

KINGDOM OF CAMBODIA
Nation- Religion- King

Manual on Mapping Work
for the 2011 Economic Census of Cambodia



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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.

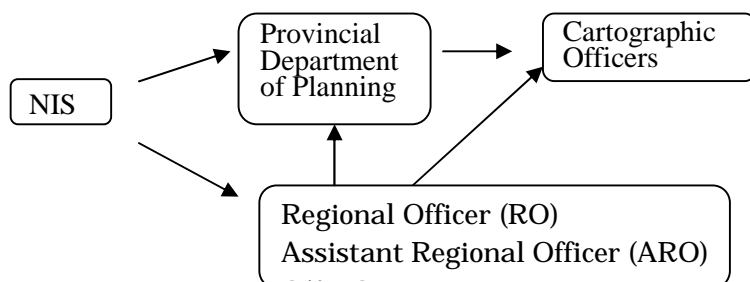
c) It is concluded that:

- 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. Schema 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 12th to 31st 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 2nd August 2010 to NIS

6) 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.

7) 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.

Table 1. Abbreviation of Name of Maps etc.

Abbreviation	Exact Name	What is it?
ECVBM	Village Boundary Maps for the 2011 Economic Census	<ul style="list-style-type: none"> ◆Whole Area of a Village is drawn with its boundary and landmarks on the blank map “Village and EA Boundary Map for the Economic Census”(Appendix 1). ◆ One map by every Village should be drawn. ◆This is copied from the PCVM using ELVM.
ECEABM	Enumeration Area Boundary Maps for the 2011 Economic Census	<ul style="list-style-type: none"> ◆Area of Large-size Village (130 and more Establishments) is divided into Enumeration Areas. ◆This map is the one that boundary of every Enumeration Area is drawn on the photocopy of ECVBM.
ECEAM	Enumeration Area Maps for the 2011 Economic Census	<ul style="list-style-type: none"> ◆ An EA of the ECEABM is enlarged and it is drawn with its boundary and landmarks on the blank map “Village and EA Boundary Map for the Economic Census (Appendix 1).
ELVM	Village Map of the 2009 Nation-wide Establishment Listing	<ul style="list-style-type: none"> ◆This was drawn in the 2009 Nation-wide ◆Establishment Listing as a sketch map for positioning of establishments
PCVM	Village Map of 2008 Population Census	<ul style="list-style-type: none"> ◆This was drawn for the 2008 Population Census.
EA	Enumeration Area	<ul style="list-style-type: none"> ◆EA is demarcated only in area of Large-size Village (Village with 130 and more Establishments). ◆The EA is categorized to three: <ol style="list-style-type: none"> ① General EA: it is demarcated in the other area than “Multi-Establishments Building” and “Large-scale Market” ② “Multi-Establishments Building” EA (sometimes it is abbreviated as “Building EA” or BEA). The Building where 80 and more establishments operate is treated as “BEA”. ③ “Large-scale Market” EA (sometimes it is abbreviated as “LSM” or). The Market where 80 and more establishments operate is treated as “LSM”.

3. Outline of the Mapping

The mapping for the 2011 Economic Census is done on a step-by-step basis as the following table shows:

Table 2 Main Activities, their Responsible Organization and Period for Mapping

Main Activities	Responsible Organization	Period
1. Preparatory Work		
1.1 Preparation of Documents	NIS	By June 23
1) Making of photocopies of PCVM and ELVM 2) Making of “Village List for Controlling Mapping Work” 3) Printing of Documents such as: <ul style="list-style-type: none"> ♦ Manual for Mapping Work ♦ Map of Village or Enumeration Area for 2011 Economic Census ♦ List of Villages and Enumeration Area by Cartographic Officer ♦ Summary Table on the number of Maps by Commune, etc. 		
1.2 Appointments of RO / ARO and Cartographic Officer	NIS, PDP	By June 10
1.3 Collecting geographical information on Village	NIS, PDP	By June 23
<ul style="list-style-type: none"> ♦ Change of Village Boundary from 2008 Population Census ♦ Commune Map which the Provincial Department of Land management keeps. ♦ Plan of Large- scale Markets 		
1.4 Allocation of Villages which the Cartographic Officer or RO/ARO are responsible for.	NIS, PDP	by June 23
2 Holding Training seminars		June28-July9
3. Mapping Work	CO, RO/ARO	July12-31
3.1 Drawing the ECVBM 3.2 Demarcation of Enumeration Area 3.3 Checking the Maps		
4. Filling-in of Documents	CO, RO/ARO	By Aug. 3
<ul style="list-style-type: none"> ♦List of Villages and Enumeration Area by Cartographic Officer ♦Summary Table on the number of Maps by Commune ♦Summary Table on the number of Maps by District 		
5 Submitting and arrangement of all documents	RO/ARO	By Aug. 3
6 Safekeeping of the all documents in NIS	NIS	
7 Data entry of information of List of Villages and Enumeration Area by Cartographic Officer and Tabulation	NIS	By Aug. 20
8. Maintenance of Maps for the 2011 Economic Census	NIS, PDP	By Mar.1, 2011

4. Main duties of the organization and officers

1) NIS

Main tasks of NIS are to support, instruct and supervise the mapping works that Provincial Departments of Planning and RO/ARO carry out, to keep safely the Mapping Documents such as Lists of Village/Enumeration Area, ECVBM, ECEABM, ECEAM and so on, and to update the maps until the time of implementation of the 2011 Economic Census. Specifically the following tasks should be fulfilled:

(1) Coordination regarding the Mapping for the 2011 Economic Census

It is necessary to gain the cooperation and understanding from Provincial Governor, Ministry of Land Management, Provincial Department of Land Management, and so on.

(2) Preparatory Work for Mapping Work

The following documents should be prepared by holding of the Training Seminar.

a. Two sets photocopies of PCVM and ELVM

One is for Cartographic Officers, another one is for ARO.

b. "Village List for Controlling Mapping Work by District"

This List is aimed to record the names of Cartographic Officers who are responsible for the Villages in order to control their work progress.

The updated Villages are printed through the computer.

