

# Schema of EC 2011 Census Mapping

## 1. Introduction

### 1) Purposes of Mapping for the 2011 Economic Census

The mapping is aimed to demarcate area units of Villages and Enumeration Areas regarding whole area of Cambodian country without any omitted and duplicated area and to make maps of the Villages and Enumeration Area (hereinafter, it referred to EA, sometimes). These maps are to be used basically for listing up exactly every establishment in implementation of the 2011 Economic Census, through the below-mentioned activities:

#### a. Identification of responsible area

Village area or Enumeration area is surely an area unit in which an enumerator makes the enumeration activities in the 2011 Economic Census. It is indispensable to provide each enumerator with the map on which the boundaries and major landmarks of his/her in-charged area are written clearly so that the enumerator can identify the area in the field. Without the exact map of the Village or Enumeration Area, the enumerators are unable to accomplish his /her duties that list up every establishment in the responsible Village or Enumeration Area and interview all of them.

#### b. Filling-in the position of all the listed establishments

The enumerator is obliged to write the position of all the listed establishments on the map of his/her in-charged Village or Enumeration Area in order to assure that every establishment is listed. The mapping focuses on this important issue also.

### 2) Other Uses of Map of Village Boundary or Enumeration Area

The mapping produces two outcomes: a) demarcation of Village Area and Enumeration Area with clear boundary; b) Village Boundary Map and Enumeration Area Map. These products are to be used for the following purposes too.

#### a. Compiling small area statistics

The Village or Enumeration Area is the minimum area unit where the documents such as the Forms, the Establishment List are bound into a bundle, and their individual data are arranged together under the same area code. Then the Village or Enumeration Area is used as the minimum area unit for small area statistics.

#### b. Sampling frame

The village or Enumeration Area can be used as sampling frame for any other sampling surveys which aim to enumerate the establishments or the enterprises because whole area of Cambodian territory are divided into the Village or Enumeration Area with similar number of

establishments without duplicated or omitted area. If the statistics by the characteristics of the Villages and Enumeration Area are produced and utilized for stratification of the area, the sampling designing with less sampling errors is possible.

**c. Field operation of the sampling survey**

The maps of the Village or Enumeration Area selected for a sampling survey can be used as area maps where enumerators for the sampling survey should identify.

**d. Base map for other Censuses and surveys**

The village Boundary Map which is drawn here is to be used as a Base Map for any other Censuses and sampling surveys.

**3) Necessity of drawing newly the Village Boundary Map and Enumeration Area Map for the 2011 Economic Census**

Village Boundary Maps for the 2011 Economic Census (hereinafter ECVBM), Enumeration Area Boundary Map for the 2011 Economic Census (hereinafter ECEABM) and Enumeration Area Map for the 2011 Economic Census (hereinafter ECEAM) should be drawn newly for the following reasons:

**a. Limitation and advantages of the existent maps**

No existing maps can meet the above-mentioned needs completely for appropriate implementation of the 2011 Economic Census. Some of the maps, however, have useful advantages for our mapping. Then it is necessary to utilize these advantages and enhance this mapping work in order to save time and reduce work load and cost.

- a) The Village Map of 2008 Population Census (hereinafter, PCVM) has the advantages that clear boundaries of the Villages and main landmarks are drawn. It, however, has critical disadvantages that have no space for writing the position of the establishments on the map because numbers of households, boundaries of Enumeration Area and so on for the 2008 Population Census are written complicatedly.
- b) The Village maps of the Nation-wide Establishment Listing (hereinafter, ELVM) were made as a sketch map which aims to write the position of listed establishments. It was very useful for the Nation-wide Establishment Listing. Clear boundaries of Village or main landmarks, however, are not always written on the map and there are no spaces for the position of newly-listed establishments in the 2011 Economic Census.
- c) The three kind of digital maps on Village boundary (below-described) are inappropriate for the Village Boundary Map or Enumeration Area Map of the 2011 Economic Census, because just the boundary of village is drawn, and any landmarks such as roads, rivers, etc. and their names, which are indispensable for field-identification of the boundary, are not described.
  - ① satellite commune map,
  - ② white commune map
  - ③ white commune map prepared for Health Facility Survey.

**b. Issues to be considered carefully for more exact implementation of the 2011 Economic Census**

a) It should be avoided to take the way that the enumerators themselves draw out the map at same time as writing in the locations and codes of all establishments listed during the enumeration. The reasons are as follows:

① The enumerators should concentrate in the primary duties such as the identification of their responsible area, listing up every establishment and interviewing and filling in the Forms and so on. If the enumerators with no cartographic knowledge are imposed the troublesome and difficult work of drawing maps, they may make careless or serious mistakes which affect the accuracy of the results of the 2011 Economic Census.

