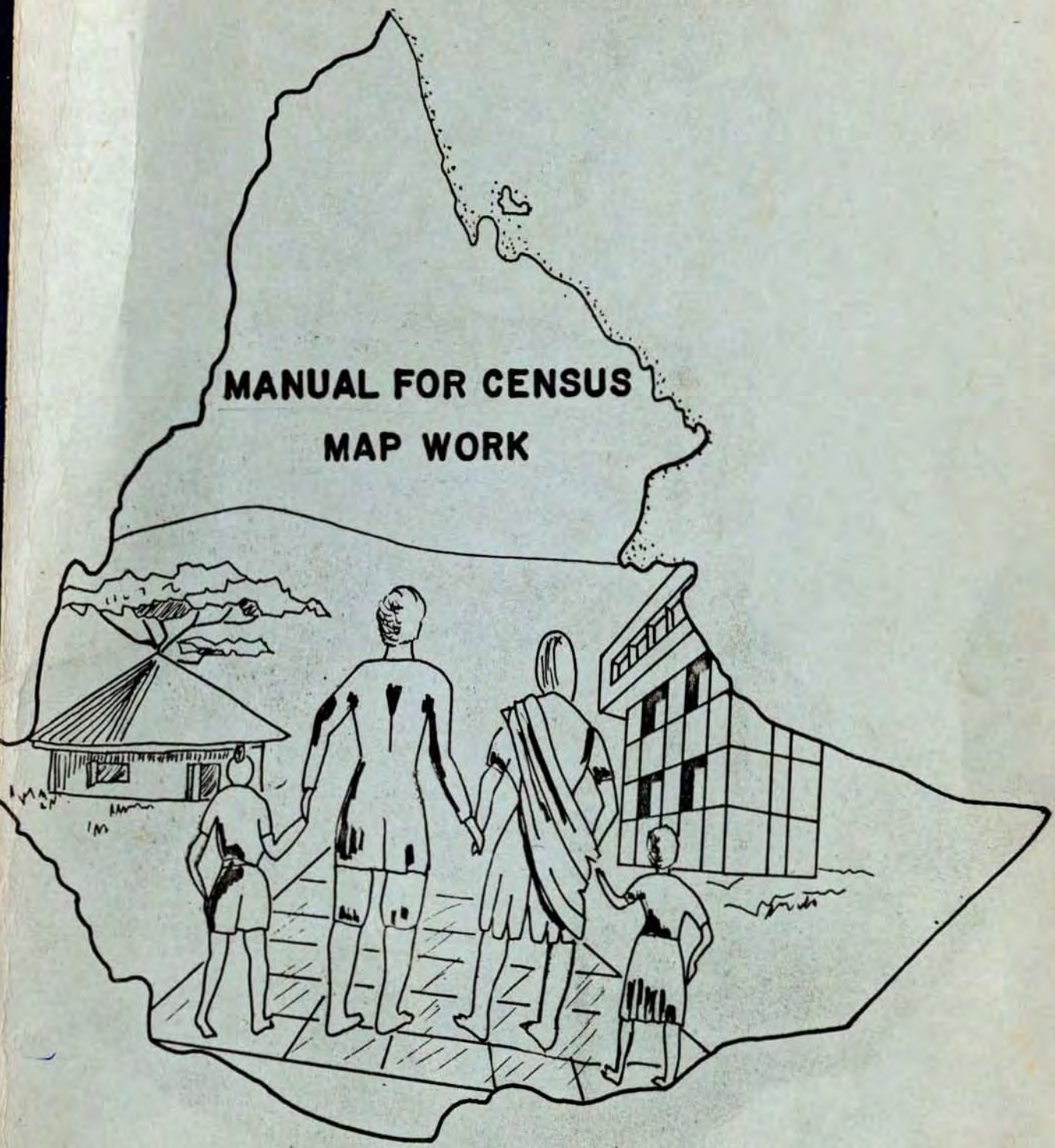
THE PROVISIONAL MILITARY GOVERNMENT
OF SOCIALIST ETHIOPIA
NATIONAL REVOLUTIONARY DEVELOPMENT
CAMPAIGN AND CENTRAL PLANNING
SUPREME COUNCIL

CENTRAL STATISTICAL OFFICE

MANUAL FOR CENSUS MAP WORK



ADDIS ABEBA SEPTEMBER 1980

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CHAPTER I

GENERAL

1. INTRODUCTION:

The First General Population Census of Ethiopia is going to be undertaken sometimes in 1983. This is a big task. It is being organized and will be carried out by the Central Statistical Office in collaboration with other Government agencies.

In general, a census operation comprises the following phases: a) preparatory work, b) enumeration, c) data processing, d) analysis and evaluation of the results, e) systematic recording of census experience, f) dissemination of the results. One of the tasks to be undertaken during the preparatory phase is census mapwork. The entire country has to be divided into smaller study areas, usually called ENUMERATION AREAS (EA'S) AND SUPERVISION AREAS (SA'S).

The mapwork has to take into account the administrative divisions of the country. Ethiopia is divided into 14 ADMINISTRATIVE REGIONS, 102 AWRAJAS 587 WEREDAS[1] and 255 urban centres.[2] In accordance with the rural Land Proclamation, the Weredas are in the process of being divided into PEASANT ASSOCIATION AREAS (PAA's), each of which does not in principle exceed 20 gashas. The major urban centres are either have been divided or in the process of being divided into urban Dwellers Association Areas, (UDA'S).

The census mapwork will have to start from the Weredas. When every Wereda and urban centers in the country are divided into E.A's. on the basis of the lowest administrative units, it means that census mapwork of the whole country is accomplished. You are playing a crucial role in the accomplishment of this task, Your task is to do the census mapwork in the settled rural areas and urban centers of the country.

Major purposes of Census Mapwork

a. Determination of the size of Manpower:- The formation of E.A's. and S.A's. and S.A's. enables the Census Head Office to know in advance how many enumerators and supervisors are needed for the census. Arrangements will have to be made accordingly in order to avoid any manpower shortage at the time of the census.

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1. Ministry of Interior.

2 Ministry of Urban Development and Housing.

b. Distribution of Workload:- It is important that each enumerator has approximately the same workload, which should be completed within the enumeration period. The same thing applies to the supervisors. This cannot be achieved without dividing the country into E.A's. and S.A's.

c. Coverage Control:- E.A. maps provide a guarantee that there will be no serious omissions or duplications of households.

d. Quality Control:- S.A. maps are important to organize the supervision and quality control of the census.

e. Establishment of Statistical Framework:- Dividing the country into E.A's. provides a framework for other surveys (e.g. of agriculture, health, household budgets, etc.).

2. SCOPE OF THE MANUAL:

This manual contains technical instructions for census mapwork in settled rural areas, (whether or not Peasant Associations have been formed) and urban centers (whether or not Urban Dewellers Associations are formed). It does not cover instructions for preparatory mapwork in areas inhabited by nomads and shifting cultivators. A supplementary instruction for these areas will be prepared and issued in due course.

3. CONCEPTS AND DEFINITIONS

a) Subdivision:- is the lowest administrative unit in a Wereda. In Ethiopia, the work subdivision varies from region to region. For example, in Eritrea, a subdivision is called "Add;" in Tigrai, "Addi" or "Got," in Gojam, "Deber;" in Harrarghe, "Gerada;" etc. In accordance with the Rural Land Proclamation, the former subdivisions are substituted by peasant association areas. Accordingly, the former subdivision officials, such as chikashum and Atbia deagna are replaced by the chairman of the Respective Peasant associations. This change can be observed in areas where the formation of PAA's. is undertaken. The move towards the formation of peasant associations can lead to three main structural changes in the concept of old subdivisions.

1. An old subdivision may equivalently be taken to form one peasant association area with a chairman

2. A number of the old subdivisions may be amalgamated to form a single peasant association area with a chairman:

3. An old subdivision may be partitioned to form a number of peasant association areas with respective chairman

It is, however, important to note that the sizes of the peasant association areas/subdivisions/ in terms of population and area may not necessarily be equal to one another.

b) Lowest Administrative Unit:-

By the lowest administrative unit we mean a geographically defined area within a wereda under the jurisdiction of a local official. This term could be used to refer to the PAAs UDA or the former subdivisions.

c) Locality:-

A locality is defined as a nucleated and physically distinct settlement (also designated as inhabited place, populated center etc.) in which the inhabitants live in neighbouring housing units (buildings, huts, etc.) and has a name or a locally recognized status. A locality may include a hamlet, a village, a market town, a town, a city and any other population cluster which meets the criteria specified above.

d) Urban Centers:-

1. Urban center. It is defined as a locality with 2000 or more inhabitants. However, for the purpose of census map work urban center includes the following regardless of the number of inhabitants.

a) All administrative capitals

i. Regional capitals
ii. Awraja capitals not included in (i)
iii. Wereda capitals not included in (i) and (ii)
iv. Mikitil wereda capitals, if any, not included in (i), (ii) and (iii) and whose inhabitants are not members of the neighbouring or surrounding peasant Association Areas.

v. Localities with UDA's not included in (i-iv)

b) Municipal Towns not included in item "a" above.

c) All localities which are not included either in items "a" or "b" above, having a population of 1000 or more persons, and whose inhabitants are primarily engaged in non-agricultural activities. Note that localities with population of less than 1000 persons should be considered as rural.

The urban centers have been divided or in the process of being divided into urban dwellers association areas (Kebeles), higher urban dwellers association areas (Kefeteghnas) and central urban dwellers association (Atekalay).

2. Urban Dwellers Association (UDA):- It is the lowest administrative unit in the urban center with its own jurisdication. It is a society of urban dwellers formed by the inhabitants and usually constitutes a part of the urban center with an average of about 500 contigous housing units.

3. Higher Urban Dwellers Association (HUDA):- It is a larger administrative unit in urban center formed by two or more contigous urban dwellers associations. It has also its own jurisdication and its major duties are to coordinate the function of the UDA'S under it.

4. Central Urban Dwellers Association (CUDA):- It is the highest administrative unit of the urban center formed by two or more higher urban dwellers associations. Its major duties are the coordination of the function of HUDA'S under it.

e) Enumeration Area (EA):-

An enumeration area is a unit of land delineated for the purpose of enumerating population completely i.e. without omission and duplication. For the purpose of the Census, an E.A. in rural areas usually consists of 150-200 households, and on the other hand an E.A. in urban centers constitute 150-200 housing units. During the census an E.A. is usually assigned to an enumerator, However, there may be some cases where two or more enumerators should be assigned to one E.A., or conversely, one enumerator to two or more E.As.

An enumeration area should be related to UDA, a PAA or a subdivision in one of the following ways.

1. An E.A. may be equal to a subdivision/peasant association area, if the number of the households in the PAA/Subdivision is less or equal to 150-200 in rural areas and equal to a UDA in urban areas if the number of housing units in the UDA is 150-200.

2. An E.A. may be a part of a subdivision/peasant association area or an urban dwellers association area.

Whatever form an E.A. takes, it is very important that it is properly delineated and described. Note that an EA should not cross a PAA/Subdivision boundary in rural areas and a UDA boundary in Urban centers.

f) Supervision Areas (S.A's.):-

A supervision area is a convenient grouping of EA's to be under the control of a supervisor for the purpose of complete coverage and quality control at the time of enumeration. It usually consists of 5 E.As (i.e. 750 to 1000 households) and will be alloted to one supervisor. The supervision area should not cross a wereda. It is important to note that the S.A. will have to be created when all the E.A's. of a wereda and urban centers have been formed.

g) Household:-

A household denotes a group of persons who often live in the same housing unit; or in connected premises and have common arrangements for cooking and eating their food. A household could consist of a single person, but usually, it consists of a husband, his wife, his children, relatives etc. In order to prepare E.A. maps the Geographical Assistants (G.A's) will have to list first the households of the PAS in rural areas and the households as well as the housing units of the UDA, in urban areas. Hence, it is important to understand that there are different marriage practices. If marriages are monogamous, a household is most likely to consists of a husband, a wife, their children, adopted children, parents of the husband or wife or both,

other relatives and servant (s). All these persons should normally reside together and have the same cooking arrangements in order to be considered members of that household. But, if marriages are polygamous (i.e. when one man has two or more wives), and the husband, the wives, the children etc. live in the same housing unit or closely located housing units and have common cooking arrangements from which they share their principal meals, they form a household. Conversely, if the wives and their children (including relatives and servants if any) live in separate premises and each wife and her children have separate cooking arrangements and meals, then, each wife should be considered having formed a separate and distinct household of her own and the husband should be considered having formed a household consisting of one of his wives.

h) Head of household:-

Any number of the household who is recognized as the head by the members of the household is called head of the household. The head of the household can be male or female. In a polygamous marriage where the wives have separate households, the wife or any other member (e.g. elder son) should be considered as a head.

i) Housing unit:-

A housing unit is a separate and independent part of the whole of a building or a group of buildings used or intended to be used for habitation by a household; or if not so, used or intended to be used as a school, store, a bar, barber shop, a manufacturing establishment or for other non-residential purposes. You should consider even a mobile housing unit.

j) Collective quarters:-

A collective quarter is a premise (a housing unit, a building or a compound) in which a number of unrelated persons reside together, and share common facilities. Examples of collective quarters in Ethiopia are monastries, prisons, bording schools, hostels, home for aged, childrens' home, work camps, military barracks, rehabilitation centers etc. It is important to note that in the premises of some collected quarters, there may be private households.