Example of the form is the Appendix 5

c. Documents to be printed:

- ♦ Manual for Mapping Work
- ♦ Village and EA Boundary Map for 2011 Economic Census (**Appendix 1**)
- ♦ List of Villages and Enumeration Areas by Cartographic Officer (**Appendix 2**)
- ♦ Summary Table on the Number of Maps by Commune (**Appendix 3**)
- ♦ Summary Table on the Number of Maps by District (**Appendix 4**)

d. Procurement of Bags, Stationery such as pencil, eraser, ruler etc., etc.

e. Appointment of RO and ARO, and Cartographic Officer

f. Collecting necessary information on Village for the Mapping Work

- ♦ Information on change of Village Boundary after 2008 Population Census
- ♦ Commune Map or Land Use Map which the Provincial Department of Land management keeps.
- ♦ Plan of Large- scale Markets which is supposed to be kept in Commune Office or Polis Office etc.

g. Allocation of Villages which the Cartographic Officer or RO/ARO are responsible for.

(3) Holding Training seminars

a. Fixing of Curricula and Selection of lectures

b. Preparation of sets of delivery documents and goods to be used as txets

(4) Supervising the Mapping Work, making the documents and submitting of the documents

(5) Receipt of original Village Boundary Maps and Enumeration Area Maps from RO and safekeeping of the Maps

(6) Data entry of information of the following List and Summary Tables and Tabulation

- ♦ List of Villages and Enumeration Areas by Cartographic Officer (**Appendix 2**)
- ♦ Summary Table on the Number of Maps by Commune (**Appendix 3**)
- ♦ Summary Table on the Number of Maps by District (**Appendix 4**)

[Activities for the 2011 Economic Census]

(7) Maintenance of the following Maps for the 2011 Economic Census

- ♦ ECVBM
- ♦ ECEABM
- ♦ ECEAM
- ▶ Method of Maintenance
 - a. Collecting the information of change of Village boundary.
 - b. Revising the above-mentioned Maps or drawing newly the Maps on the new Villages.

(8) Making three sets of photocopies of the updated Maps to deliver them to the Enumerators, Supervisors and Provincial Department of Planning respectively for field work of the 2011 Economic Census

(9) Original maps should be kept carefully in NIS so that they can be used as a Base Map for various statistical surveys.

2) Provincial Department of Planning

Main tasks of Provincial Departments of Planning are to coordinate with the other organization and to carry out and supervising all stages of the mapping works in the Province under the instruction of the NIS. Specifically the following tasks should be fulfilled:

(1) Coordinating with other organizations

- a. coordinating with the Governor's Cabinet regarding conducting the Mapping Work for the 2011 Economic Census and collecting of the administrative maps of Villages from Commune or District.
- b. coordinating with the Provincial Departments of Land Management to gain information on boundary of the Villages and Land Use maps and so on.

(2) Preparatory Work

- a. assigning of Cartographic Officers
- b. Collecting geographical information on Village
 - ♦ Change of Village Boundary from 2008 Population Census
 - ♦ Commune Map which the Provincial Department of Land Management must keep
 - ♦ Plan of Large- scale Markets

(3) Attending the training seminar for mapping held by NIS

(4) Mapping work

- a. controlling the overall mapping works in the Province with the instruction and supervision of RO and ARO in accordance with the Manual of Mapping Work for the 2011 Economic Census
- b. photocopying one set of all kind of newly-made documents and keeping safely the photocopy of the one set.

(5) Submission

- a. handing the original ones to RO

3) RO and ARO

(1) RO

a. General Tasks

- a) Making coordination between the NIS and Provincial department of Planning,
- b) To support support, instruct and supervise all the tasks which Provincial Departments of Planning, especially Cartographic Officers, should fulfill, so that the Mapping Work of the Cartographic Officers can be carried out completely with the cooperation and support of ARO.
- c) Especially, RO is obliged to make cartographic officers carry out smoothly the “Mapping Works” which are described in the Chapter 5 “Basic Procedure of the mapping Work”.
- d) Attending the Training Seminar to learning the “Manual on Mapping Work” completely.
- e) Grasping how the work of the Cartographic Officers is progressing, and giving some instructions if necessary.

b. Specific Tasks

- a) Observing always the work of the Cartographic Officers and giving the appropriate advices or exact instruction to them
- b) Giving the exact instruction regarding the “tentative Enumeration Area Boundary” which the Cartographic officers draw.
- c) Giving the exact advices area situation which needs field survey to confirm the site situation.
- d) Accompanying the Cartographic Officers for the field survey to get grasping the exact position of the Village boundary, if necessary.
- e) Checking contents of all maps and other documents which are submitted from the Cartographic officers.
“**Checking Method**” are described in the “Chapter 7 Points of Checking the Maps and other Documents”
- f) Filling in the “Summary Table on the Number of Maps by District” on the basis of the “Summary Table on the Number of Maps by Commune” which is made by the Cartographic Officers.
- g) Checking whether all Maps and other documents have been submitted or not, by using the “Village List for Controlling Mapping Work by District”, after the Maps and other documents have been submitted from every Cartographic Officer.
- h) Arranging all of the “Plastic Bag” which contains the Map and other documents of each Village in order of code of District and Commune.
- i) Submitting all the “Plastic Bags” to the Director of Provincial Department of Planning.
- k) Submitting all the “Plastic Bags” which contains the Original Maps and other Documents, to NIS by 2nd August 2010. Before this submission, all the “Plastic Bag” should be confirmed whether all the original ones are contained or not.

(2) ARO

a. General tasks

- a) Basic duty of ARO is to support any tasks which RO should accomplish, namely, all the above-mentioned tasks, according to the instruction of the RO.
- b. ARO is required to carry out some tasks of the RO in his or her place according to the instruction of the RO.
- c. ARO also is obliged to attend the Training Seminar to learning the “Manual on

Mapping Work” completely.

d. Especially, ARO has to carry out some of the “Specific Tasks” which are described the above section on the RO’s Tasks.

4) Cartographic Officer

Cartographic Officer is obliged to accomplish the following tasks completely.

