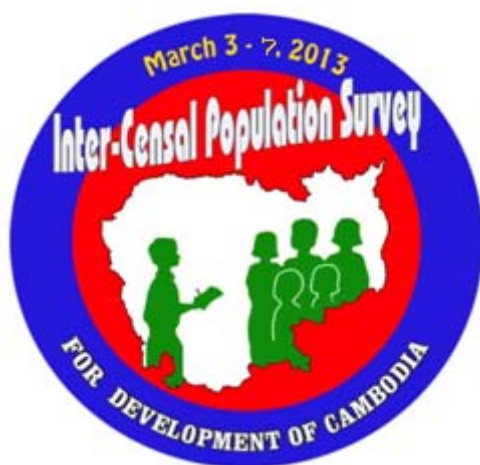**KINGDOM OF CAMBODIA**
Nation- Religion- King

The 2013 Cambodia Inter-censal Population Survey

Manual on Mapping Work

National Institute of Statistics, Ministry of Planning

Phnom Penh, Cambodia

June 2012

Contents

Chapter 1 Outline of Mapping Work for the 2013 CIPS

1. Purpose of mapping work for the 2013 CIPS

The mapping work for the 2013 CIPS aims to draw newly maps of the Villages and EAs (hereinafter referred to as "EA"s) where the 2013 CIPS is which were selected from those of the 2008 Population Census for the 2013 CIPS on the basis of the 2008 Population Map and information obtained from the field work.

2. Necessity of mapping

The Maps of the 2008 Population Census, basically, are based on those 1998 population Census. Although the latter was revised or updated to some extent for the 2008 Population Census, the one and half decades have passed and it cannot be denied that the village boundary on the map of the 2008 population Census has become out-of-dated for identifying exactly them in the field for the 2013 CIPS.

This is reason why the new maps should be drawn for the 2013 CIPS.

3. Characteristics of the mapping work

The mapping work for the 2013 CIPS has the following characteristics or differences in comparison with the one of the 2008 Population Census.

3-1 Target villages

  The target villages of the mapping work are just the 955 villages selected from those of the 2008 Population Census for this CIPS. By province, around 40 Villages have been selected.

3-2 Role of Provincial Department of Planning

  Staff of Provincial Department of Planning (hereinafter referred to as "PDP") who are familiar with the situation is required to be involved in this work, in order to confirm the Village/EA boundary properly and to draw the exact new maps in accordance with the situation of real field. In this context, the methods described below are adopted taking into consideration budget limitation due to sampling survey.

3-3 Mapping work is done by two Mapping Officers

  3-3-1 Two Mapping Officers (hereinafter referred to as "MO") carry out the mapping work in each Province: one is the MO who is selected from NIS staff (hereinafter referred to as "NISMO"); another is the MO who is selected from staff of PDP (hereinafter it referred to as "PMO".).
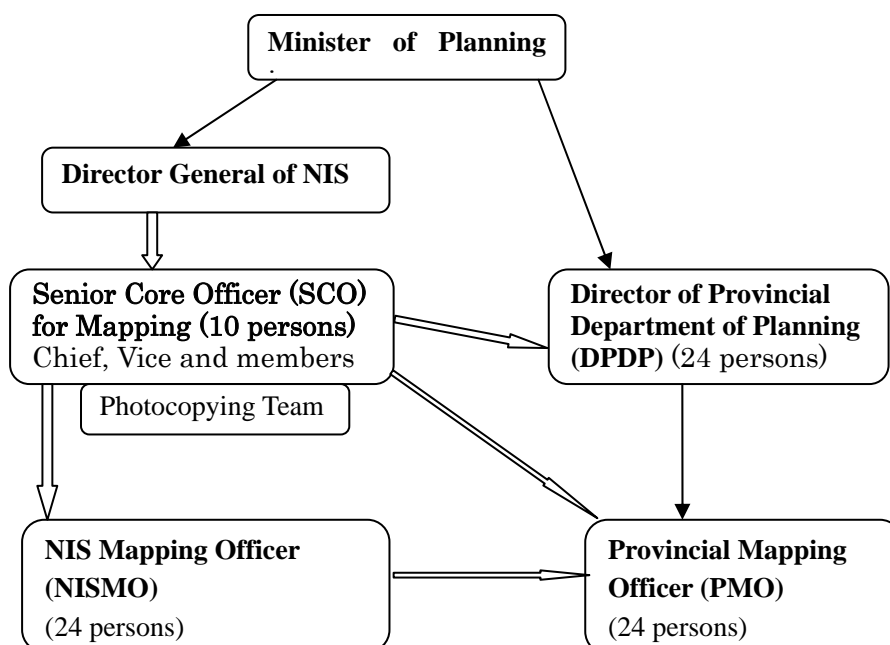
  3-3-2 NISMO, who is responsible for less number of Villages in a Province than PMO, takes the role of supervisor/RO concurrently.