4. SOME BASIC FACTS ABOUT MAPS AND MAPWORK:

The purpose of Cartography is to collect data and analyse the various patterns of the earth and to represent them graphically on such a reduced scale that the elements of this pattern can be made clearly visible. For revealing the earth's pattern, the chief instrument of the cartographer is a map. A map is a conventionalised picture of the earth's pattern as seen from above, to which lettering is added for identification. A map represents what is known about theearth and all that can be seen from any altitude. Maps commonly exhibit many features that are in themselves not visible such as international boundaries, administrative boundries, geographical names, ...etc.

BROAD CATEGORIES OF MAP

Maps vary in scale and detail and may be classified with reference to their scale and to their content. For the purpose of census cartographic work the following broad categories of maps should be undersfood well.

1. Topographic maps
2. Township "
3. Cadastral "
4. Planimetric "
5. Special purpose maps

1. Topographic maps:- A topographic map portrays the natural and cultural features of the earth's surface in measurable forms showing both their horizontal and vertical positions. The vertical positions, or relief, are normally represented by contours. For the purpose of this manual topographic maps could be classified into three categories according to scale.

1.Large scale	1:20,000 and larger
2.Medium scale	1:20,000 to 1:100,000
3.Small scale	1:250,000 and smaller

2. Township Maps:-

Usually they are large scale maps that represent the road network of urban areas and location of buildings and other prominent features.

3. Cadastral Maps:- They are large scale maps showing the boundaries of plots of land, usually with the bearings, length and the area of individual tracts for purposes of describing and recording ownerships.

4. Planimetric Maps:- Maps which present only the horizontal positions of the features are called Planimetric maps. They are distinguished from topographic maps by the omission of relief in measurable forms.

5. Special Purpose Maps:- Maps designed primarily to meet specific requirements, e.g. land use maps, geological maps, malaria maps,* etc. Usually the map information portrayed on special purpose maps is emphased by omitting or subordinating non-essential or less important information. They are small scale maps.

1. Aerial photography:- They show physical, natural and cultural features in their correct perspective and are of great help in base map preparation. However, their uses are limited bacause of the constraints imposed by time and cost. Whether the aerial photographs are used directly or converted to maps all pertinent names, administrative bounderies and other important details have to be shown.

Photo maps are the reproduction of aerial photographs or mosaics made from a series of aerial photographs, upon which arbitrary grid lines, marginal data, place names, important elevations, approximate scale and direction have been added. Photo maps are not usually contoured. They are used to supplement other maps or to serve as a map substitute.

Base Map:-

It is a map showing certain fundamental information, used as a base upon which additional data are compiled, or map containing all the information from which maps showing special information can be prepared.

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*They are not conventional maps.

For the preparatory census mapwork some of the above mentioned types of maps may serve as base maps if found suitable in terms of scale and detail. Other less detailed maps could also be used when there is no sufficient time and skilled staff to prepare better maps.

MAP DETAIL:-

Map detail represents ground features as they existed at the date of map compilation or latest revision. Since man is continually building, demolishing and changing ground features, the details appearing on a map may not match that appearing on the ground. This is specially true in developing areas. To tackle such problems, the methods of generalization and symbolization have always to be applied.

GENERALIZATION:-

The amount of details shown on a map increases with its scale. A map attempts to show the maximum detail without impairing legibility. In areas of heavy cultural density, many of the less important items must be omitted. In areas of sparse density, fewer items are omitted. When deletions are necessary because of the density of detail, care is taken to retain the general pattern of the features in the area. Similarly, where numerous ditches and streams exist, the less important ones are omitted and the more important ones are retained to show the characteristic pattern of the features in the area. It should however be understood that the extent of generalization depends on the purpose of final map.

SYMBOLIZATION:-

A symbol is a diagram, design or letter of abbreviation placed on maps and charts which by convention, usage or reference to a legend is understood to stand for or represent a specific characteristics or object.

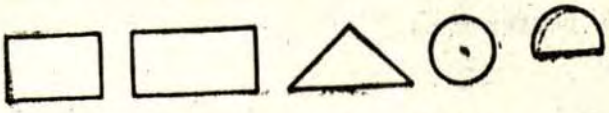
So far as symbolization is practiceable, a mapped feature is shown by the same symbol on maps of different scales, but certain modifications are necessary because of varying map uses and scales. The centre and the orientation of a symbol usually correspond to the true centre and orientation of the feature represented.

Different types of symbols:

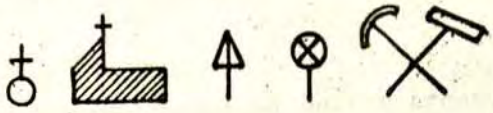
1. Point symbols

a. Qualitative Point symbols:

Geometrical



Pictorial

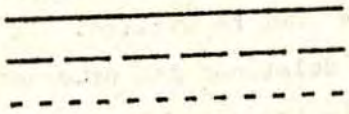


Letter

b. Quantitative Point symbols

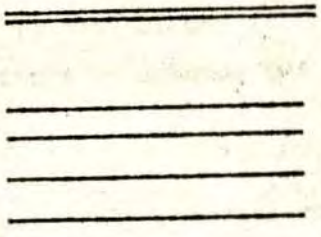
2. Line symbols

a. Qualitative line symbols



b. Quantitative line symbols

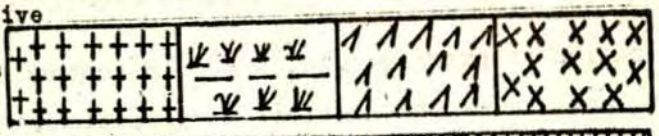
Thickness



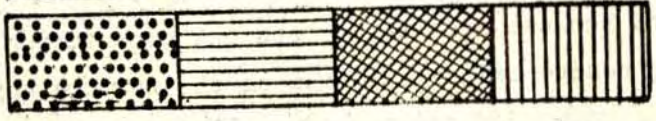
3. Area symbols:

a) Qualitative

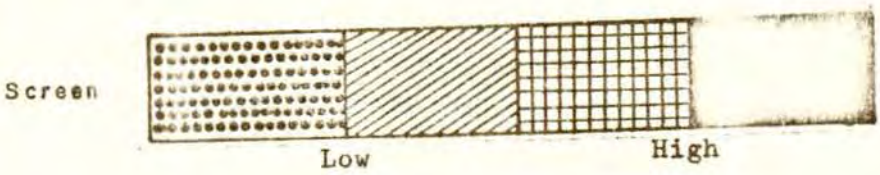
i) Patterns



ii) Screen



b) Quantitative



PHYSICAL FEATURES:-

Depending upon the accuracy of information, the shapes of the terrain are shown on a map by lines representing contours, approximate contours and form lines. Anyone or all of these method may be used on a single map. On medium and small scale maps, significant relief features may be shown by hachures when available data are insufficient to warrant the use of contours.

a. Contours:-

They are imaginary lines drawn on a map showing points on earth's surface of same elevation above a fixed datum or mean sea level. To aid the map user every fifth contour is a heavier line. These are commonly referred to as index contours. The remaining contours are called intermediate contours. In certain areas on the map, the normal contour interval is sometimes too large to present significant topographic formations correctly and supplementary half-interval contours or spot heights are added.

(a) Normal Contours

a Index Contours

b Intermediate

C Supplimentary

b. Approximate contours:-

Whenever there is any question as to the reliability of the source material or of the survey, approximate contours are substituted for normal contours. An approximate contour on a map represents an imaginary line on the earth's surface all points of which are estimated to be of the same elevation.

(b) Approximate Contours

a Index
b Intermediate

c. Form lines:-

When availabile information is insufficient to warrant the use of either normal or approximate contour, form lines are used. Form lines collectivelyportray the general shapes of topographic features, but with a little or no reference to sea level. They do not present an accurate representation of the terrain, but illustrate the general topographic shape of the area.

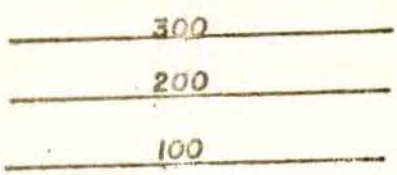
(c) Form Lines

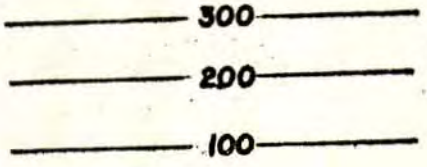
Note that the lines are broken and unnumbered

d. Characteristics of Contours:-

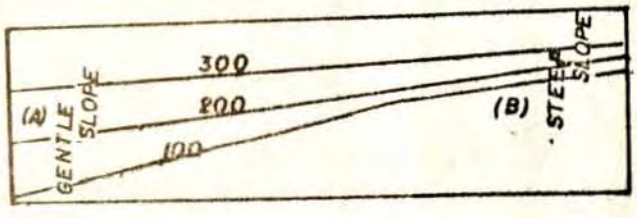
Understanding the characteristics of contours is a prerequiste of using contours for all practical purposes. Thus, the main characteristics of contours are considered below:

1. Contours are smooth curves.
2. Contour lines are numbered on the direction towards which altitude increases. Sometimes the numbers are written in the breaks of the contour lines.

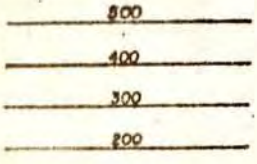




3. When contour lines are far apart they show gentle slopes.
4. When contour lines are close to each other they show steep Slopes.



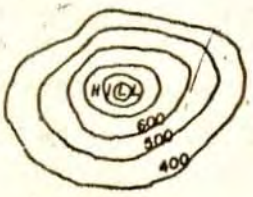
5. Contours never cross or touch except at vertical cliffs and waterfalls.
6. Contours tend to parallel streams and to parallel each other. This reflects the fact that changes in ground form are usually gradual.
7. Every contour closes on itself, either within or outside the limits of the map.
8. The vertical interval between any two contour lines is constant unless otherwise stated:



Here, the vertical interval is 100 and it is constant.

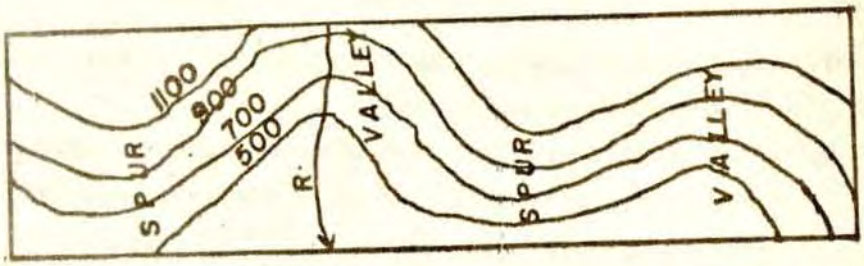
Let us now see how hills, cols, knolls, spurs, valleys, cliffs, ridges and plateaus are shown with the help of contours:

Hill:- A hill is any land form which is higher than its surrounding.

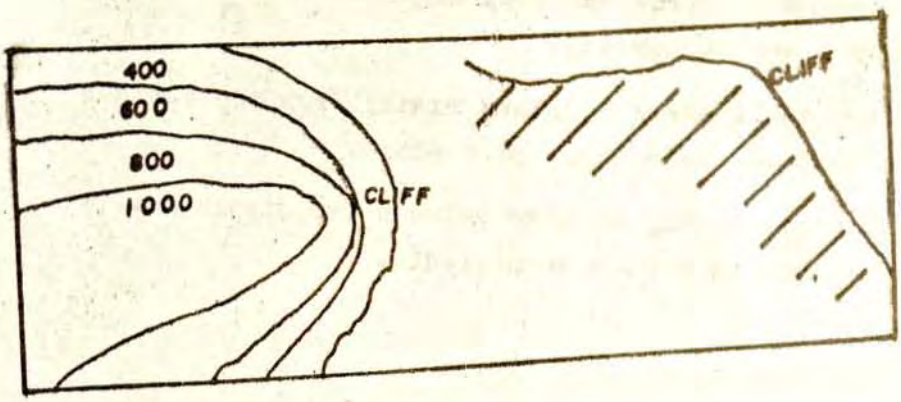


Valley:- A valley is a v-shapped lowland on the surface of a highland.