- (1) Attending the Training Seminar to learning the “Manual on Mapping Work” completely.
- (2) Mapping works which are described in the Chapter 5 Basic Procedure of the Mapping Work”
- (3) Filling-in the following documents:
 - ♦ List of Villages and Enumeration Areas by Cartographic Officer (**Appendix 2**)
 - ♦ Summary Table on the Number of Maps by Commune (**Appendix 3**)
- (4) Submitting the all of the following maps and documents to ARO by the prescribed date.
 - ♦ECVBM
 - ♦ECEABM
 - ♦ECEAM
 - ♦ List of Villages and Enumeration Areas by Cartographic Officer
 - ♦ Summary Table on the Number of Maps by Commune
 - ♦Others

5. Basic Procedure of the Mapping Work

This work is done by Cartographic Officer with assistance and advices of RO/ARO.

1) Village Categories and Mapping Methods

Villages are classified by the number of the establishments and existence of special mass of establishments. The details of the mapping work are various in the categories as being shown in the following Table3.

Table3 Summary Table of Mapping Work by Village Category

Category of Village	Points of Mapping Works	Map to be drawn	Notes
Category① Small-size Village Village with <u>less than 130</u> establishments in total	<ul style="list-style-type: none"> ♦ECVBM only are drawn. ♦Village Code only is used and no EA Code is used. 	ECVBM(one sheet)	One Village is regarded as one EA.
Large-size Village (Village with <u>130 and more</u> establishments in total)			
Category ② General Large-size Village No “Multi-Establishments Building” and “large-scale Market” exists.	The Village area is divided into two or more EAs. Three kinds of Maps are drawn. EA code is added next to the Village Code.	ECVBM(one) ECEABM(one) ECEAMs(same number of the EAs)	EA code: G××
Category ③ Special Large-size Village “Multi-Establishments Building” or “large-scale Market” exists	Different tasks should be done according to the following different areas and the number of establishments in the area.	ECVBM(one) ECEABM (one) ECEAMs (same number of the EAs) Special Summary Maps for Multi-Establishments Building” or “Large-scale Market”	EA code: S××
Sub-Category of “Category ③ Special Large-size Village” Case A: the number of establishments is 80 to 129. Case B: the number of establishments is 130 and more.			
Category③- 1 Other Area than “Multi-Establishment Building” or “large-scale Market”	Case A: this area forms one EA. Case B: this area should be divided into two or more EA.	Case A: ECEABM can be used as ECEAM. Case B: ECEAMs (same number of the EAs)	EA code: S××
Category③-2 “Multi-Establishment Building”	Case A: this area forms one EA. Case B: this area should be divided into two or more EA.	Case A: ECEABM can be used as ECEAM. Case B: ECEAMs (same number of the EAs)	EA code: B××
Category③-3 “Large-scale Market”	Case A: this area forms one EA. Case B: this area should be divided into two or more EA.	Case A: ECEABM can be used as ECEAM. Case B: ECEAMs (same number of the EAs)	EA code: M××

2) Basic Procedure of the Mapping Work

The mapping works for the 2011 Economic Census are done on three stages as follows:

1st Stage: Drawing of ECVBM----All Villages

This work should be done in all the Villages belonging to all categories as shown in **Table3 Summary Table of Mapping Work by Village Category**

The steps of the work are as follows:

- 1) Examination of the village boundary of PCVM
- 2) Revising the village boundary of PCVM
- 3) Copying the revised Village Boundary on the photocopy of the PCVM and necessary landmarks to the lank map for ECVBM.
- 4) Checking the newly-drawn ECVBM

Regarding the Villages belonging to the “**Category ① Small-size Village**” (Village with less than 130 establishments in total), the Mapping work finish. It is not necessary to proceed to the next Stage.

2nd Stage: Demarcation of EA and drawing ECEABM, ECEAM

----For **Category ② General Large-size Village** (No “Multi-Establishments Building” and “large-scale Market” exists.)

This work should be done in the Villages belonging to **Category ② General Large-size Village** (No “Multi-Establishments Building” and “large-scale Market” exists.).

The steps of the work are as follows:

- 1) Demarcating of Enumeration Area
- 2) Drawing the ECEABM.
- 3) Drawing the ECEAM

3rd Stage: Demarcation of EA for only Multi-Establishments Buildings and Large-scale Markets, and drawing their Maps.

---For **Category ③ Special Large-size Village** (“Multi-Establishments Building” or “large-scale Market” exists)

This work should be done in the Villages belonging to **Category ③ General Large-size Village** (“Multi-Establishments Building” and “large-scale Market” exists.).

The steps of the work are almost same as **2nd Stage**. However, the different steps among **three Sub-Categories** should be taken.

- 1) Demarcating of Enumeration Area
- 2) Drawing the ECEABM.
- 3) Drawing the ECEAM

1st Stage: Drawing of ECVBM----All Villages

This work should be done in all the Villages belonging to all categories as shown in **Table 3 Summary Table of Mapping Work by Village Category**

1) Examination of the village boundary of PCVM(Photocopy)

(1) Examination in the office

The following documents should be utilized for this examination:

- ① Geographical Information of Village of which boundary has been changed after the 2008 Population Census.
- ② The Village maps of the Nation-wide Establishment Listing,
- ③ The administrative maps which district and commune offices or polices keep,
- ④ The plans of big traditional markets
- ⑤ Any others.

Box 1: Main Points of the Examination of the PCVM

- ① Can be understood where the Boundary of Village is on?
 - ◆ What are the landmarks for the boundary line?
 - ◆ The names of the landmarks are written in or not.
- ② Aren't there any differences in the position of the boundary between the PCVM and ELVM?
- ③ Aren't there any differences in the position of the boundary between the PCVM and any administrative maps?
- ④ The traditional market Area is drawn on the PCVM or not.
- ⑤ Names and boundaries of adjacent Villages are written or not.

(The most important point)

- ▶ Aren't there the omitted or duplicated areas between the concerned Village and its adjacent Villages or not. For this check, boundary of two villages should be compared, in terms of position, landmarks, shape etc.