  3-3-3 After their mapping work, "Mutual scrutiny" should be done by both of NISMO and PMO.

4. Organization
Chart of Organization is shown below.

Chart 1. Organization of Mapping Work

Note: Hereinafter, acronyms of SCO, DPDP, PDP, NISMO and PMO are used.

5. Target areas
The target villages, as mention above, are just the 955 villages selected from those of the 2008 Population Census for this CIPS.

Out of 955 villages, 720 villages were divided into two or more EAs in the 2008 Population Census. In these villages, only one EA has been selected for the 2013 CIPS.

Other villages (namely 235 villages) were divided into no EA; then whole area of this kind of villages is target area for mapping work.

In summary, the target areas for mapping work are 235 villages with no EA and 720 EAs in the 720 Villages.

6. Whole procedure of work
Whole procedure of work for the 2013 CIPS is shown as "Chart 2" in next page.

7. Tentative schedule of main activities and responsible stakeholders
This is shown in the table in the next of chart of "Procedure of mapping work for the 2013 CIPS".

8. Revision of the map
There are around 3 months after this mapping work till the implementation of the 2013 CIPS. During this period, area of the villages concerned may happen to be changed. This change can be found by the enumerators when they try to confirm the area of their in-charged villages or EAs at their field survey of the 2013 CIPS.

When they find the change of area, they will be obliged to revise the map.

Chart 2 Whole Procedure of Work for the 2013 CIPS

Appointment of NISMO/PMO/SCO

CTC

SCO Meeting

Decision of Outline of Mapping Work → Photocopy of PC Maps → Preparation and procurement of "Mapping Manual" and other documents/goods → Training Seminar for NISMO/PMO etc (allocation of villages, delivery of documents to NISMO/PMO, scheduling of field work)

Mapping work (NISMO/PMO)