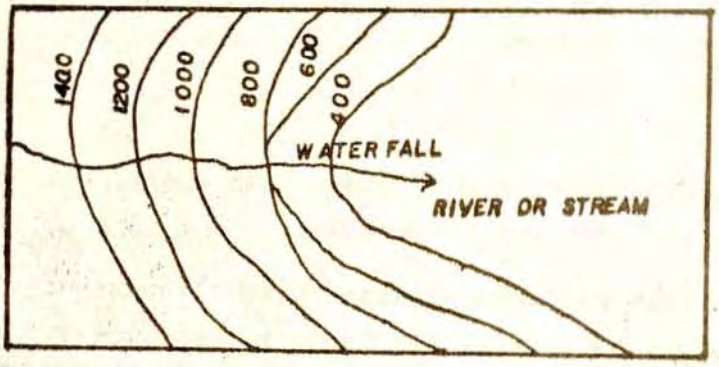
Spur:- It is an outward projection of ground into a lower one.



Cliff:- It is a vertical part of a highland. A spur with a vertical height is also a cliff. It is represented by converging contour lines to form a wide line.



Waterfall:- It is a sudden drop of a river due to a vertical slope on the floor or a valley.

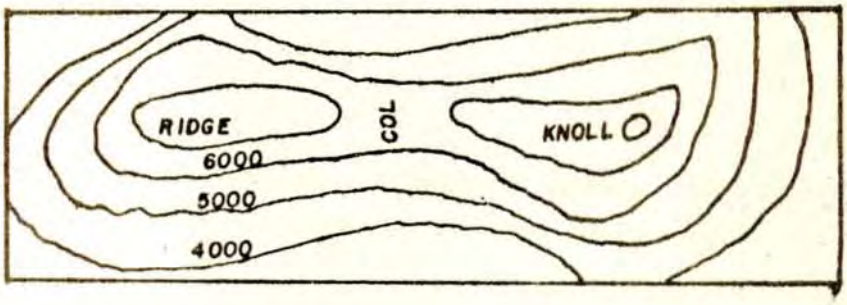


Note that contours merge at the waterfall to form a wide line.

Ridge:- A ridge is a narrow and long highland with steep slopes. It has a narrow surface.

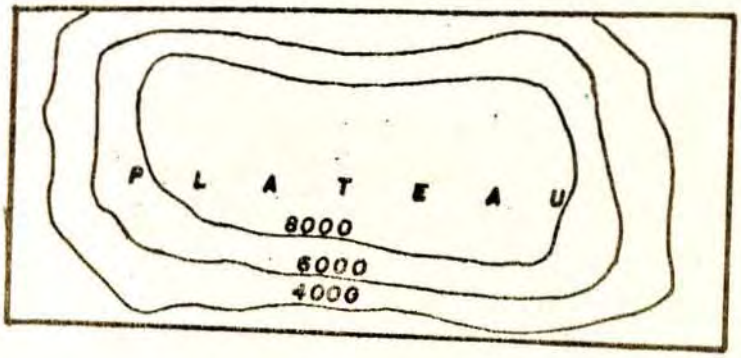
Knoll:- It is a small scale highland rising from the surface of a plateau, or a ridge or a plain.

Col:- It is a relatively lowland between two highlands. It is also called a pass or a saddle.



Note that the whole landform is a ridge with knolls and cols on its surface.

Plateau:- It is flat surfaced highland with steep slopes. There may be several highlands rising from its surface. (See fig. 12)



CULTURAL FEATURES:-

Cultural features are features of the terrain that have been constracted by man.

a. Cities:-

On small scale maps cities are represented by circles. On large scale maps where the actual extent can be shown, the city can be represented by cross lines indicating a street system, eventhough it does not exactly follow the actual pattern.

b. Roads:-

Even in the earliest maps it was customary to show roads by double lines. On large scale maps the various types of roads are shown by different thickness of lines. On small scale maps, however, where only the most important roads can be shown, this differentiation is not often made and to avoid over crowding the map, a single line is preferable to a double line.

Most small scale maps do not contain any cultural symbols besides cities, roads, railroads and boundaries, but on large scale maps various other features such as churches, mines, schools, ... etc. are shown. Man made features, such as cities, roads and railways are exaggerated on maps.

SCALE:-

A map scale is a device by which the proportional relationship between the actual size and its representative is shown. It can be expressed in the following ways.

a. Representative fraction (RF):-

This is a simple fraction or ratio. It may be shown either as 1:250,000 or 1/250,000. This means that 1 centimeter on the map represents 2,500 metres on the ground.

b. Verbal statement:-

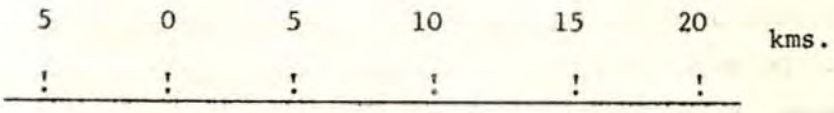
This is a statement of map distance in relation to ground distance. For example the RF 1:250,000 works out to be approximately 1 cm. to 2.5 kms.

e.g. $\frac{250,000}{100 \times 1000} = 5/2 = 2.5$ kms.

c. Graphic or Bar Scale:-

This is a line placed on the map that has been subdivided to show the lengths of units of ground distance. One end of the bar of the scale is usually subdivided further in order that the map reader may measure distance more precisely.

e.g.



Common map scales and their equivalent:

Map Scale	One centimeter represents	One Kilometer is represented by
1:1,000,000	10.0 km	1.0 mm
1:500,000	5.0 km	2.0 mm
1:250,000	2.5 km	4.0 mm
1:125,000	1.25 km	8.0 mm
1:100,000	1.0 km	1.0 cm
1:50,000	0.5 km	2.0 cm
1:25,000	0.25 km	4.0 cm
1:20,000	0.2 km	5 cm
1:10,000	0.1 km	10 cm
1:5,000	50 meters	20 cm
1:2,000	20 meters'	50 cm

DIRECTION:-

Directions on earth are entirely arbitrary since a spherical surface has no edges, beginning or end. By definition, then North-south is along any meridian and east-west along any parallel, because of the arrangement of the graticule. These two directions are everywhere perpendicular except of course at the poles. They form the basis for the directions of the compass.

Since the needle of the magnetic compass aligns itself with total magnetic force it is not parallel to the meridian, that is, it inclines away from the meridian. Consequently, most areas will have a different magnetic north from true north.

CHANGING SCALE:-

When there are no suitable large scale base maps for census purposes, enlargements or reductions have to be made from different sources or different scales and details are added.

The scale or a base map or a source map may be changed in a number of ways namely by optical projection, by photography, by pantography and by similar squares.

a. Changing scale by projections: It is a process of projecting from overhead onto a drawing surface (reflectin projector, map-o-graphy) or from underneath onto a translucent tracing surface (optical pantography). A source map is placed in the projector and by adjusting the enlargement or reduction, the projection of the image to the drawing surface may be changed in scale to that of the map being compiled. When properly aligned then the desired information is transferred.

b. Changing scale by Photography: Changing scale by photography is a very easy process but expensive. It may be accomplished either by photographic enlargement or reduction through the use of the conventional film process.

c. Changing Scale by Pantograph: It is an ancient device for enlarging and reducing but very popular, easy to operate for reduction. However enlargement is relatively difficult and accuracy is hard to obtain.

d. Changing Scale by Similar Squares:

In some instances we are forced to change scale by a method called similar squares. This involves drawing a grid of squares on the original and drawing the same squares larger on the manuscript. The lines, positions, and other details are then carefully transferred by observation from one grid system to the other. In the absence of better alternatines the system is recommendable.

MARGINAL MAP INFORMATION (MARGINAL DATA):

Marginal map information are items appearing in the margins of maps. They help in the identification of maps. These are:

1. Title - the title should give the name of the area and the subject of the map.

2. Scale - the scale of the map should be indicated. It is advisable to give scale in numerical and graphical forms.

3. North Arrow - the direction of the geographic north or true north is indicated with an arrow. Although it is common to orient the map with the north to the top, the shape of the area very often dictates another orientation.

4. Legend - the legend, or key, should contain an explanation of every symbol and abbreviation used in the map.

5. Inset map - a very small map of the country with location of investigated area in the form of a small black dot gives a good idea of the geographical position of the area within the country.

6. Identification panel - for quick identification of maps when filed, identification panels in opposite corners of the map sheet are provided. These panels contain the series number, sheet number, edition number, index to adjoining sheet number, edition number, index to boundaries ....etc.

MALARIA ERIDICATION MAPS AND THEIR USES FOR CENSUS MAPWORK:

Methods used in the preparation of Malaria Eradication Maps were very simple and no modern mapping instruments are involved.

For Malaria Eradication programme the country was divided into zones, sectors and localities.

Zone maps - Are maps prepared at a scale of 1:500,000 and are used for carrying out preliminary surveys of sectors.

Sector Maps - Are maps enlarged from maps of different scales to scale 1:100,000 approximately. When all localities are inserted on such maps they are used as key maps of index.

Locality Maps - The most important of all Malaria Eradication Maps are the locality maps which could directly or indirectly be used as base maps to substitute or to supplement other base maps in the process of E.A. formation. Therefore, detail treatment of these maps is necessary.

Locality maps are large scale drawings indicating the houses and some natural features. They show all the features in relative position to each other within reasonably accurate boundaries. Although not accurate enough for exact measurements, they are sufficient for the location of the houses and other features marked.

Details shown on the Locality Map:

(a) The North Arrow: Drawn on the top left or right hand corner with the aid of field magnetic compass.

(b) The Map Titles: The Zone, sector and locality names and number. When a locality is known by more than one name the most popular name is written first and other names in bracket. Village names are also written in their correct position on the locality maps.

(c) The Scale: The appropriate scale is written with the equivalent ratio e.g. 4 cm. = 1 km.

(d) The details of Mapping: These include the name of the mapper, date of mapping, name of person checking the map and date of check, ...etc.

(e) The legend: Indicating the meaning of all mapping symbols used.

(f) Other details: The total number of household, total number of unit structure, total population, highest and lowest elevation.

(g) Inset Map: A small reproduction of the sector key map in the top left hand corner of the map sheet showing the relative position of the locality with the sector and its distance from the office.

(h) Natural and Cultural features: Including all water sources with their names, markets, schools, churches and other prominent Landmarks .....etc.

(i) The number of the adjacent localities.

(j) A large arrow pointing to the first house and one pointing from the last house in the direction of the next locality mapped.

(k) All houses and unit structures in their correct relative position. Every fifth house is numbered.

SPECIAL CASE: Large localities such as urban centres are shown on a number of maps with a key to indicate their relative position. Though the number of the locality is the same, it will be hyphenated to show the sections into which it was divided for mapping purposes. Thus locality number 30 with 5 sections will be numbered L30 - 1, L30 - 2, L30 - 3, L30 - 4, L30 - 5. Each section will be numbered independently and each will have house numbers starting from number 1 and so on.

Reconnaissance Survey: Before starting the Malaria Eradication map work a broad reconnaissance study had been undertaken and the form comprises of the following information:

1. Estimated number of houses and people in each mikitil wereda.
2. All types of public facilities available.
3. Altitude and type of terrain.
4. Languages used.
5. Climatological information.
6. Names of important people or elders in the area.

House Tags: Galvanized iron metal tags on which locality number and house number are printed are fixed to the front door or central pole of each household in a locality.

House Cards: After fixing the numbered tags to the door frame or central pole, a house card is issued to the occupant. The house card issued bears the same house number and could serve as a safeguard against the loss of the numbered metal tag.