② The mapping work should be done by officers with the cartographic knowledge in advance of the enumeration work of the enumerators in order to assure the less possibility of coverage errors which are derived from misunderstanding or unclearness of the boundary of the area.

b) It should be avoided for the enumerators of the 2011 Economic Census to use directly the ELVM for their listing works because the enumerators may stick to the similar way to the Nation-wide Establishment Listing, and may decline carelessly or intentionally to survey by the new way of grasping the newly-opened establishments or the street businesses.

c) It is concluded that:

① The PCVM cannot be used directly for the 2011 Economic Census because unnecessary information, which prevent of filling in the locations and codes of the listed establishments, is written.

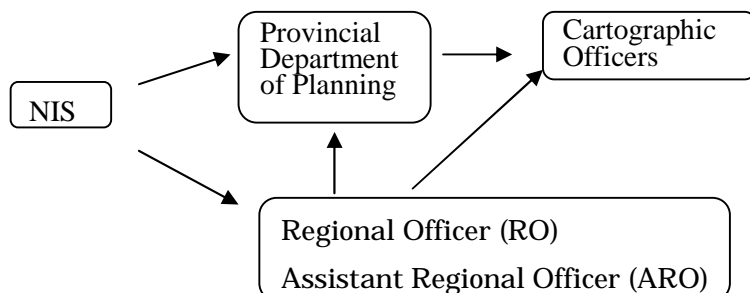
② It is inappropriate to use the ELVM as it is as the areas boundary map for the enumerators of the 2011 Economic Census, because the map is drawn as a sketch map for the position of the listed establishments, and then many of the map are not always drawn the clear boundary of village

③ The most exact way is to draw the ECVBM ECEABM and ECEAM newly utilizing the information on the Village boundary and position of main landmarks and position of the establishments and so on in the PCVM and ELVM

## 2. Outline of the Mapping for the 2011 Economic Census

### 1) Organization

The mapping is carried out along with the following chart.



- a. NIS controls whole of the mapping work.
- b. Provincial Department of Planning (hereinafter, it refers to PDP, sometimes) controls the mapping work of the Province with technical assistance from the RO and ARO.
- c. Cartographic officer (hereinafter, it refers to CO, sometimes) carried out the mapping work under the technical advice and necessary instruction of the RO and ARO

### 2) Period of the Mapping

The mapping work is carried out for the period from 12<sup>th</sup> to 31<sup>st</sup> July 2010

### 3) Area Coverage

Whole area of Cambodian Territory is covered.

### 4) The method of the Mapping

The mapping, basically, is carried out by the following method.

- a. The Village boundary maps for the 2011 Economic Census (hereinafter, it refers to ECVBM.) are drawn by using the Village Map of the 2008 Population Census (hereinafter, it refers to PCVM.) and the Village Map of the 2009 Nation-wide Establishment Listing (hereinafter, it refers to ELVM.).
- b. The Villages with the large number (basically 130 and more) of the Establishments are divided into two or more Enumeration Area (hereinafter, it refers to EA, if necessary.). And then, Enumeration Area Boundary Map for the 2011 Economic Census (hereinafter, it refers to ECEABM.) and Enumeration Area Map for the 2011 Economic Census (hereinafter, it refers to ECEAM.) are drawn.
- c. When the boundary or landmarks of Village or EA are unclear, they should be clarified through field survey.

### 5) Submission of all the documents to NIS

All the documents such as various maps and list of Village and EA etc. are submitted till 2<sup>nd</sup>

August 2010 to NIS

#### **6) Examination of Maps, Lists and Summary Tables, and Tabulation in Nis**

All the documents are examined in NIS revised if necessary. Based on the revised Lists, Final List of Villages and Enumeration Areas are made by computer and Statistical tables on the Village and EA are tabulated.

#### **7) Safekeeping and updating of all the documents**

All the documents are kept safely and the ECVBM, ECEABM and ECEAM are updated before conducting the 2011 Economic Census.

#### **8) The use of the updated ECVBM, ECEABM and ECEAM**

The photocopies of the ECVBM, ECEABM and ECEAM are used for the 2011 Economic Census. The original ECVBM is used as “base map” for any other Census and sampling survey.

#### **9) Allocation of RO, ARO and CO**

##### **a. Total number of Cartographic Officers is 270.**

Base of calculation:

- 1) Total number of maps which will be drawn is supposed 15,345.
- 2) Number of Maps which one CO performs for 20 days is supposed 60.
- 3) Calculated number of Cartographic Officers is 256 (15,345/60)
- 4) Reserved officers for Provinces with some difficulties in the Mapping are 14
- 5) Total number of Cartographic Officers is 270.

##### **b. Number of RO is 24** (Each province has 1 RO).

##### **c. Number of ARO is 36** (Each Province has 1 ARO. In addition to this, in case of Provinces with more than 20 thousand establishments, 1 ARO is allocated every 20 thousand establishments.)

#### **10 Training seminar**

The training seminar is held in three sessions:

##### **1. For Cartographic Officers and Provincial Director of Planning Department:**

First group --- 3 days from 21 June (Monday) to 23 June (Wednesday) 2010.

Second group ---3 days from 30 June (Wednesday) to 2 July (Friday) 2010.

##### **2. For ROs and AROs**

4 days from 24 June (Thursday) to 29 June (Tuesday) 2010.