| Field survey |
| Drawing new map and checking |
| Mutual Scrutiny |

Monitoring and Recheck by SCO

Confirmation of DPDP

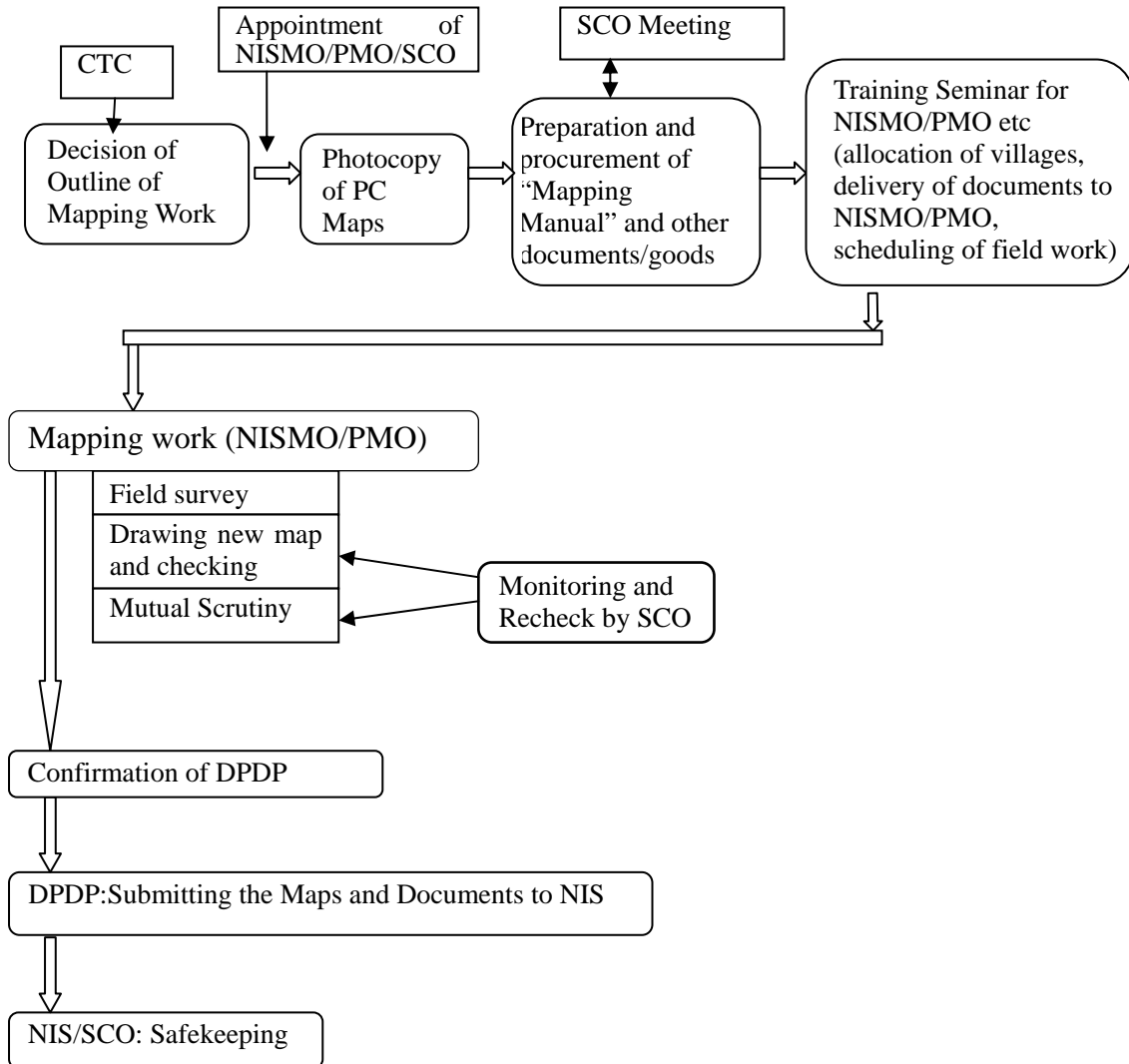DPDP:Submitting the Maps and Documents to NIS

NIS/SCO: Safekeeping

Table 1 Tentative schedule of main activities and responsible stakeholders

Activities	Period	Responsible Stakeholders	Notes
Preparatory work			
Finalizing documents such as Mapping Manual, form of Village/EA Map (blank) and others	May 2012	SCO	Decided in the CTC
Appointment of NISMO/PMO, SCO and member of photocopying team	May 2012	NIS/SCO	
Procurement of documents and goods	May 2012	SCO/JICA Project	
Photocopying of the 2008 PC Village/EA Maps	May 2012	SCO/Photocopying Team	
Training Seminar for NISMO/PMO and DPDP	25th and 26th Oct. 2012	Trainees: NISMO/PMO and DPDP Trainers: SCO	
Mapping work			
Mapping (Field survey, Drawing maps, Checking by NISMO/PMO)	01th to 17th Nov, 2012	PMO and NISMO	
Mutual scrutiny of the Maps Resurvey in the field	14th to 22th Nov. 2012	PMO and NISMO	
•Recheck by SCO in Province •Confirmation by DPDP	14th to 22th Nov. 2012	SCO and DPDP (NISMO/PMO)	
Submitting the Maps and related Documents to NIS	By 23th Nov, 2012	DPDP	
Safekeeping	Until implementation of CIPS	NIS/SCO	

Chapter 2 Tasks of SCO

SCO has comprehensive responsibility on the overall mapping work and carries out the following tasks:

1. Command and supervision of clerical work for mapping work
SCO commands NIS staff concerned to do clerical work regarding appointment of NISMO, PMO and other staff, safekeeping of printed documents procured goods, holding the training seminar and so on.