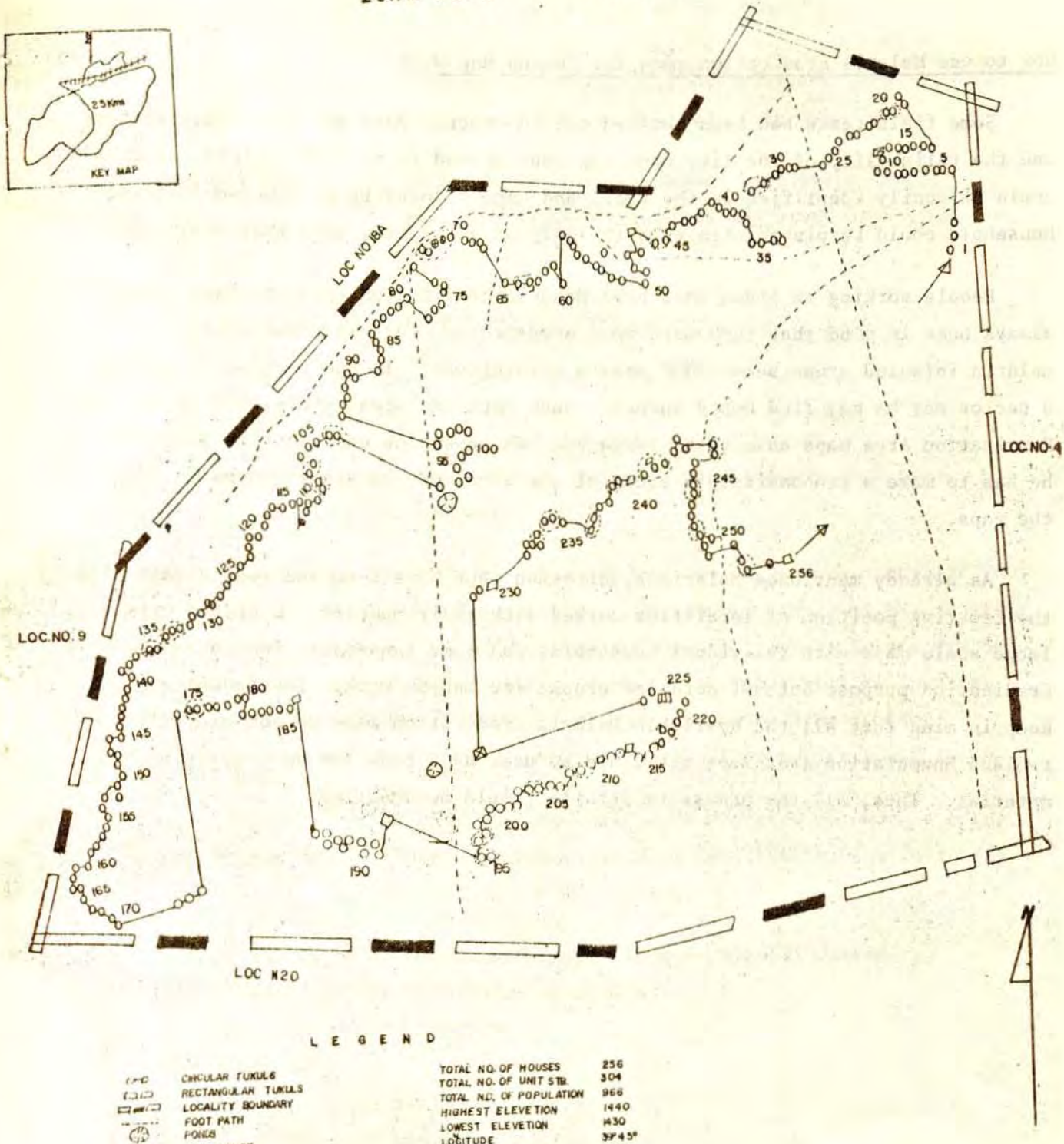
How to use Malaria Eradication maps for Census Map Work:

Some field tests had been carried out in Nazret, Mojo and Debre Zeit sectors and the reliability of locality maps had been proved to be satisfactory. A locality could be easily identified in the field and once a locality is reached individual household could be pin-pointed with the help of a tag or a card (See fig. 13).

People working in areas that have Malaria Eradication Locality maps should always bear in mind that such maps were prepared only for malarious areas or malaria infested areas below 2000 meters of altitude. If one looks at a zone or a sector map he may find empty spaces. Such gaps are areas above 2000 meters and Enumeration Area Maps have to be prepared. Whenever one comes across such gaps he has to make a reconnaissance study of the area and prepare the maps to fill the gaps.

As already mentioned Malaria Eradication maps have zone and sector maps with the relative position of localities marked with their numbers. Locality maps are large scale maps with individual households and some land-marks enough for Malaria Eradication purpose but not detailed enough for census work. You should also keep in mind that all the available Malaria Eradication maps do not directly replace Enumeration Area Maps but could be used as a base and as a starting material. Thus, all the necessary details should be inserted.

LOCALITY NO. 16 ODA-LEGA
SECTOR NO. 050 NAZERETH
ZONE NO. 5 NAZERETH



L E G E N D

- CIRCULAR TUKULS
- RECTANGULAR TUKULS
- LOCALITY BOUNDARY
- FOOT PATH
- PONDS
- MILL HOUSE
- FAMILY HOUSE

TOTAL NO. OF HOUSES	256
TOTAL NO. OF UNIT STR.	304
TOTAL NO. OF POPULATION	966
HIGHEST ELEVETION	1440
LOWEST ELEVETION	1430
LOGITUDE	39°45'
LATITUDE	6°40

SCALE: 8cms = 1km.

PROCEDURES OF MAP READING:

Careful study and power of imagination help in reading and undertanding maps in general. A man with keen senses of analysis and some knowledge of geography can read a number of facts from a map. There is a saying, "A map is worth a book." T us, the following procedures should be followed in map reading.

a. Put the map flat on a table or on the ground or in your hands.

b. Aline the North Arrow on the map to the true north, or turn the map in such a way that long ridges or roads on the map are parallel to the one on the ground.

c. With a field compass check the North direction.

d. Face north direction with map in front of you.

e. Check the other direction, too, i.e. South, East, West.

f. Identify some prominent features such as churches, market places, villages etc. around you.

g. Identify these features on the map.

h. Make sure the identified features are correct and in their true positions.

i. Look for some evidences in you surrounding to be sure of your position.

j. Estimate distances according to thescale of your map.

k. If you find new constructions on the ground that have not appeared on the map, check the date of the map.

l. Look at the marginal data or legend and identify the details on the ground.

m. Make sure that you Identify ground features step by step thoroughly and exhaustively.

n. Do not heritate to ask the local people, farmers or shephereds about the area.

o. Do not ask leading questions about place names, Counter check place names with the local people, for they know better about their area.

p. Identify and check places and rivers that have more than one name.

q. Boundary identification is very confusing to be sure ask the villagers and any other knowledgable person.

r. When finished with the first map (sheet) look at the index to the adjoining sheets for the next sheet of map.

N.B. 1. If the maps you are using do not have index to the adjoining sheets use longitude and latitude or grid lines to join. If the map has not such grid use details for joining.

2. On some maps place names are written with the orientation of the map to the north. If there is no north arrow the details help orient north.

3. If there is no any help from the map, the direction of the sun has to be used which is naturally East to West. Based on this North, South direction could roughly be indicated.

4. The best method of asking place names is to start from a point and to go in a serpentine form.

CHAPTER II

MAP WORK IN RURAL AREAS

1. CRITERIA FOR E.A. FORMATION IN RURAL AREAS

An enumeration area is defined as a unit of land delineated for the purpose of enumerating population completely. The delineation of E.As. in rural sedentary areas will be based on Peasant Association areas/Subdivisions (lowest administrative units) in case PAA's are not established.

In general the following three main criteria should be considered when delineating E.A's.:-

a. Number of Households within an EA.: An E.A. should on the average have about 150-200 households. Therefore the Geographical assistants will have to list households in every PAA/Subdivison and delineate the E.A. consisting of 150-200 households i.e. an average of 175 households per E.A. However, it may be necessary to violate the range in order to maintain the integrity of the lowest administrative units.

b. Area extent of an E.A.: This is another important consideration in the E.A. formation. In Ethiopia an average E.A. containing 175 households, would occupy an area of 12.3 sq. kms.* (a square with a side of 3.5 kms.). However, the size of a rural E.A. may deviate from 12.3 sq. kms. depending upon the density of the population.

As a general guide, we may say:

1) In sparsely populated areas the areal extent of every E.A. is large. Thus, the number of households in the E.A. should be kept nearer to the lower limit of the range i.e. 150 households.

2) In thickly or densely populated areas, the areal extent of every E.A. is small. Hence, the number of households in the E.A. can possibly be kept nearer to the upper limit of the range i.e. 200 households.

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*The area is obtained by dividing the area of an administrative unit (Chilalo Awraja in Arsi region) by the number of enumeration areas formed in the unit.

c. Geographical Limits of an E.A. in view of administrative set up:

A PAA/Subdivision could comprise one or more E.A.'s. However an E.A. should not cross a PAA/Subdivision. An E.A. should exclusively be limited to one particular wereda. In other words, an E.A. should not lie in two or more weredas. Therefore, the limits of the E.A's should not be ambigous. They should be well defined and described.

2. STEP BY STEP PROCEDURES FOR E.A. FORMATION IN RURAL AREAS

The core of the whole census mapwork is E.A. formation. Different maps have to be used for different areas according to their suitability for the work, which involves several stages of mapping and listing operations. Therefore, it is essential to consider these operations.

STEP 1:

The Census Cartography Divison has done the inventory of all available base maps at wereda level. All maps which have been collected and produced for the delineation of E.A's in your place of assignment will be supplied to you at the end of the training period. However, it is your duty to try to determine the position of your wereda on these maps. In other words, you have to check whether the maps you have received cover your wereda. If your wereda is covered by the maps, put a mark on every map to show the relative location of your wereda. If you have received a wrong map or a wereda not completely covered by a base map, you should report immediately to your supervisor and get the correct one. These should be done before you leave for your areas of assignment.

STEP 2:

Go to the wereda administration office and contact the wereda administrator or his designate. Tell him the purpose of your mission and ask him to give you the lists of the lowest administrative units, towns and collective quarters in the wereda. Then list the lowest administrative units and the towns on Form R - 1 and the collective quarters on Form R - 2.

The feudal administrative units have been abolished by the Rural Land Proclamation. They are being replaced by peasant association areas, which would provide a frame for the mapwork wherever they occur. If peasant associations

have not been formed in the wereda, you have to look for other alternatives in collaboration with the wereda administrator, and representative of the Ministry of Agriculture. In such cases the last decision as regards the frame of the E.A. formation should be communicated to your supervisor for approval. Remember that you can use the former feudal subdivisions as a frame of your mapwork without attaching to them any political or administrative significance in a wereda where the P.A's, have not been formed.

STEP 3:

You should be familiar with your wereda after the completion of the listing of forms R-1 and R-2, since some of the places which you have registered may be located on the base maps supplied to you. Now try to establish the boundaries of the wereda on a suitable base map with the help of the wereda administrator or his designate. You should bear in mind that the wereda administrator or his designate cannot tell you automatically the stretch and boundaries of the wereda. It is upto you to pose to him some guiding questions. First of all show him the cardinal directions roughly. Then ask him to tell you the boundaries of the wereda in the North, in the East, in the South and in the West. Study your map and mention to him some place names and ask him whether or not they are located in the wereda. He may tell you that some of the places you have mentioned to him are in the wereda and that the rest are beyound the boundary of the wereda in that particular direction. This means that the boundary of the wereda lies somewhere between these places. This boundary may be a river, a highland, a valley, a highway, a trail, a stretch of forest or even a plain, Mark this boundary lightly on your map in pencil. Do the same thing till you complete the delineation on all sides.

STEP 4:

It is now time for you to discuss either with the wereda administrator, the PAA official or an official of the Ministry of Agriculture from where you should start the actual field work and how you should reach there. He will tell you how to go about it. When you have reached your destination contact the PAA Chairman or the subdivision official. Handover to him the letter you have collected from the wereda office. Also give him a verbal explanation of the purpose of your mission. Ask him to show you the extension of the P.A. area or the subdivision area. Mark the boundaries on your working copy (map). (If this is a border areas of the wereda, you have to verify and correct the wereda

boundary). Then list the households by localities on Form R-3. Locate and mark symbolically all the localities as well as other reference points such as rivers, hot springs, hills, roads and trails, spiritual places, markets, historical places, etc.

The knowledge about the size of every village in terms of households will help you in forming an E.A. Mark the limits of the E.A. on the base map. In general, an E.A. may be formed in one of the following ways.

a. By taking the PAA/Subdivision (lowest administrative unit) as it is.

b. By dividing the PAA/Subdivision (lowest administrative unit) into two or more parts i.e. by grouping localities.

STEP 5:

Go back to your 'camp' and prepare a fair map or the E.A. by enlarging the original on the squared paper i.e. Form R-4 supplied to you. The maximum size of an E.A. map is 22x33 cm. Transfer all information from the base maps onto the E.A. map and mark them clearly. However, if you are supplied with 1:50,000 scale maps there is no need of enlargements.

STEP 6:

The nest job is to go back to the field in order to do verification. Now evaluate how much your E.A. map is correct and reliable. If you think your map needs correction do so while you are right in the field. Since you are now carrying a large scale map you can locate and mark additional reference points, that are not shown on the base map. Furthermore, mark the limits and places of the adjacent E.A's. on the E.A. Map you are preparing. (The common boundaries of these E.A's should be shown on every E.A. map). Then write the description of the boundaries of the E.A. on Form R-5. The description should be completed clockwise. This E.A. has to be given a provisional serial number to avoid any confusion till the final coding is done as indicated in step 9.

STEP 7.

Go back to your camp and prepare a final copy of the E.A. map on tracing paper in ink (See fig. 3). Put together all the documents of the E.A. Proceed in the same manner till you complete six enumeration areas (E.A.) After completing delineation of six E.A.'s you should spend a day in the camp preparing two more identical copies of every E.A. Follow this procedure untill you finish dividing the wereda into E.A.'s.