(2) Confirmation in the field

When the problems, especially regarding the Village boundary, are found at the above-mentioned examination in the office, it should be confirmed by field- observation or hearing from Village Chief etc., after discussing with AR/ ARO.

2) Revising the village boundary of PCVM(Photocopy)

The boundary should be revised on the photocopy of PCVM by red-color ball-point pen or pencil in case that the boundary in the PCVM is different from the real one.

3) Drawing the ECVBM

For the ECVBM, the blank map of the “Village and EA boundary Map for the 2011 Economic Census (Appendix 1)

(1) Filling in area-information

The CO has to fill in the box under the Title of the map.

- ① Area information such as name and code of province, District, Commune and Village
- ② Category of Map and Village
 - ▶ Category of map is “ECVBM”
 - ▶ One of the Categories of Village should be circled according to the information

of ELVN or other sources along with the criteria of the **Table 3 Summary Table of Mapping Work by Village Category**

(2) Drawing map-information

The CO draws the ECBM by the way of copying the necessary information on the ECVBM (blank map) from the revised PCVM through the following procedures according to the instruction of “Legend” on the map.

① Copying the every land mark and their names at the exact position as same as they are drawn on the PCVM with black pencil.

Box 2: Notices for copying

► **Information to be copied:**

Landmarks and their name: Road, street, cart road, river, canal, public building such as pagoda, school, big factory, public office etc..

Name of adjacent Villages and their boundaries

► **Information not to be copied:**

Information used for Population Census only such as number of households, boundary of Enumeration Area etc.

► **Note:**

At the enumeration of the 2011 Economic Census, the enumerator is to write in the positions of every establishment. Width of the road or space of roadsides should be wide as far as possible so that the establishment position can be written easily.

② Drawing the boundary of Village and District on the newly-drawn ECVBM with red-color pencil. In the forest or rice field where the boundary is not drawn on the clear landmark, for example, the nearby household name etc. should be written at the cross between the boundary and the road, river etc.

③ In case of the Large-size Village, the position of the Multi-Establishments Buildings and Large-scale Markets also should be written if they exist in this Village according to the information of the ELVM or other sources.

4) Checking the newly-drawn ECVBM

After drawing the ECVBM, Cartographic Officer has to review the map regarding whether the map was drawn exactly or not.

Any errors should be revised.

Box 3: Main Points of checking of ECVBM

- ① Shape of the boundary or whole area of Village is consistent with the revised PCVM or not.
- ② Landmarks and their names for representing the position of the boundary were drawn exactly or not.
- ③ Landmarks and their names in the Village area were drawn exactly or not.
- ④ North Direction is consistent with position of the Village area.
- ⑤ Names and boundaries of adjacent Villages are written or not

2nd Stage: Demarcation of EA and drawing ECEABM and ECEAM

----For Category ②General Large-size Village (No “Multi-Establishments Building” and “large-scale Market” exists.)

This work should be done in the Villages belonging to **Category ②General Large-size Village** (No “Multi-Establishments Building” and “large-scale Market” exists.).

1) Demarcating of Enumeration Area

(1) Basic Rule for delineating the area of the Enumeration Area

The Enumeration Area should be delineated along with the Basic Rule in the below Box 4.

Box 4 Basic Rule for delineating the Enumeration Area

① The boundary of the EA

The boundary of EA must be placed on the clear landmarks such as road, cat Track, river and so on.

②The area of one EA shouldn't be split into two areas.

③The number of the establishments

Area of one EA should be delineated so that it includes around 80 – 130 establishments.

For example;

- ◆Village with 135 establishments: divided into two EAs, one has 70 establishment, another one, 65.
- ◆Village with 180 establishments: divided into two EAs, each has around 90 establishments.
- ◆Village with 220 establishments: divided into two EAs, each has around 110 establishments.
- ◆ Village with 370 establishments:
According to the area situation (whether the boundary of the EA is exact or not, and so on), either of the following cases can be selected.
case 1) : divided into three EAs, each has around 120 establishments.
case 2) : divided into four EAs, each has around 90 establishments

(2) Steps of demarcating the Tentative Enumeration Area

To begin with, the tentative EA is obliged to be demarcated by the methods in the following **Box 5. Steps of demarcating the Tentative Enumeration Area**

Box 5. Steps of demarcating the Tentative Enumeration Area

- ① Drawing small blocks of which boundary is on the clear landmarks such as road, cart Track, river etc. on the photocopy of the ELVM or the photocopy of the ECVBM (tentatively used). These small blocks should be written with black pencil so that its boundary can be erased later.
 - ② Calculating the number of establishments of each block by using data in the ELVM and writing this number in the blocks.
 - ③ Combining the adjacent blocks so that total number of establishments can meet Box 4 “Basic Rule for Delineating the EAs”
 - ④ The area of these “Combined adjacent blocks” is regarded as one “Tentative Enumeration Area”
- (The most important point)**
- ▶ Aren't there the omitted or duplicated areas between the concerned Village and its adjacent Villages or not. For this check, boundary of two villages should be compared, in terms of position, landmarks, shape etc.

2) Drawing the ECEABM

(1) Drawing the fixed boundary EA on the photocopy of newly-drawn ECVBM

After the tentative Enumeration Area delineated, CO is obliged to consult with ARO from viewpoint that the Tentative Enumeration Area is exact or not.

After the approval from ARO, the tentative Enumeration Area should be revised neatly as the fixed EA.

(2) Giving the EA Code

Each EA should be given the specific Code which is composed with two digit number with one alphabet character as shown in the “Box 7 How to give the EA Code”.

These EA codes should be written in the each EA in the map by the way that starts from the EA at the above-left corner and turn clockwise.

(3) Checking and Writing the necessary items on the Map

This map is the ECEABM (Enumeration Area Boundary Map for the 2011 Economic Census). Then, circle “2 ECEABM” of Category of map in the above-right box.

After checking again all over the map, CO gives his or her signature etc. in the left-below box in the map.

Box 6 Important points of checking of the ECEABM

- ▶ Aren't there the omitted or duplicated areas between two EAs?
If these errors are found, they should be revised exactly.