2. Organization and supervision of photocopying team
SCO organizes the photocopying team and commands them to photocopy maps of the 2008 Population Census as follows:
   a. Maps to be photocopied:
      ⬩Village maps of all villages selected for the 2013 CIPS (955 sheets)
      ⬩EA maps of all EAs selected for the 2013 CIPS (720 sheets)
      ⬩Maps which position and codes of households were written (235 villages with no EA and 720 EAs; in total 955 sheets)
   b. These photocopied maps should be stapled by village.
   c. Maps should be photocopied in darker colour so that they can be clear.
   d. The photocopied map should be checked by team leader in order to confirm whether all the maps are photocopied or not.

3. Holding of training seminar for NISMO, PMO and DPDP and lecturing
SCO holds the training seminar for 2 days in the beginning of Nov., 2012 and instructs tasks which DPDP and NISMO/PMO should accomplish, along with Table 2 Tentative Curriculum for the training seminar for NISMO, PMO and DPDP:

4. SCO visits Provinces for the following purposes
   a. to monitors the progress of activities of NISMO and PMO and gives any advices and any instructions in half of Provinces.
   b. to carry out the recheck on the newly-drawn maps and other documents regarding the key points in the other half of Province.
   c. the key points of check is as follows:

5. SCO meeting
SCO holds the SCO meeting to solve any difficulties regarding the mapping work so that all members of SCO can share the knowledge.

6. Receipt and safekeeping of the documents
SCO receives all the documents from NISMO and keeps safely them.

.**Table 2 Tentative Curriculum for the training seminar for NISMO, PMO and DPDP**

Date and time	Subject	Text	Trainer(lecturer)
First day			
Morning 9:00 to 12:00 (15 min. break time)	Opening speech		SCO
	Outline of mapping work	Chap.1 in "Manual for Mapping Work"	SCO
Afternoon 14:00 to 17:00 (15 min. break time)	Duties of SCO and DPDP	Chap2&3 in "Manual for Mapping Work"	SCO SCO
	Duties of NISMO and PMO	Chap.4 in "Manual for Mapping Work"	
	Procedure of mapping work	Chap 5 in "Manual for Mapping Work"	
Second day			
Morning 9:00 to 12:00 (15 min. break time)	Procedure of mapping work (continued)	Chap 5 in "Manual for Mapping Work"	SCO
	Exercise[1]	Example of mapping (Appendix and others)	
Afternoon 14:00 to 16:00	Allocation[2] of Villages to each NISMO and PMO	"Manual for Mapping Work"	SCO
	Administrative work		NIS, JICA Expert

Notes:

1) Issue to be done in this "Exercise" is to make the following exercises by using "example" or some photocopies of maps:

    a. to check 2008 Population Census maps

    b. to draw new maps

    c. to scrutinize maps

2) Issue to be done in this "Allocation of Villages to each NISMO and PMO" is as follows:

    a. to decide villages which each of NISMO and PMO takes charge of for mapping work.

    b. to inform the name of their responsible villages to all NISMO/PMO by giving the "Village Name List".

    c. It is suggested that SCO also have to keep the "Village Name List" by NISMO and PMO.

Chapter 3 Tasks of DPDP

DPDP has overall responsibility in terms of administrative issues on the mapping work and carries out the following tasks:

1. Recommendation of the PMO,

2. Arrangement of working place for NISMO and PMO in the office of PDP,

3. Necessary coordination with the provincial department of other ministries, and district office, commune office, village chief etc.