STEP 8:

You proceed in the same manner till you divide the entire wereda into enumeration areas. The maps of the E.A's. should have about the same scale. Remember, you may come across disputed areas which you will have to settle in collaboration with the wereda administrator, the representative of the Ministry of Agriculture and the PAA Officials if you are unable to solve them with local elders. If it is an inter-wereda border dispute it should be settled in the presence of the officials of the adjacent weredas. This should be immediately brought to the attention of your supervisor. There should be no "no-man's land." Your map should cover every ihch of the land. When you are sure that every part of the wereda has been divided into E.A's. go back to the wereda capital and prepare a map of the wereda by employing the "similar square method" enlargement on Form R-6. This map should show the relative location of the E.A's. as well as other important reference points. Do not forget to mark the limits of the adjacent wereda on this map. Also print their names in proper places (See fig.4)

STEP 9:

By now you should have known into how many peasant associations/subdivisions and E.As the wereda has been divided. First draw the relative position of every PAA on the wereda map. Then assign code numbers for the PAAs/subdivision in the wereda by giving two digit running numbers (01, 02, 03...) starting from the Northern part of the wereda in a serpentine manner.

The coding of E.A's is to be done within a PAA/subdivision. To code the E.A's. within a PAA two digit numbers should be used. If a PAA has one E.A., then the E.A. code is o1 if a PAA has four E.A.s, the E.A. codes within the PAA will be 01, 02, 03, and 04. Then, show the relative position of every E.A. within its respective PAA's on the wereda map you have already drawn. Suppose the wereda has 65 PAAs, and that the first PAA has two EAs, then you should mark these two E.A's. on the wereda map by the code No. 01-01 for the first E.A. in the first PAA, and 01-02 for the second E.A. in the first PAA. If the last (65th) PAA has three E.As. then the E.A's. will carry the number 65-01, 65-02 and 65-03. Such a scheme will show the relative position of every E.A. along with its PAA on the wereda map. Finally, the code numbers (final) of every PAA (subdivision) and E.A. have to be transferred to the E.A. map, the description sheet (Form R-5) and the household listing form (Form R - 3).

STEP 10:

After you have finished coding the PAAs (subdivision) and the E.A's, divide the entire wereda into supervision areas (S.A's) in pencil. In the process of forming supervision areas, the following points should be taken into consideration.

a. Each S.A. should have five E.A's. In special cases the S.A. could have slightly less or more than five E.A.'s . That is, when the E.A's. areal extent is large the S.A. may contain less than five E.A's. or when the number of households on the E.A's. that make the particular S.A. is high (i.e. most of the E.A's. having more than 200 households) the number of the E.A's. could be less than five. On the other hand, when the number of households in the E.A's that make an S.A. is low (i.e. most of the E.A. having less than 150 households) and at the same time the areal extent of the E.A's in question is not large, then the S.A. could have more than five E.A's.

b. The E.A's. of each S.A. should be adjacent to each other. It should be noted that there should not be any major physical barrier (rivers, mountains, etc.) between the E.A's of the same S.A. to create transport problem.

c. An S.A. could consist of one or more PAAs. However, a PAA should not lie in more than one S.A.

d. After completing the S.A. formation in pencil, now consult your supervisor for approval and finalize the delineation of the S.A. in bolded pencil. Then prepare two more identical copies of the S.A. map, and take one of the three copies and cut it into separate S.A. maps. Paste the independent S.A. map that you have cut onto a blank folder and add to it the details indicated under the title "Supervision Area Maps" in section 5.c of this chapter. Finally, place the S.A. map files on the top of the "piles" of the documents of their respective E.A's and bind or tie them together.

3. MALARIA ERADICATION MAPS FOR ENUMERATION AREA FORMATION IN RURAL AREAS

In using these maps for E.A. formation the following procedures should be taken into consideration.

a. Follow the step by step procedures for E.A. formation in rural areas given in Section 2 of this chapter.

b. In addition to the above, if there is any problem in using Malaria Eradication Maps,

   i) contact the zone chief and the sector chief of Malaria eradication officies in all regions.

   ii) contact the sector chief and their technicians who have wide field experience of their respective sector and localities.

   iii) contact Malaria Eradication technicians for gaps on their maps.

c. You may find parts of a PAA covered by locality maps having different scales. In such cases bring them to the same scale by the "Similar Square Method."

d. Mosaic the locality maps and mark the limits of the PAA with the help of the chairman by using locality and house numbers.

e. Then delineate the E.A. or E.A's according to the criterion laid down.

f. Localities having 150-200 households each will form normal E.A's, if they coincide with PAA's. However, it is important to note that some localities deviating from the norm may be taken as they are if they coincide with the lowest administrative units.

g. Keep the original numbers on the locality maps for reference, but also use the new code numbers for E.A's in addition.

h. Locality maps do not have enough geographical place names and other details. These have to be collected and shown on E.A. map as indicated in sections 2 and 5 of this chapter.

i. All forms should be completed from Malaria Eradication maps and should be fully legible.

N.B. 1. While working in areas where Malaria Eradication maps are available you may come across areas not mapped by Malaria Eradication technician. As previously mentioned, this is not a mistake but purposely done. Such areas are above 2000 meters of altitude not supposed to be infested by malaria. But for census purpose such areas have to be mapped, E.A's. formed, details collected and forms filled. If such areas could be incorporated with the adjacent localities to form normal E.A's. they could easily be done or else new E.A"s. have to be formed.

2. In grouping localities with small households to form a normal E.A. one overlay (on transparent paper) has to be prepared canvassing the grouped localities. In case such overlays become very large in size and inconvenient to handle reasonable size enlargements could be made from a sector map covering the localities that form such E.A's.

3. The boundaries of the administrative region, awraja and wereda have to be delineated on the provided sector map.

4. Since sector maps are large enough there is no need for wereda map enlargement. But the localities have to be readjusted to coincide with the E.A's.

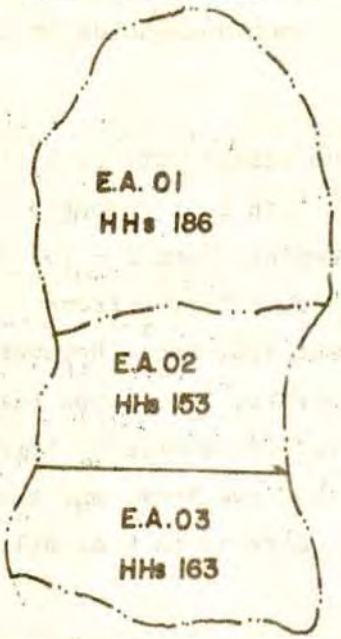
4. TYPES OF E.A's. AND SPECIAL PROBLEMS:

E.A's. may take different form and size, dictated by different factors. The main types of E.A. will be considered below:

1. An E.A. containing one PAA or subdivision
2. An E.A. consisting of a part of a PAA or a subdivision.

In each case the boundaries of the E.A. and the lowest administrative unit/ units should be shown clearly. (See fig.1)

A SKETCH OF PART OF A WEREDA



E.A. TYPES

E.A. 01 (PAA OR SUBDIVISION = E.A.)

NUMBER OF HHs = 186

E.A'S 02 & 03 (A PAA/SUBDIVISION IS DIVIDED INTO TWO E.A'S)

NUMBER OF HHs = 316

There are some unique problems that you should be aware of:

1. You may come across a disputed land during the field work. This should be settled in consultations with the officials of the adjacent administrative units at least for the purpose of the census map work.

2. You may also come across a pocket of land, which administratively belongs to the adjacent wereda. Such cases should be settled in favour of the weredas to which the land pieces physically belong.

3. Sometimes you may find physically disjointed parts of a PAA or a subdivision. In such cases treat each separate part(s) of the PAA as independent E.A..

4. It is also possible to find some household members of a PAA or subdivision community living in another PAA or subdivision. Such households will have to be considered where they stay and

not according to their administrative and social affiliations. But do not forget to put identification marks against such households in the remarks' column of Form R - 3.

5. All collective quarters should be enquired from wereda office, listed in form R - 2 and verified in the field. Whenever you come across a collective quarters while delineating E.A's complete Form R - 2. But, you should indicate the location and the total number of persons in the collective quarters along with the names in your E.A. map. However, if there is any household within a collective quarters, list it on Form R - 3, write the name of the institution (collective quarters) corresponding to each household in the "Remarks" column of the same form, and consider it with the households outside the collective quarters in E.A. delineation according to the criteria laid down.

6. Collective quarters with a population of 100 or more persons should be considered as special E.A's. and should be denoted by symbol "S" followed by two digit E.A. code within PAA/Subdivision. If the areal extent of the collective quarter is large enough and has a population of 100 or more persons, the area in which the collective quarter is located should be drawn as independent E.A. showing all the boundaries. In case there are private households in the collective quarters for which special E.A. map is drawn, the households should be listed on Form R - 3..

7. There may be a compact settlement lying in two or more weredas. For instance, Hawatsu, a village in Enderta Awraja lies in two weredas namely Didiba and Hintalo. The parts of such settlements should be considered according to their administrative affiliation and only that part of the settlement which belongs to your wereda should be divided into E.A's. accordingly. The mapwork of the other parts will have to be taken up by the G.A's. working in the adjacent wereda/s. (See fig. 2)

8. Similarly you may come across a settlement lying in two adjacent PAAs or subdivisions. The parts of such settlements should be considered according to their administrative affiliation.

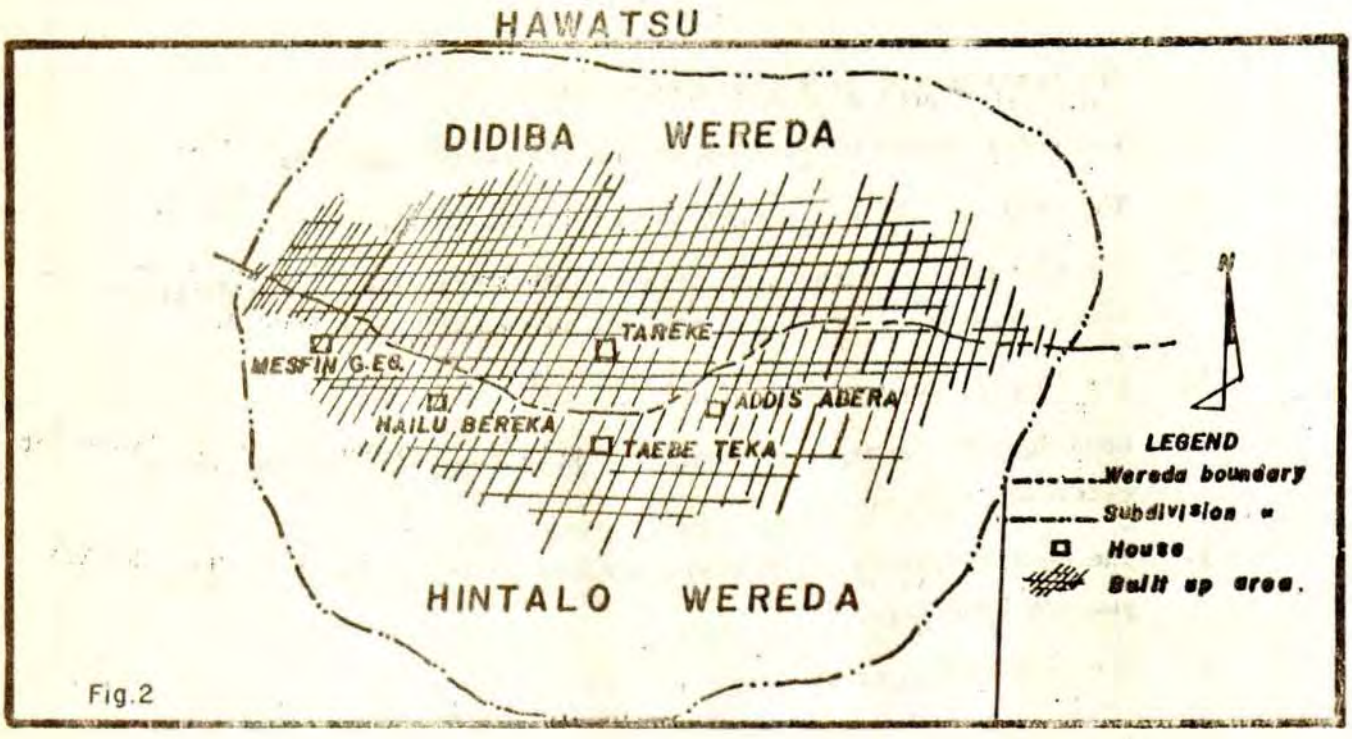


Fig.2

5. THE DESIGN AND CONTENTS OF RURAL AREA MAPS

There are three types of maps that should be prepared for the rural areas. These are: a) Enumeration area maps; b) Wereda maps and c) Supervision area maps.

a) ENUMERATION AREA MAPS:

It has been indicated earlier that the maximum size of an E.A. map should be 22 x 33 cms. The lower limit of the size of the E.A. map is determined by the areal extent of the E.A. on the ground. However, you should bear in mind that the E.A. map should not be too small to create space problems. Remember that the purpose of enlarging E.A. maps from the base map is to create enough space on which all relevant reference points should be located and marked neatly.