3) Drawing the ECEAM

(1) Enlarging area of an EA

The area of one EA in the ECEABM is enlarged and copied on the blank map "Enumeration Area Map for the 29011 Economic Census". All detail on the area including boundary of the EA, the EA code, landmarks and their name and so on, should be copied.

(2) Checking and Writing the necessary items on the Map

This map is the ECEAM (Enumeration Area Boundary Map for the 2011 Economic Census). Then, circle "3 ECEAM" of Category of map in the above-right box.

After checking again all over the map, CO gives his or her signature etc. in the left-below box in the map.

Box 7 Important points of checking of the ECEAM

- ▶ An EA is copied exactly and with no omitted or duplicated area?
If these errors are found, they should be revised exactly.

Box 8. How to give the EA Code

Large-size Village (Village with <u>130</u> and more establishments in total)			
Category ②: General Large-size Village No "Multi-Establishments Building" and "large-scale Market" exists.			EA code: G××
Category ③: Special Large-size Village "Multi-Establishments Building" or "large-scale Market" exists			EA code: S××
Sub-Category of "Category ③ Special Large-size Village" Case A: the number of establishments is 80 to 129. Case B: the number of establishments is 130 and more.			
Category ③- 1 Other Area than "Multi-Establishment Building" or "large-scale Market"	Both of Case A and Case B		EA code: S××
Category ③-2 "Multi-Establishment Building"	Both of Case A and Case B		EA code: B××
Category ③-3 "Large-scale Market"	Both of Case A and Case B		EA code: M××

3rd Stage: Demarcation of EA for the “Multi-Establishments Buildings” and “Large-scale Markets” and drawing their ECEABM, ECEAM.

---For Category ③ Special Large-size Village (“Multi-Establishments Building” or “large-scale Market” exists)

This work should be done in the Villages belonging to **Category ③ General Large-size Village** (that is the Village with 130 and more establishments and where “Multi-Establishments Building” and “Large-scale Market” exists.)

However, the slightly different steps among **three Sub-Categories such as Category ③-1, Category ③-2 and Category ③-3** should be taken.

1) Demarcating of Enumeration Area

Category ③-1 Other Area than “Multi-Establishment Building” or “large-scale Market”

(1) Case A: the number of establishments is 80 to 129.

This area forms one EA.

(2) Case B: the number of establishments is 130 and more.

This area should be divided into two or more EA.

Method of demarcating is same as the way of “**2nd Stage: Demarcation of EA for Category ② General Large-size Village**”

Category ③-2 “Multi-Establishment Building”

(1) Case A: the number of establishments is 80 to 129.

This building forms one EA.

(2) Case B: the number of establishments is 130 and more.

This building should be divided into two or more EA.

Its boundary should be floor.

Other rule for demarcating such as size (number of establishments) is same as the way of “**2nd Stage: Demarcation of EA for Category ② General Large-size Village**”

Category ③-3 “Large-scale Market”

(1) Case A: the number of establishments is 80 to 129.

This market forms one EA.

(2) Case B: the number of establishments is 130 and more.

This market should be divided into two or more EA.

Its boundary should be inner passages or inner blocks, and floor if necessary.

Other rule for demarcating such as size (number of establishments) is same as the way of “**2nd Stage: Demarcation of EA For Category ② General Large-size Village**”

2) Drawing the ECEABM.

In Village belonging to this **Category ③** also, basically the same way as the Village in the “**Category ②: General Large-size Village**” is applied regarding drawing the ECEABM.

However, there are slight differences between **Category ②** and **Category ③** as follows:

(1) Case A: the number of establishments is 80 to 129.

a. Regarding “**Category ③-2** (“Multi-Establishment Building””, Position of the building should be shown as an EA (with boundary and name of the building also).

The EA Code should be written along with rule of the **Box 7. How to give the EA Code.**

- b. Regarding “**Category③-3** (Large-scale Market)”, Position of the market should be shown as an EA (with boundary and name of the building also). As a general rule, not only the premises of the market, but also the surroundings of the market (where many street businesses operate) should be regarded as a market area, namely, an EA. Therefore, the boundary should be drawn quite clearly including the surroundings.

The EA Code should be written along with rule of the **Box 7. How to give the EA Code.**

(2) Case B: the number of establishments is 130 and more.

Points of drawing the ECEABM are same as the above- mentioned “**Case A: the number of establishments is 80 to 129**”.

However, EA codes can be given like “B01~B03 or M01~08.

- a. Regarding “**Category③-2** (“Multi-Establishment Building)”, Position of the building should be shown as an EA (with boundary and name of the building also).

The EA Code should be written along with rule of the **Box 7. How to give the EA Code.**

- b. Regarding “**Category③-3** (Large-scale Market)”, Position of the market should be shown as an EA (with boundary and name of the building also). As a general rule, not only the premises of the market, but also the surroundings of the market (where many street businesses operate) should be regarded as a market area, namely, an EA. Therefore, the boundary should be drawn quite clearly including the surroundings.

The EA Code should be written along with rule of the **Box 7. How to give the EA Code.**

3) Drawing the ECEAM

- (1) In the Village belonging to this **Category③** also, basically the same way as the Village in the “**Category②: General Large-size Village**” is applied regarding drawing the ECEAM. Each EA should be enlarged and the every information on the EA should be copied on the blank map. Even the “**Category③-2** (“Multi-Establishment Building)” and **Category③-3** (Large-scale Market)” the method is same.

- (2) However, in **Case B: the number of establishments is 130 and more** of “**Category③-2** (“Multi-Establishment Building)” and **Category③-3** (Large-scale Market)”, the specific process is added as follows:

▶Drawing the ECEABM for “Multi-Establishment Building” or “Large-scale Market”

These building and market area are to be divided into two or more EAs. Therefore, it is necessary to draw the map or the plan on the whole inside of the building or market area in order to present which floor or which block belong to which EA. This map or plan is, in other words, ECEABM for the “Multi-Establishment Building” or “Large-scale Market”.