4. DPDP attends the training seminar which is held in NIS.

5. DPDP confirms that the Maps and other documents of all the selected villages, EA and sub-EA.

6. DPDP submit all the documents to NIS by the prescribed date.

Chapter 4 Tasks of NISMO and PMO

1. NISMO
NISMO takes roles of not only MO but also supervisor and regional officer.

1-1 Roles of regional officer
  NISMO is requested to coordinate the work and communicates between SCO and PMO, and DPDP.

1-2 Roles of supervisor
  a. NISMO is requested to check progress of the PMO's activities and gives the exact instructions to the PMO when he/she recognizes some instruction is necessary for PMO..
  b. When NISMO has doubts or difficulties which he/she cannot solve on the spot, he/she takes contact with SCO to gain exact solution.
  c. After NISMO completes his/her tasks of MO, he/she is obliged to do the following tasks:
    c-1 NISMO collects all of the following documents from PMO together with NISMO's documents, compiles by village them and arranges them in order of the code of village/EA/sub-EA.
    c-2 NISMO fills in each column of the "List of Village/EA/sub-EA Maps".
    c-3 NISMO submits to DPDPO the List of Village/EA/sub-EA Maps and all the documents by the prescribed date.

1-3 Role of MO
  a. NISMO attends the training seminar to learn his/her duties and receives necessary documents and goods. And then, he/she confirms villages where he/she is responsible for the mapping work.
  b. NISMO carries out the mapping work in accordance with "Chapter 5 Procedure of mapping work in this Mapping Manual".
    b-1 NISMO is responsible for around one third of the selected Villages, namely, 13-15 villages.
    b-2 This mapping work should be done for around ten days.

2. PMO
2-1 PMO attends the training seminar and learns his/her duties and receives necessary documents and goods. And then, he/she confirms villages where he/she is responsible for the mapping work.

2-2 PMO carries out the mapping work in accordance with "Chapter 5 Procedure of mapping work in this Mapping Manual".
  a. PMO is responsible for all the selected Villages other than those which NISMO is responsible for, namely 23-26 villages.
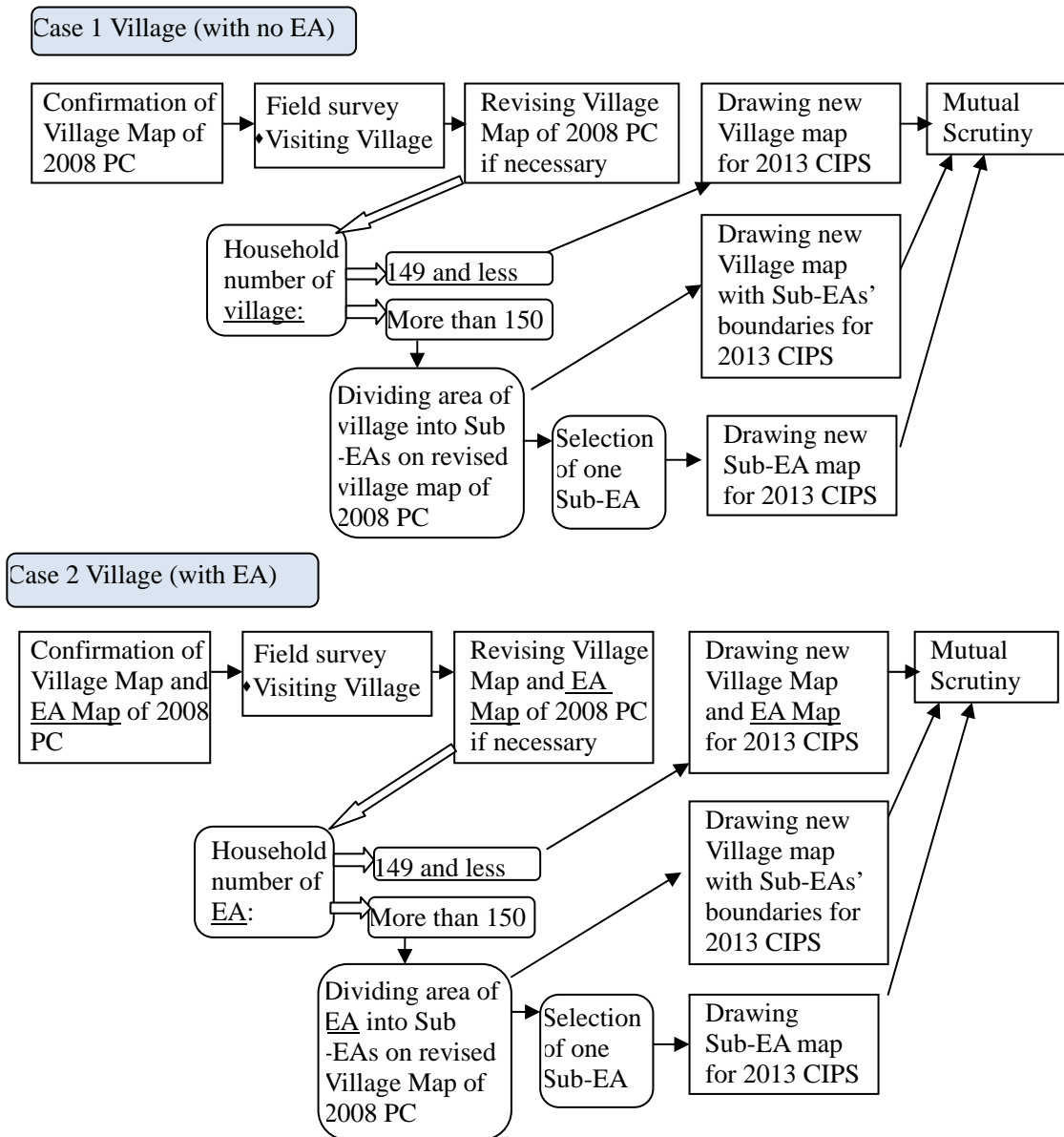 b. This mapping work should be done for around twenty days.

