost of enumerating nomadic and semi-nomadic (transhumant) livestock</li> </ul> <p><u>45 minutes presentation and 15 minutes discussion</u></p>
<b>Day 2</b>	
09:15 – 10:15	<p><b>Module 3: Surveys designs and estimators</b></p> <ul style="list-style-type: none"> <li>– Introduction</li> <li>– Survey design for enumeration points</li> <li>– Decision tree for survey design for ground survey of enumeration points</li> </ul> <p><b>Exercise:</b> Deciding which sampling design to use for ground survey of enumeration points</p> <p><u>20 minutes presentation, 30 minutes exercise and 10 minutes discussion</u></p>
10:15 – 10:30	<b>Break</b>
10:30 – 12:00	<p><b>Module 3: Surveys designs and estimators</b></p> <ul style="list-style-type: none"> <li>– Estimators for enumeration points</li> </ul> <p><u>1 hr, 10 minutes presentation and 20 minutes discussion</u></p>
12:00 – 13:00	<b>Lunch</b>
13:30 – 14:30	<p><b>Module 3: Surveys designs and estimators</b></p> <ul style="list-style-type: none"> <li>– Estimators for ethnic groups/clans</li> <li>– Estimators for proportions</li> </ul> <p><u>50 minutes presentation and 10 minutes discussion</u></p>
14:30 – 14:45	<b>Break</b>

Time	Topics
14:45 – 15:45	<p><b>Module 3: Surveys designs and estimators</b></p> <ul style="list-style-type: none"> <li>– Survey design – general considerations</li> <li>– Survey design for total aerial counts (block counts)</li> <li>– Survey design for sample counts</li> <li>– Survey design for sample counts – cost comparison</li> <li>– Estimators for aerial surveys</li> </ul> <p><u>50 minutes presentation and 10 minutes discussion</u></p>
16:00 – 17:00	<p><b>Summary and conclusion</b></p> <p><b>Closing evaluation and remarks</b></p>