- (3) Then, in the “**Category③-2** (“Multi-Establishment Building)” and **Category③-3** (Large-scale Market)”, four kinds of maps are drawn as follows:

ECVBM→ECEABM→ECEABM for the “Multi-Establishment Building” or “Large-scale Market” → ECEAM

6. Examples of Mapping of “XX Village”

1) Situation of “XX Village”

(1) Number of establishments

XX Village has 1295 establishments according to the 2009 Nation-wide Establishment Listing. This village has “Large-scale Marcket” area and “Multi-establishments Building” in its area.

Details of the total number of establishments

- ▶ Other area than the “Large-scale Marcket” area and “Multi-establishments Building” : 552 establishments.
- ▶ “Multi-establishments Building” : 199
- ▶ “Large-scale Marcket” area : 544

(2) Category of Village

- a. This “XX Village” belongs to “**Category③: Special Large-size Village**”.
- b. It also has **three of Sub-Category③**, namely, **Category③- 1 Category③-2 Category③-3**.
- c. Every category has 130 and more establishments.

(3) Maps to be drawn

One sheet of ECVBM and,

One sheet of ECEABM

Several sheets of ECEAM in area of **Category③- 1**

One sheet of ECEABM for Multi-establishments Building (**Category③-2**)

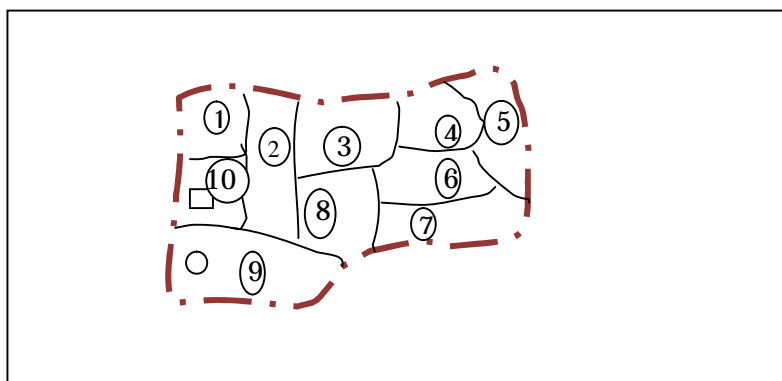
Several sheets of ECEAM for Multi-establishments Building (**Category③-2**)

One sheet of ECEABM for Large-scale Market (**Category③-3**)

Several sheets of ECEAM for Large-scale Market (**Category③-3**)

2) Example of Drawing ECEABM

(1) 10 blocks are delineated.



- Large-scale Marcket (with 130 and more establishment)
- Multi-establishments Building (with 130 and more establishments)

(2) Number of establishments from information of ELVM :

Total establishments of area where excluded “Large-scale Marcket” area and “Multi-establishments Building” are 552

Block 1 is 25

Block 2 is 49

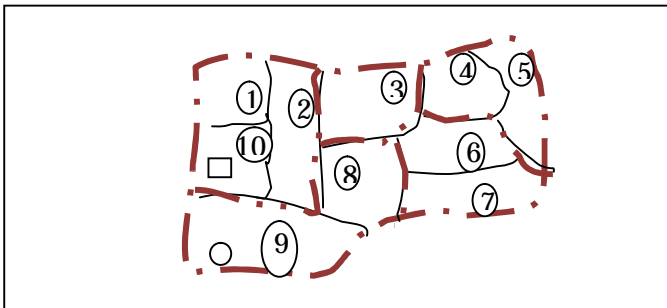
Block 3 is 113(including “small-scaled market area”)

Block 4 is 48
Block 5 is 67
Block 6 is 34
Block 7 is 61
Block 8 is 56
Block 9 is 65
Block 10 is 34

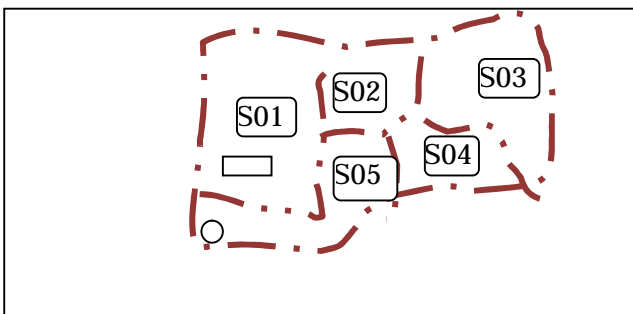
(3) Combination of adjacent blocks

Block 1+block2 +block10 = 108 →EA No.01
Block 3 =113 →EA No.02
Block 4+ Block5=115 →EA No.03
Block 6+Block 7 =95 →EA No.04
Block8 +block 9= 121 →EA No.05

(4) Tentative Boundary of EAs



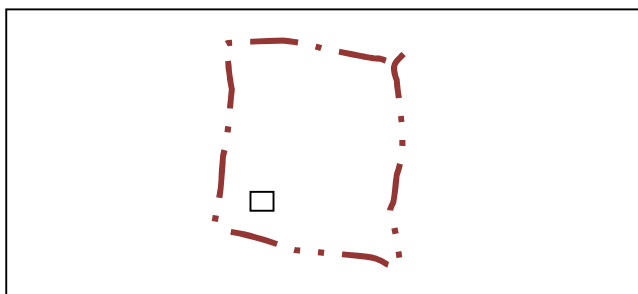
(5) **ECEABM** (before the Multi-establishments Building and Large-scale Market are divided into the EA)



3) Example of Drawing the ECEAM

- (1) Each of EAs in the above-mentioned ECEABM is enlarged with landmarks and other geographical information, and then is drawn on the blank map.
- (2) This map is called ECEAM, namely Enumeration Map for the 2011 Economic Census.
This ECEAM will be used for enumerator's enumeration for the 2011 Economic Census with ECVBM which are not divided into the EA.