Chapter 5 Procedure of mapping work

Mapping work should be done by NISMO/PMO according to the following procedure and rules:

1. Rough flow of mapping work

Rough flow of mapping work is shown "Chart 3":

Chart 3 Flow of mapping Work

Case 1 Village (with no EA)

| Confirmation of Village Map of 2008 PC | → | Field survey ◆Visiting Village | → | Revising Village Map of 2008 PC if necessary | | Drawing new Village map for 2013 CIPS | → | Mutual Scrutiny |

Household number of **village**:
- 149 and less
- More than 150

Drawing new Village map with Sub-EAs' boundaries for 2013 CIPS

Dividing area of village into Sub-EAs on revised village map of 2008 PC → Selection of one Sub-EA → Drawing new Sub-EA map for 2013 CIPS

Case 2 Village (with EA)

| Confirmation of Village Map and **EA Map** of 2008 PC | → | Field survey ◆Visiting Village | → | Revising Village Map and **EA Map** of 2008 PC if necessary | | Drawing new Village Map and **EA Map** for 2013 CIPS | → | Mutual Scrutiny |

Household number of **EA**:
- 149 and less
- More than 150

Drawing new Village map with Sub-EAs' boundaries for 2013 CIPS

Dividing area of **EA** into Sub-EAs on revised Village Map of 2008 PC → Selection of one Sub-EA → Drawing Sub-EA map for 2013 CIPS

2. Confirmation and check of the 2008 Population Census maps

2-1 NISMO/PMO confirms all the documents which are used for his/her mapping work.

2-2 NISMO/PMO check the 2008 Population Census maps on the desk from the following viewpoints:

⬧Landmarks are written clearly to present the location of boundaries of village/EA or not; When he/she finds some problems, he/she marks with colour pencil for confirmation in field.

2-3 NISMO/PMO confirms which village/EA should be divided into two or more sub-EAs.