The E.A. Map should contain and show the following in their proper places. (See fig. 3).

a. The names of the administrative region, awraja, wereda, PAA/Subdivision in which the E.A. is located.
b. PAA/Subdivision code number.
c. The code number of the E.A.

d. The total number of households in the E.A.

e. The total number of persons in the collective quarters.

f. The area of the E.A. as estimated by you in the field.

g. The boundaries of the E.A. with proper definitions, such as rivers roads, ridges, valleys etc. as found on the ground.

h. The location of localities.

i. Some houses, farms or plantations which you think are important reference points.

j. The meeting points of adjacent weredas or E.A's. with the E.A. you are handling.

k. The orientation of the map.

l. A note of some special features which should be written on the left hand corner of the map.

m. A legend where you explain the symbols you have used on the map.

n. The scale of the map.

MAP OF AN E.A. IN DODOTA WEREDA

1. REGION ARSI 2. AWRAJA CHILALO 3. WEREDA DODOTA

4. NAME OF PAA/SUBDIVISION HARORESA GENJO

5. NAME OF PAA/SUBDIVISION OFFICIAL GIRMA BATI

6. E.A. CODE Nº 021 7. ESTIMATED AREA 8 Kms

8. TOTAL Nº OF HOUSEHOLDS 143

a/ Nº OF HOUSEHOLDS IN REGULAR HOUSING UNITS (DWELLINGS) 143

b/ Nº OF PRIVATE HOUSEHOLDS IN COLLECTIVE QUARTERS 0

9. TOTAL NO. OF PERSONS IN COLLECTIVE QUARTERS 0

a/ Nº OF PERSONS IN PRIVATE HOUSEHOLDS WITHIN C.Q. 0

b/ Nº OF PERSONS IN COLLECTIVE QUARTERS (C.Q.) 0

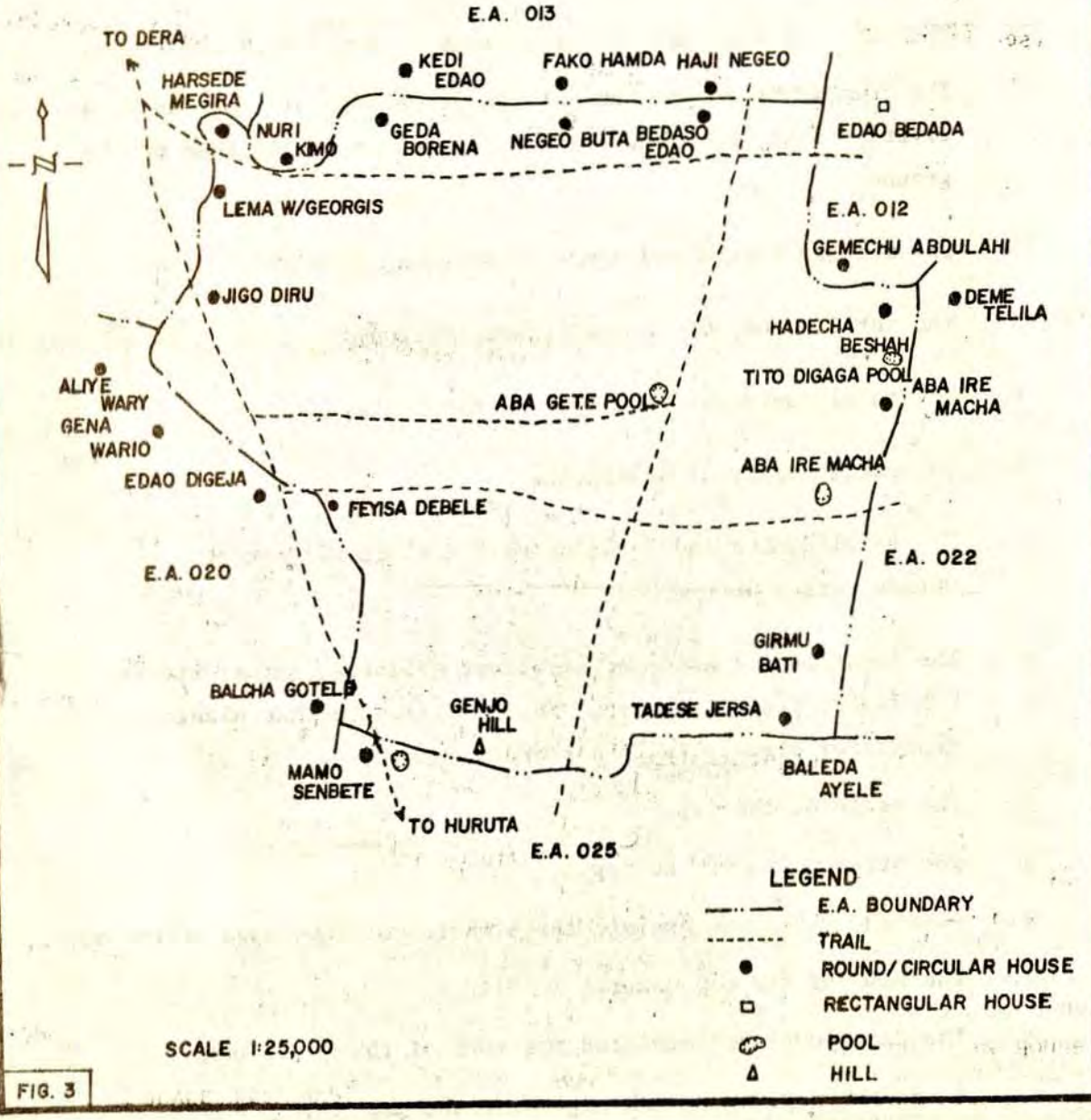


FIG. 3

b) WEREDA MAPS:

The enlarged wereda map, which you have prepared, shows the relative location of the E.A's. in the wereda. It will be used for the delineation of S.A's. at the Wereda Census Office. The maximum size of this map should be 40 x 40 cms. In areas where you use 1:50,000 scale maps or enlargements of 1:250,000 to 1:50,000 scale maps the size of the wereda map could be larger than what is indicated here. The lower limit is dependent on the physical extent of the wereda. The most important thing you should remember is that your map has enough space to locate all important reference points you have observed on the ground.

This map should contain and show the following in their proper places. (see fig. 4).

a. The names of the administrative region, awraja and the wereda.

b. The boundaries of the wereda with proper definitions, such as rivers, roads, highlands, valleys, etc. as established on the ground.

c. The meeting points and names of adjacent Weredas.

d. The total number of the PAA's/Subdivision.

e. The total number and location of the E.A's.

f. The total number of households

g. The total number and location of S.A's. to be done at Wereda Census Office.

h. The location and names of important villages, towns, rivers, highlands, plains, forests, roads, trails, market places, historical places, religious centres, etc.

i. The scale of the map.

j. The orientation of the map.

k. A legend where you explain the symbols you have used on the map.

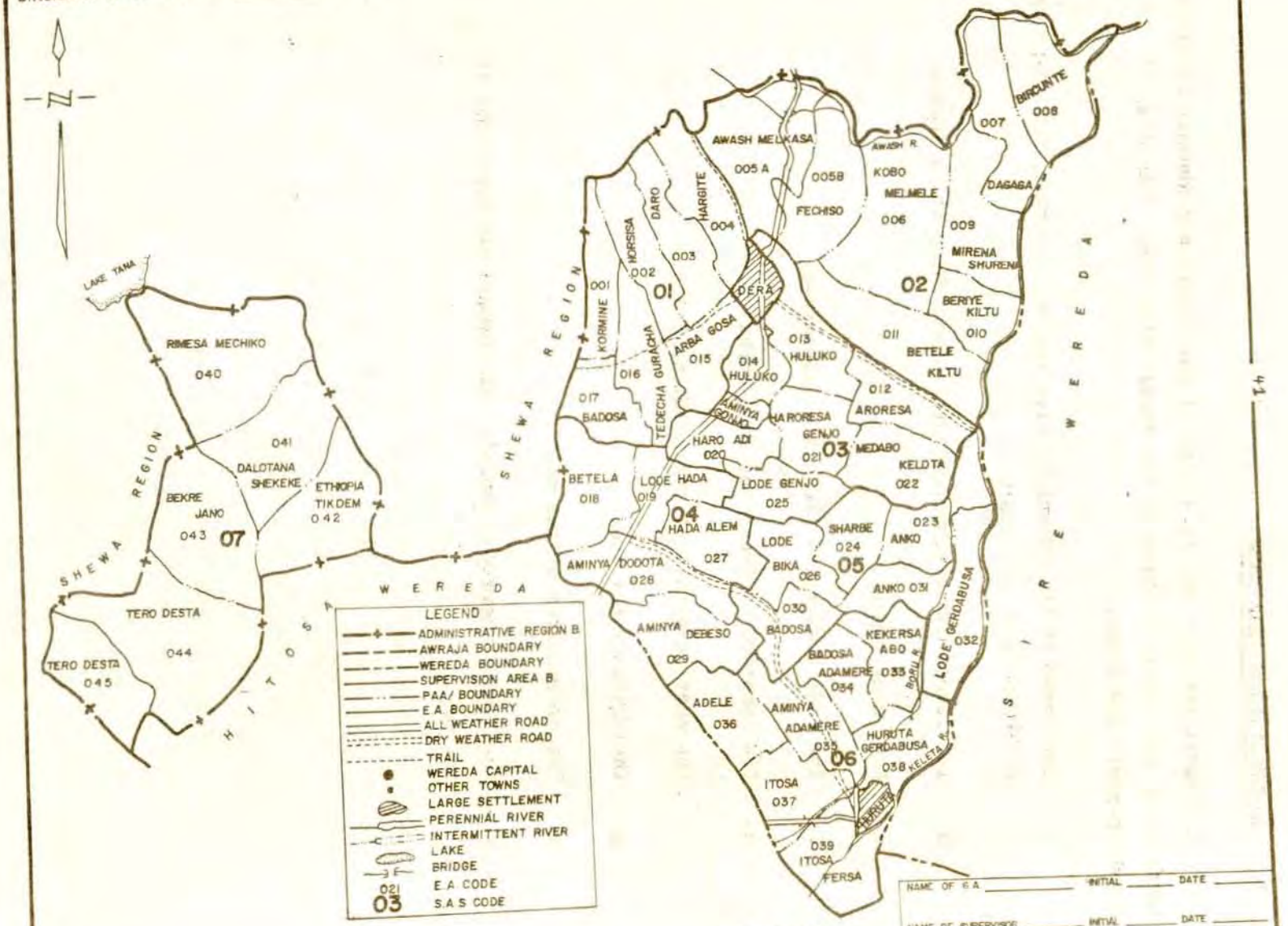
l. The name of the map maker.

m. The date you have completed the work of the wereda map.

n. A special note or remark regarding the map.

LOCATION MAP OF DODOTA WEREDA

1. REGION ARSI
2. AWRAJA CHILALO
3. WEREDA DODOTA
4. NUMBER OF PAAS. 46
5. NUMBER OF SUBDIVISIONS 0
6. NUMBER OF E.AS. 47
7. NUMBER OF S.AS. 7



Scale 1:100,000

NAME OF E.A. _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

Fig 4

c) SUPERVISION AREA MAPS

A supervision area map is a part of the wereda map showing relative location of the E.A's. falling in one supervision area. (See fig. 4). It should contain and show:

a. The names of the administrative region, awraja and the wereda in which the S.A. is located.

b. The lowest administrative unit/s from which it is formed.

c. S.A. code number.

d. The code numbers of the E.A's. contained.

e. The location of important land marks.

f. The meeting points of the adjacent S.A's.

g. The scale of the map.

h. The orientation of the map.

i. The legend where you explain the symbols you have used in the map.

6. FILLING FORMS FOR MAPWORK IN RURAL AREAS

Form R-1:- LISTING FORM FOR PAA/SUBDIVISION IN A WEREDA FOR E.A. FORMATION

This form will be used for listing Peasant Association Areas (PAA'S) or Subdivisions at Wereda Capital and the same list should be verified in the field and necessary correction should be made.

Cols. 1-3: (Region, Awraja and Wereda)

In these columns, write the names of the Region the Awraja and the Wereda in which the PAA's or sub-divisions are found.

Col. 4: (Serial Number)

Next to the Wereda, there may be large and identifiable geographical area which constitutes a number of PAA's/Subdivision or a single PAA/subdivision. In this column write the serial number of the geographical area, starting from 01 .....