ECEAM of EA code: S01

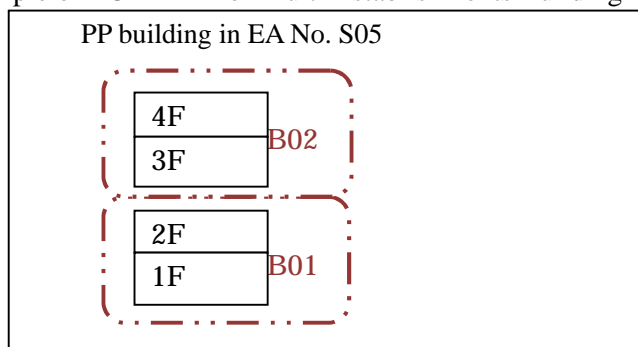


- (3) On this example map, landmarks for the boundary is not drawn, actually all landmarks should be copied from the ECEABM and drawn on the map.
Besides this, in the boxes under the Title, necessary area information including the EA Code (S01), and "3.Enumeration Area Map" in the "Category of Map" must be circled.

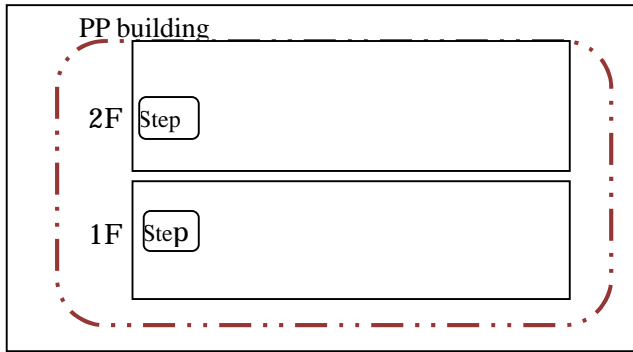
4) Example of Multi-establishments Building-- Category ③-2 "Multi-Establishment Building"

- (1) Situation of the PP Building
Total number of establishments in this 4 stories-Building (its name is "PP Building") is 199 establishments. Then this building should be divided into two or more EAs. In this case its boundary must be delineated by "floor"
- (2) The number of Establishments by each floor:
 - 1st Floor has 48 establishments
 - 2nd Floor has 57 establishments
 - 3rd Floor has 52 establishments
 - 4th Floor has 42 establishments
- (3) Two EAs can be formed:
Total Number of establishments of "1st Floor (48 establishments)" and "2nd Floor (57 establishments)" is 105. This can be First EA of which the EA code is B01
Total Number of establishments of "3rd Floor (52 establishments)" and "4th Floor (42 establishments)" is 94. This can be Second EA of which EA code is B02.

(4) Example of ECEABM for Multi-Establishments Building



(5) Example of ECEAM for Multi-Establishment Building

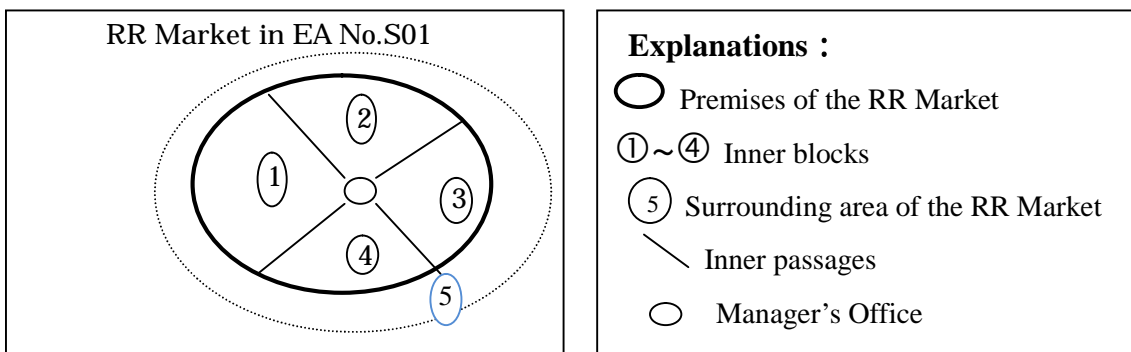


5) Example of “Large-scale Market”---Category③-3 “Large-scale Market”

(1) Situation of the RR market

Total number of establishments in this Large-scale Market (its name is “RR market”) is 544 establishments. Then this market should be divided into around 4 or 5 EAs. In this case its boundary must be delineated by “inner block or inner passage” which can be distinguished by anybody.

● Plan of RR market:



(2) Total number of establishments is 544

Block ① is 125 → EA No.M01 (including Manager's Office of the Market)

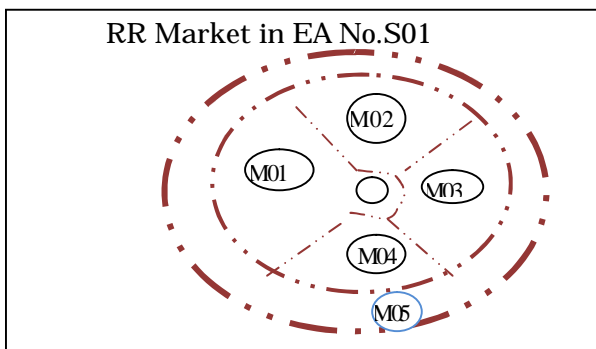
Block ② is 95 → EA No.M02

Block ③ is 103 → EA No.M03

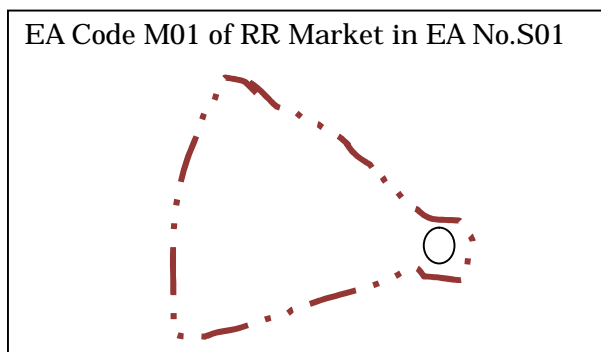
Block ④ is 89 → EA No.M04

Block ⑤ (Surrounds) is 132 → EA No.M05

(3) Example of ECEABM for Large-scale Market (RR Market Area)