Box 1. Criteria of division of village/EA

a. In the following cases village/EA should be divided into two or more sub-EAs:
  ⬧ Number of households the selected villages (without EAs) and selected EAs is more than 150.

b. Data sources of the number of household:
  b-1 The 2008 Population Census; This information is instructed in the training seminar.
  b-2 Information of the village chief or field survey.

c. Even though household number of the 2008 Population Census is 149 and less, the village/EA should be divided if it has really more than 150 households from information from village chief and so on

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3. Field survey

3-1 NISMO/PMO visits village chief' office to confirm the following issues:
  a. Boundaries of village/EA concerned in the 2008 Population Census map real or not comparing with information or village map which village chief owns;
  b. Position, name etc. of landmarks on the 2008 Population Census map are exact or not;
  c. Number of household has been changed from that of the 2008 Population Census or not;
  d. Others.

3-2 NISMO/PMO goes to the field of village/EA to confirm boundaries, landmarks of the map. Especially, the spots which have differences or problems should be checked carefully.

3-3 NISMO/PMO revises the 2008 Population Census map by the way of writing the exact boundaries, landmarks on the map with red-color pencil.

The maps of the 2008 Population Census to be revised are as follows:
  a. Case of village with no EA in the 2008 Population Census
    ⬧ Village map
  b. Case of village with EAs in the 2008 Population Census
    ⬧ Village map (with EAs) and
    ⬧ EA map (selected one only)

3-4 After this revision, the necessary division to sub-EA should be done in accordance with "Box. **How to divide the area of village/EA into sub-EAs**"

3-5 Regarding the sub-EA, one of the sub-EAs should be selected from the sub-EAs through the method explained in "Box 3".

Box 2. How to divide the area of village/EA into sub-EAs

a. Villages/EAs to be divided are those which are judged by NISMO/PMO that they **have more than 150 households** after field work or interviewing village chief, based on the data of the 2008 Population Census.

Selected Villages without EA in the 2008 Population Census and selected EAs are related to this work.

b. Criteria of division
  ⬧ Number of households of one sub-EA should be 60-80.
   This number of households is based on the 2008 population Census and information from Village Chief or field survey.
  ⬧ Boundary of sub-EA should be clear land marks such as road, street, canal, river etc.

c. How to delineate the sub-EAs
  ⬧ to delineate some small lots in the area the village/EA according to the above-mentioned criteria on the revised map of the 2008 Population Census. These lots are sub-EAs which divide the area of village/EA.
  ⬧ to draw the boundary of the lots, namely, sub-EAs with dotted line (-------) of red-colour pencil on the map
  ⬧ to put codes beginning from S1(S2, S3---) to each sub-EA with red-colour pencil.

Box 3 How to select one sub-EA.

a. It is selected by the random way.

b. For example, supposing that total number of the sub-EAs is 4, the one of four figures "1","2","3","4" should be selected randomly. This figure can be specified by the figure of the first place of code in Riel notes which NISMO/PMO owns on the spot.

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4. Drawing new map

4-1 After the field survey, NISMO/PMO draws new map of village/EA on the blank map on the basis of the revised maps of the 2008 Population in accordance with "legend".

The maps to be drawn newly for the 2013 CIPS are as follows:

a. Case of village with no EA in the 2008 Population Census
  a-1 the number of households in the village is 149 and less---no division to Sub-EA
    ⬧ Village map
  a-2 the number of households in the village is more than 150---with Sub-EAs
    ⬧ Village map with boundaries of sub-EAs
    ⬧ Sub-EA map

b. Case of village with EAs in the 2008 Population Census
  b-1 the number of households in the selected EA is 149 and less---no division to Sub-EA
    ⬧ Village map
    ⬧ EA map
  b-2 the number of households in the selected EA is more than 150---with Sub-EAs
    ⬧ Village map with boundaries of sub-EAs
    ⬧ Sub-EA map