Col.5: (Geographycal Area Name)

In this column, write down the name of the geographical area in which a number of PAA's/Subdivisions or a single PAA/Subdivision are/is found. If a number of PAA's/Subdivisions are identified by only one geographical area, repeat writing the same geographical area name for each PAA/Subdivision. If the same geographical area has more than one name, first write the name of the geographical area Commonly Known by the wereda Administrative Office and the surrounding PAA's/Subdivision and then write the second name in bracket in the same column after writing the first important name. If a geographical area constitutes only one PAA/Subdivision, and if its name coincides with the name of the PAA/Subdivision, repeat writing the same name in col. 7.

Col. 6 (Serial Number)

In this column, write the serial number of the PAA's/subdivisions, that is, record 01 for the first PAA/subdivision to be listed in column 7,02 for the second ..... etc. until you list all the PAA's/subdivisions which are found in the Wereda.

Col. 7:- (Name of PAA/Subdivision)

In this column, write clearly the name of every PAA/Subdivision which are found in the wereda. If a PAA/Subdivision has more than one name, write the common name and then write the other name in bracket. If a number of PAA's/Subdivisions have the same name, repeat writing that name for every PAA/Subdivision.

Col. 8:- (Status)

In this column, write the Status of the lowest administrative unit (every PAA/Subdivision) using the following codes.

1 = PAA Formed

2 = PAA Not Formed

Col. 9:- (Designation of PAA/Subdivision officers)

In this column, write the designation of every PAA/Subdivision official, that is, the designation or rank of the person who acts as a bridge between the inhabitants of the PAA/Subdivision and the Wereda Administrative Office or Wereda PAA Office. Examples of official designation are: Chairman, Vice Chairman, Secretary, member of PAA Officials, subdivision head ..... etc.

Col. 10:- (Name of PAA/Subdivision official)

Write the name of the PAA/Subdivision official who is currently in a position to act as a bridge between the inhabitants of the PAA or subdivision and the Wereda Administrative or Wereda PAA Office.

Col. 11 :- (Remarks)

This column is to be used for writing remarks, explanations or additional information for Cols. 4-10. If the space is not sufficient, the reverse side of the same form may be used. However, indicate that (refering the PAA/subdivision serial number indieate in writing at the bottom right hand corner of the form) additional clarifications are given on the reverse side of the form.

NOTE-

DO NOT FORGET TO WRITE THE PAGE NUMBER ON EVERY FORM AT THE TOP RIGHT HAND CORNER OF THE FORM. PAGE NUMBERS SHOULD BE CONSECUTIVELY WRITTEN. IT IS IMPORTANT THAT YOU SHOULD WRITE YOUR NAME, INITIAL AND DATE OF COMPLETION OF EVERY FORM. THE TOTAL NUMBER OF PAA'S AND SUBDIVISIONS (IF ANY) SHOULD BE WRITTEN IN THE SPACE PROVIDED AT BOTTOM RIGHT HAND CORNER OF EACH FORM.

CENTRAL STATISTICAL OFFICE

FORM R-I

FORM FOR LISTING PAA/SUBDIVISION IN A WEREDA

FOR E.A. FORMATION

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4	5	6	7	8	9	10	11
GEOGRAPHICAL AREA		PAA/SUBDIVISION		STATUS	PAA/SUBDIVISION OFFICIAL		
SERIAL No.	NAME	SERIAL No.	NAME	1. PAA FORMED 2. PAA NOT FORMED	DESIGNATION	NAME	REMARKS

NAME OF G.A _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

TOTAL NO. OF	
PAA	SUB. DIV.

FORM R-2:- Listing form for Collective Quarters

This is a listing for Collective Quarters to be filled in the field. Whenever you find a Collective Quarter in the PAA/Subdivision or a Collective Quarter which has its own jurisdication, list it in this form.

Cols. 1-3:- (Region, Awraja, & Wereda)

In these Columns, write the names of the Administrative Region, Awraja and Wereda in which the collective Quarter is found.

Col. 4:- (Serial Number)

This is a column on which you write the serial numbers of the collective quarters. If the listing of the collective quarters could not be exhousted on one form use additional form and writ the page number consecutively.

Col. 5-6 (Name & Address of Collective Quarters)

In these columns, write the correct name of the collective quarters; and its address by which the collective quarters facilitate its correspondence and business.

Col. 7:- (Function of the Institution)

In this column, write the function of the Collective Quarters clearly, that is, Boys/Girls' Boarding School: Health training/service centre; Relief/Religious service, prison, Monastry .....etc.

Col. 8:- (Number of persons)

In this column, record the number of persons who are the usual members of the collective quarters by indicating the number of males females and the total number (both sexes).

Col. 9:- (Name and code No. of the PAA/Subdivision)

In this column, write the name of the PAA/subdivision in which the collective quarter is located. Furthermore, write the code number of PAA/subdivision in the space provided.

Col. 10:- (Enumeration area No.)

In this column, write the E.A. number of the collective quarters, that is if special Enumeration Area or Areas delineated in the Collective Quarters. However, if the Collective Quarters do not meet the criteria for forming special E.A's, then write down the normal E.A. number in which the collective quarters is lying. Do not forget to list the private household, in the premises of the collective quarters on form R-3.

Col. 11:- Remarks

In this column put any additional relevant information. Finally the name and the initial of the lister and the supervisor should be written and the date on which the form is filled should be indicated.

FORM R-2

CENTRAL STATISTICAL OFFICE

LISTING FORM FOR COLLECTIVE QUARTERS

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4	5	6	7	8			9		10	11
S. Nº	NAME	ADDRESS	FUNCTION OF THE INSTITUTION	Nº OF PERSONS			PAA/SUBDIVISION		E.A Nº	REMARKS
				M	F	T	NAME	CODE Nº		

NAME OF G.A _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

Form R-3:- HOUSEHOLD LISTING FORM

This is a household listing form which helps you in forming Enumeration Areas on the basis of the total number of households. The listing should be done by canvassing every household in the PAA/Subdivision you have to cover listing of households in every locality in the PAA/subdivision before starting the delineation of E.A's.

Col. 1-5:- (Region, Awraja, Wereda, Name of PAA/subdivision and Name of PAA/ Subdivision Official)

In columns 1-5 Write the name of the Administrative Region, Awraja, Wereda, and the PAA/Subdivision in the space provided. Also write in column 5 the name of the PAA/Subdivision official i.e. the name of the chairman, sub-division head, etc.

Col. 6:- (Name of the locality)

In this column, write the name of every locality within the PAA/ subdivision in which the households are located.

Col. 7:- (Serial Number)

This is a column on which you write the serial number of household heads who are found in every locality which you have already written in Col.6. In writing the serial numbers, start with 001, 002 .....Until you cover listing all household heads in all the localities of the PAA/Subdivision.

Col. 8:- (Name of the Head of the Household)

In this column, write the full name of the head of the household. You should identify the real head of the household who is considered head by the other members of the household. If the head of the household is away for any reason (say military service) write him/her as the head regard less of the duration of absence from his/her household.

Col. 9:- (Members of the Household)

In this column, write only the number of the usual members of the household including the head by separating the number of males, females and the total number (both sexes) in the household. It is important to know who is the usual member of a household and who is not in filling this column. A usual member of a household is one who has continously lived in the household for

at least six months. Members who were temporarily absent from the household for less than six months are considered usual members of the household. However, members of a household who were continously absent from the household for six months or more are not considered usual members of the household. Consider the following points for identifying the usual members of a household:

a) All usual members of the household present at the time of listing the household;

b) All usual members of the household who have been temporarily absent from the household at the time of listing the households, that is, absent from the household for less than six months.

c) Persons staying in the household at the time of listing the households and who have no abode (residence elsewhere) regardless of the length of time since their arrival to the household. Here, exclude Visitors, women who joined the household for delivery etc., if they do not have the intention to stay in the household for six months or more. Similarly members who left the household with the intention of not coming back, regardless of the duration of time since they left, should not be considered as usual members.

d) As in Col. 8, if the head or the member of the household is away for six or more months do not include him/her as usual member of the household.

e) SPECIAL CASES

1. Students

Students who live in towns away from their homes should be considered as the residents of the town where they go to school. However, students who commute or travel every day from their home to School should be considered as usual member of the household of their parents.

2. Seasonal labourers

Seasonal labourers who have their usual residence (homes) elsewhere should be counted as usual members in their respective households (regardless of length of absence from their household).

However, seasonal labourers who have no place of usual residence should be counted in the place where they are found at the time of the cartographic operation.

3. Inmates of Institution.

Inmates of prison, homes for the retired, orphanage, hospitals for the insane .... etc. should be considered as members (inmates) of the institution and not as usual members of any household. On the other hand, persons who are getting treatment in general hospitals or other institutions for medical care should be considered as usual member of their respective households and not as an inmate (member) of the institution.

Col. 10:- (Remarks)

In this column, you are expected to write additional information or explanation other than what you have filled in cols. 1-9. Fore example, if there is any household which does not belong to the PAA/Subdivision in col.4, write the name of the PAA/Subdivision to which the household actually belongs.

Note:-

Please note that any private households in the collective quarters should be listed in form R-3. Do not Forget to write the page numbers consecutively, grand total of members of the households at the bottom of each page and name and initial of the lister and date of listing.

CENTRAL STATISTICAL OFFICE

FORM R-3

HOUSEHOLD LISTING FORM

1. REGION _____ 2. AWRAJA _____ 3.WEREDA _____

4. NAME OF PAA/SUBDIVISION _____ 5.NAME OF PAA/ SUBD.OFFICIAL _____

6	7	8	9			10
NAME OF THE LOCALITY	SERIAL NO	NAME OF THE HEAD OF THE HOUSEHOLD	MEMBERS OF THE HOUSEHOLD			REMARKS
			M	F	T	
		GRAND TOTAL				

NAME OF G·A _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

Form R-4:- FORM FOR PREPARING ENUMERATION AREA MAP.

This Form is a Drawing paper with squares 2x2 cms. each. It is intended to be used for enlarging E.A. maps. Only one EA should be prepared on this form. However, if there is a Collective Quarter with small areal extent to be delineated, to form a special EA Map, then indicate its relative location in the normal EA map. Other wise you have to prepare independent EA maps, that is special EA maps whenever the collective quarters have large areal extent which could be delineated into EA's.

Cols. 1-4:- (Region, Awraja, Wereda and Name of PAA/Subdivision)

In these columns, write the name of the Region, Awraja, Wereda and PAA/Subdivision in which the EA map is prepared.

Col. 5:- (Name of PAA/Subdivision official)

Write the name of the current official of the PAA/Subdivision in this column. Make sure that the name of the offical written in this form corresponds with the official names in Form R-1 col.10 and Form R-3 col.5.

Cols. 6-7:- (EA Code Number and Estimated Area)

Write the Code number and the Estimated area (Km^2) of the EA.

How to estimate the area of an E.A. by square method

Measuring the area by square paper or grid paper is a simple method by which one can roughly calculate the area of an irregular figure. The squares are systematically spaced in such a way that if the scale of the figure or the scale of the map on which the figure is based is known the area could be computed.

The following steps are used to estimate the area of an EA:

Step 1 - Draw your figure or sketch on a transparent paper.

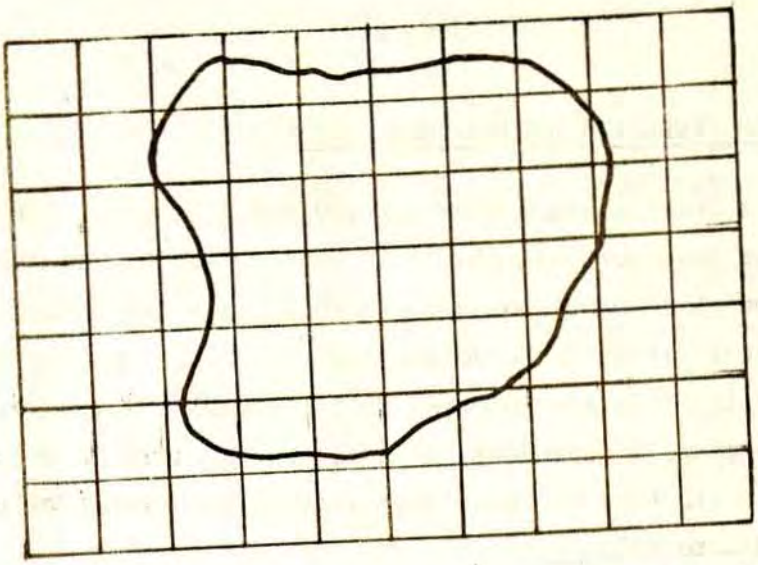
Step 2 - Superimpose the figure or the sketch on the square paper or the grid paper.

Step 3 - Count the numbers of full squares engulfed by the figure.

Step 4 - Sum up fractional squares to make up full square.

Step 5 - Count the total number of square and multiply the sum by the scale of the map. This value gives you the area of the E.A.