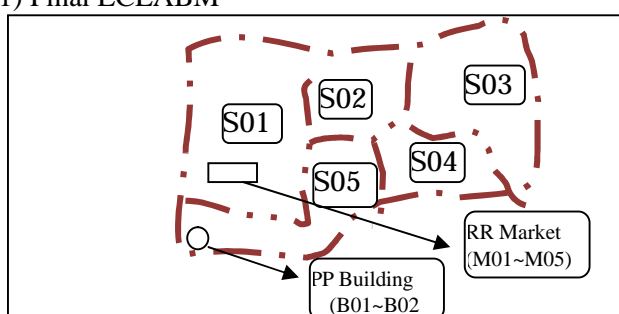
(4) Example of ECEAM (for Large-scale Market---RR Market)



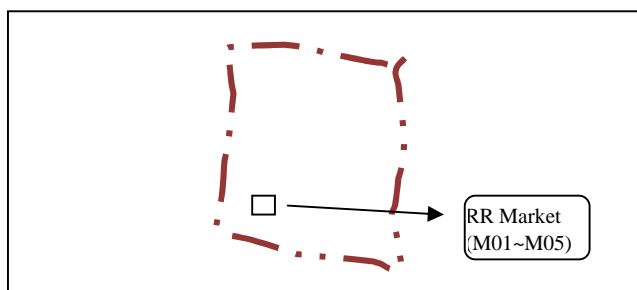
6) Final ECEABM and Final ECEAM of EA code S01

The results of demarcation of “Multi-establishments Building” and “Large-scale Market” are written.

(1) Final ECEABM



(2) Final ECEAM of EA Code No.S01



7) Summary of Mapping of the XX Village

- (1) Number of the delineated EAs is 12
- (2) Finally, the number of Maps drawn in this Village is 16 sheets
 - One sheet of ECVBM and,
 - One sheet of ECEABM
 - 5 Sheets of ECEAM in area of **Category ③- 1**(because number of EA is 5)
 - One sheet of ECEABM for **Category ③-2**
 - 2 sheets of ECEAM for **Category ③-2**(because number of EA is 2)
 - One sheet of ECEABM for **Category ③-3**
 - 5 sheets of ECEAM for **Category ③-3**(because number of EA is 5)

7. Points of Checking of the ECVBM, ECEABM and ECEAM

- 1) The following Boxes mention the Points of Checking of ECVBM, ECEABM and ECEAM which the Cartographic Officers should carry out on the way of drawing the maps.
- 2) Every of the ECVBM, ECEABM and ECEAM should be examined from these viewpoints, again after these maps are completed in case of the Cartographic Officer, and immediately after they are received in case of RO or ARO.

Box 3: Main Points of checking of ECVBM

- ① Shape of the boundary or whole area of Village is consistent with the revised PCVM or not.
- ② Landmarks and their names for representing the position of the boundary were drawn exactly or not.
- ③ Landmarks and their names in the Village area were drawn exactly or not.
- ④ North Direction is consistent with position of the Village area.
- ⑤ Names and boundaries of adjacent Villages are written or not

(The most important point)

- ▶ Aren't there the omitted or duplicated areas between the concerned Village and its adjacent Villages or not. For this check, boundary of two villages should be compared, in terms of position, landmarks, shape etc.

Box 6 Important points of checking of the ECEABM

- ▶ Aren't there the omitted or duplicated areas between two EAs?
If these errors are found, they should be revised exactly.

Box 7 Important points of checking of the ECEAM

- ▶ An EA is copied exactly and with no omitted or duplicated area?
If these errors are found, they should be revised exactly.

8. How to Fill-in the Documents

Mentioned here are the following four documents:

- 1) List of Villages and Enumeration Areas by Cartographic Officer
- 2) Summary Table on the Number of Maps by Commune
- 3) Summary Table on the Number of Maps by District
- 4) Village List for Controlling Mapping Work by District

Former two documents are filled in by Cartographic Officer, and latter two documents are filled in by RO/ARO

1) List of Villages and Enumeration Areas by Cartographic Officer

- (1) This is list of villages which a Cartographic officer is responsible and Enumeration Area which the CO demarcates.

This is entered to computer to use for the 2011 Economic Census in NIS.

- (2) The Villages and EA should be filled in numerical order from the lower code.

- (3) Column 5 “Estimated Number of Establishments”:

Basically, their numbers of ELVM are filled in. However, if the CO get the newest data through Field Survey etc., these data should be filled in.

- (4) Column 6” Characteristics of Village or EA”

Useful information for the enumeration of the 2011 Economic Census are filled in, if the CO find something useful in the ELVM or field survey etc.

- (5) Examination

The filled-in list should be examined whether the contents are exact or not through the comparison with the real Maps which the CO has drawn.

This examination should be done by both of the CO and ARO/RO.

2) Summary Table on the Number of Maps by Commune

- (1) This is summary table on the figures which are summed up based on the “List of Villages and Enumeration Areas by Cartographic Officer”.

► This Table is referred to only Villages which a CO is in-charged for the Mapping work. Therefore, the table does not always cover all villages in the Commune, and the District.

► If a CO is involved in Villages which belong to two or more Districts, he or she must fill in “summary Table on the Number of Maps by Commune” by the District.

- (2) Firstly, “2 Summary by Commune” is required to be filled in through the following way:

Number of Column 4-15: can be gained by summing up by Commune the results of “List of Villages and Enumeration Areas by Cartographic Officer”.

- (3) Secondly, “1. Summary of Total Number of this district” is filled in by summing up the data of “2 Summary by Commune”

- (4) Examination

The filled-in table should be examined whether the figures are exact or not through summing up the necessary data.

This examination should be done by both of the CO and ARO/RO.

3) Summary Table on the Number of Maps by District

- (1) This is summary table on the figures which are summed up based on the “Summary Table on the Number of Maps by Commune”.

This is filled in by ARO/RO.

- (2) Methods of Filling-in and examination are similar to the Summary Table on the Number

of Maps by Commune.

4) Village List for Controlling Mapping Work by District

- 1) RO/ARO have to try to grasp the situation of work progress of the CO and to confirm whether mapping documents such as Maps, list of villages and EA etc. are submitted from the COs.
- 2) In order to make sure this work, the **Summary Table on the Number of Maps by Commune** can be used by filling in “column 8-10 Date of Submission of Documents.