4-2 In this work, to be paid attention is as follows:
  a. Shape of area of Village/EA,
  b. Boundary (red-color) and its landmark,
  c. North direction
  d. Number of households
  e. Code of village/EA
  f. Others
4-3 Regarding the Sub-EA map, it is to be drawn on the blank map from the revised map of the 2008 Population Census by the following way:
  a. The sub-EA should be enlarged.
  b. Code of sub-EA should be put at the next of the Village code or EA code.
  c. The same attention as the above "3-2"should be paid

5. Mutual scrutiny of the newly-drawn maps

NISMO/PMO is requested to carry out the mutual scrutiny on the maps and other documents after drawing the new maps by the following way:

5-1 PMO scrutinizes the following maps which NISMO revised and drew newly:
  5-1-2. Revised maps of the 2008 Population Census;
   a. Case of village with no EA in the 2008 Population Census
      ⬧ Village map
   b. Case of village with EAs in the 2008 Population Census
      ⬧ Village map (with EAs) and
      ⬧ EA map (selected one only)
  5-1-2 Newly-drawn maps for the 2013 CIPS:
   a. Case of village with no EA in the 2008 Population Census
      a-1 the number of households in the village is 149 and less---no division to Sub-EA
         ⬧ Village map
      a-2 the number of households in the village is more than 150---with Sub-EAs
         ⬧ Village map with boundaries of sub-EAs
         ⬧ Sub-EA map
     b. Case of village with EAs in the 2008 Population Census
      b-1 the number of households in the selected EA is 149 and less---no division to Sub-EA
         ⬧ Village map
         ⬧ EA map
      b-2 the number of households in the selected EA is more than 150---with Sub-EAs
         ⬧ Village map with boundaries of sub-EAs
         ⬧ Sub-EA map
5-2 Similarly, NISMO scrutinizes the following maps which PMO revised and drew newly:
  5-1-2. Revised maps of the 2008 Population Census;
   a. Case of village with no EA in the 2008 Population Census
      ⬧ Village map
   b. Case of village with EAs in the 2008 Population Census
      ⬧ Village map (with EAs) and
      ⬧ EA map (selected one only)
  5-1-2 Newly-drawn maps for the 2013 CIPS:
   a. Case of village with no EA in the 2008 Population Census
      a-1 the number of households in the village is 149 and less---no division to Sub-EA
         ⬧ Village map

a-2 the number of households in the village is more than 150---with Sub-EAs
- Village map with boundaries of sub-EAs
- Sub-EA map

b. Case of village with EAs in the 2008 Population Census

b-1 the number of households in the selected EA is 149 and less---no division to Sub-EA
- Village map
- EA map

b-2 the number of households in the selected EA is more than 150---with Sub-EAs
- Village map with boundaries of sub-EAs
- Sub-EA map

5-3 Points of mutual scrutiny are as follows:

a. Regarding the revised maps of the 2008 Population Census;
- Revisions are reasonable or not (by hearing to the partner each other);
- Revised boundaries are clear with any landmarks etc or not;
- Revisions are done according to legend or not.

b. Regarding the newly-drawn maps for the 2013 CIPS:
- Codes of village/EA/sub-EA are exact or not;
- Geographical shapes of village/EA/sub-EA are similar to the revised one or not;
- Boundaries of village/EA/sub-EA are clear with any landmarks etc or not;
- North direction is exact or not;
- Maps are drawn according to legend or not;
- Others

5-4 Resurvey after the mutual scrutiny and recheck of SCO

As a result of the mutual scrutiny and recheck of SCO, when serious problems on the boundary of village/EA/sub-EA are found, NISMO/PMO are obliged to go to field survey for confirmation. If necessary, some revision on the maps should be done by PMPO/NISMO.

6. Arrangement and submission of all documents

After the mutual scrutiny, NISMO are obliged to do the following tasks:

6-1 NISMO collects all of the following documents from PMO together with NISMO's documents, compiles by village them and arranges them in order of the code of village/EA/sub-EA.

6-2 NISMO fills the prescribed mattes in the "List of Village/EA/sub-EA Maps".

6-3 NISMO submits to DPDPO the List of Village/EA/sub-EA Maps and all the documents by the prescribed date.