EXAMPLE



Example

The above figure or sketch covers 25 squares and each square is 1cmx1cm = $1cm^2$

Suppose the scale of the sketch is 1:50,000. Then to convert the scale into km: $\frac{50,000}{100x1000} = \frac{1}{2}$

That is 1 cm = ½ km

2 cm = 1 km

4 cm^2 = 1 km^2

converting 25 squares (cm^2) into km^2

$\frac{25}{4} = 6.25\ km^2$

Thus the area of the sketch is 6.25 km^2 (approximately).

Col. 8:- (Total Number of Households)

In this column, write the total number of households in the EA. Also write down in (a) The total number of households in regular housing units and (b) the total number of private households in collective Quarters.

Col. 9:- Total Number of persons in Collective Quarters)

Write the total number of persons in the Collective Quarters. Also write down (a) the total number of persons in the private households within the collective quarters and (b) the total number of persons living as members in the collective quarters.

Note:-

Please, do not forget to show the scale, the north diredtion and the legand on the map.

FORM R—4

CENTRAL STATISTICAL OFFICE

FORM FOR PREPARING ENUMERATION AREA MAP

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4. NAME OF PAA/SUBDIVISION _____

5. NAME OF PAA/SUBDIVISION OFFICIAL _____

6. E.A. CODE Nº _____ 7. ESTIMATED AREA _____ Kms^2

8. TOTAL Nº OF HOUSEHOLDS _____

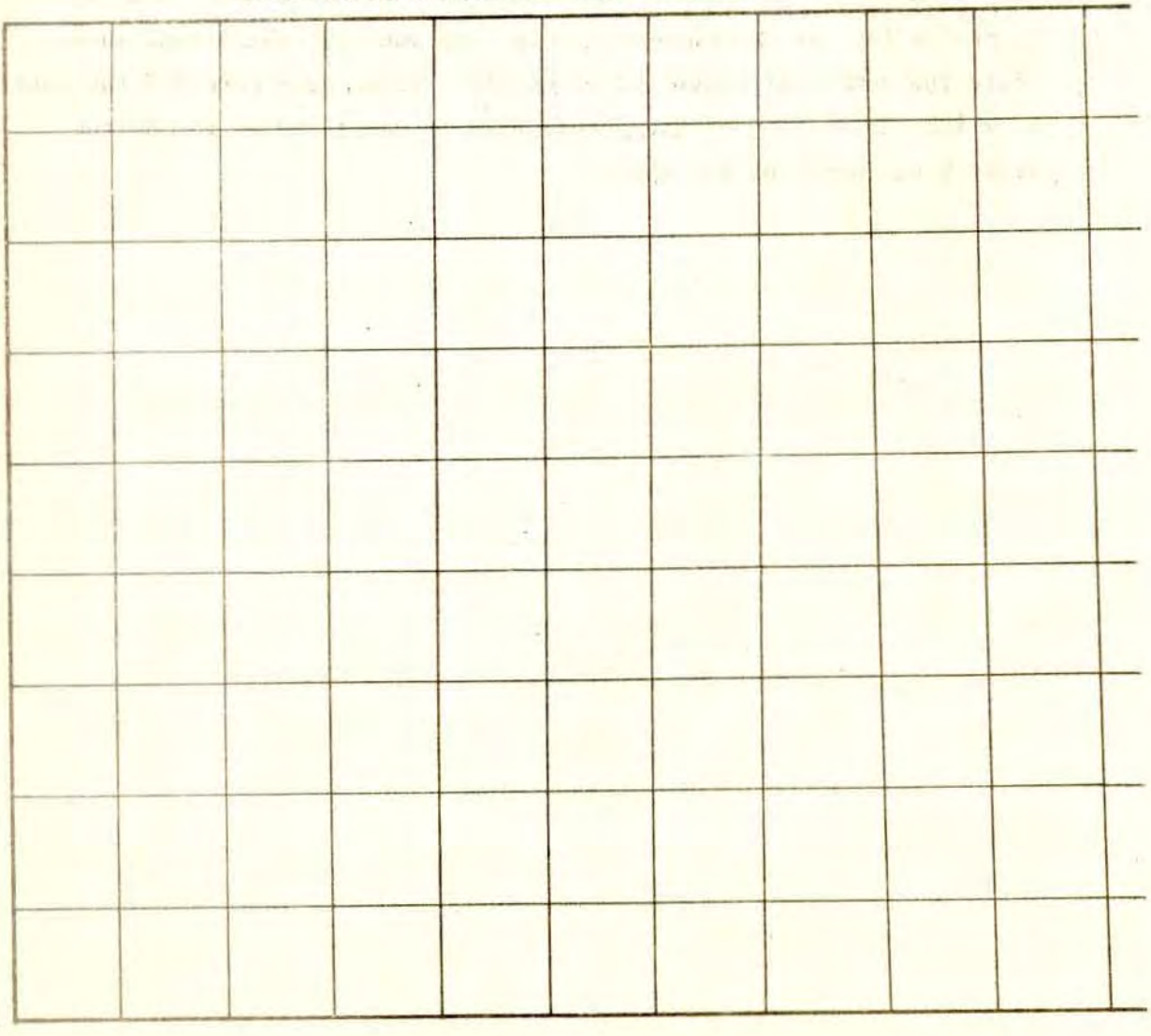
a) Nº OF HOUSEHOLDS IN REGULAR HOUSING UNITS (DWELLINGS) _____

b) Nº OF PRIVATE HOUSEHOLDS IN COLLECTIVE QUARTERS _____

9. TOTAL NO OF PERSONS IN COLLECTIVE QUARTERS _____

a) Nº OF PERSONS IN PRIVATE HOUSEHOLDS WITHIN C.Q. _____

Nº OF PERSONS IN COLLECTIVE QUARTERS (C.Q.) _____



LEGEND

Form R-5:- DESCRIPTION FORM FOR RURAL ENUMERATION AREA.

This form will be used to write the description of the boundaries of every EA delineated by you. The description should be written clearly, legibly and understandably. It should be completed starting from the northern part of the EA.

Col. 1-4:- (Region, Awraja, Wereda and EA code Number)

Write the names of the Region, Awraja, Wereda, and the PAA/Subdivision in these columns.

Cols. 5-6:- (Name of PAA/Subdivision and PAA/Subdivision Code Number)

In these columns, write the code number of the PAA/Subdivision and the code number of the E.A.

Note:-

This form should be attached to Form R-4. Use Additional form (s) if needed for the description and in case you need additional sheet, write the number of pages consecutively. Write your name and the date on which the writing of the description is completed at the bottom right hand corner of the sheet.

FORM R—5

CENTRAL STATISTICAL OFFICE

DESCRIPTION FORM FOR RURAL ENUMERATION AREA

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4. E.A. CODE Nº _____ 5. NAME OF PAA/SUBDIVISION _____

6. PAA/SUBDIVISION CODE Nº _____

DESCRIPTION OF THE E.A.

DESCRIBE THE IDENTIFIABLE BOUNDARIES FROM NORTH AND COMPLETE THE CIRCUIT CLOCKWISE

N.B. ATTACH THIS FORM TO FORM R-4 USE ADDITIONAL FORM IF NEEDED

NAME OF G.A. _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

Form R-6:- FOR PREPARING WEREDA MAP

This is a 1x1 cm squared paper, intended to be used for the enlargement and preparation of a Wereda map showing the relative locations of the Supervision Area; PAAS/Subdivisions and the Enumeration Area delineated in the field. In case Form R-6 is not large enough to make such a Wereda map, two forms should be used and pasted together.

Cols. 1-3:- (Region, Awraja, and Wereda)

In these columns write the names of the Administrative Region, Awraja and Wereda which identify the Wereda map.

Cols. 4-7:- (Number of SA's, PAA's/Subdivisions and EA's.)

In these Columns Write the total number of Supervision Areas, Peasant Association Areas, Subdivisions, if any, and Enumeration Areas, which are delineated or formed in the Wereda and shown in the Wereda map.

Note:-

Do not forget to show the scale, the North direction and the legend at the bottom of the map. Also note that your name, signature and date on which the wereda map is completed should be written in the space provided.

CENTRAL STATISTICAL OFFICE

FORM FOR PREPARING WEREDA MAP

FORM R-6

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____ 4. NUMBER OF PAAS _____

5. NUMBER OF SUBDIVISION _____ 6. NUMBER OF EAS _____ 7. NUMBER OF SAS _____

SCALE	LEGEND	NAME OF GA _____ INITIAL _____ DATE _____ NAME OF SUPERVISORS _____ INITIAL _____ DATE _____

N.B USE THIS FORM WHEREVER YOU ARE NOT PROVIDED WITH 1:50,000 MAPS OR ENLARGEMENTS OF 1:250,000 TO 1:50,000

CHAPTER III

MAP WORK IN URBAN CENTRES

1. Criteria for Enumeration Area Formation in Urban Centres.

An urban enumeration area (E.A.) is a portion of an area in an urban centre delineated for the purpose of completely enumerating population at the time of census and to serve as a frame for subsequent surveys. The delineation of E.A's will be based on urban dwellers association areas (Atekalay, Keftegna and Kebele). However, if urban dwellers association areas have not been formed in the urban centre, the E.A's could be formed by directly delineating the urban centre.

The following three main criteria should be considered when delineating E.A's in urban areas:

(a) An urban enumeration area should comprise 150 - 200 housing units. However, where the areal extent of an E.A. is larger the number should be kept nearer to the lower limit i.e. 150 housing units. In thickly or densely populated areas the areal extent of an E.A. could be smaller and the number of housing units can possibly be kept nearer to the upper limit i.e. 200 housing units.

(b) The delineation of E.A's are based on Kebele areas. The geographical limit of an E.A. should be within one particular kebele. In other words an E.A. should not lie in two or more kebeles. However, an E.A. could be equal to a kebele or part of a kebele.

(c) In urban centres where kebeles have not been formed the urban center should be carved out into E.A's according to the criteria given in (a) above.

When carving out urban E.A's you should consider the following points

i) Whenever it is possible use well identified features such as roads, trails, rivers, churches, schools..... etc. for boundaries.

ii) Where there are no well defined features you have to use imaginary lines. In such cases identify as many housing units as possible on both sides of the imaginary line. Identify the housing units,

the kebele housing unit number and the name of the head of the household. In your boundary description indicate clearly the housing units that are located within the E.A. and those that are located outside the E.A.

iii) As much as possible form your E.A. in such a way that it is compact and convenient to walk arround and can be easily criss-crossed.

iv) All urban centres have UDA housing unit numbers. Although these housing unit numbers are not consecutive in most cases, however, they can help in the grouping of housing units in the formation of E.A's.

2. Step by Step Procedures for Enumeration Area Formation in Urban Centres.

In the urban map work, it is essential to strictly follow the step by step procedure for E.A. formation as listed below. Therefore, all G.A's have to follow these steps of operation consistently.

Step 1

All available maps for the delineation of E.A's of your place of assignment will be supplied to you. You have to check whether the maps you have received cover your urban centre. This should be done before you leave for your area of assignment. Also you have to collect your letter of assignment before your departure.

Step 2

When you arrive at the urban centre which you are assigned to do the map work, contact the Municipality Officials, the Chairman of the Atekalay urban dwellers association, chairman of the Keftegna of chairman of Kebele and handover your letter of assignment and explain to him the purpose of your mission. Then ask him to give you the lists of the Keftegna, Kebele and collective quarters in the urban centre and list these in forms U-1 & U-3. Get a letter of acquaintance to Keftegnas and the Kebeles in the urban centre.

Step 3

After the completion of listing the Keftegnas, Kebeles and Collective quarters, you should be familiar with your urban centre. Now try to establish the boundaries of the urban centre on the map with the relevant officials by going around the urban centre. In establishing the boundaries of the urban centre you should show the official the cardinal directions using the compass. Then ask him the boundaries of the urban centre in the north, south, west and east. Study your map, mention to him some place, names, other reference points given on the map and ask him whether they are located in the urban centre. Before starting the E.A. delineation, you should verify clearly the boundaries of the urban centre by marking the map lightly with pencil.

Step 4

Familiarize yourself with the kebele to have some ideas regarding into how many E.A's the kebele can be conveniently divided. Then start delineating the boundaries of the kebele. List on form U-3 the housing units and households within the kebele by going from house to house and delineate the E.A's according to the given critera. In the process of listing the housing units, you should limit the listing within the imagined E.A. taking into consideration the criteria given for E.A. formation in urban centres. In order to avoid ommission and duplication mark each housing unit with chalk while listing with the housing unit serial number as is in form U-3 Attach the housing unit and household listing form (i.e. form U-3) with the finalized E.A. map.

Step 5

Go back to your camp and prepare the urban centre map with its E.A. by putting together all the information you have collected from different keftegnas' and kebeles'. If there are more than one team working in the urban centre in the delineation of E.A's, all the teams must return to the camp and put together their information to form a complete urban centre map with its keftegnas, kebeles, and E.A's. You have to correct any gaps or overlapping on the map.

Step 6

The next job is to go back to the field to do verification. Now evaluate how correct and reliable is your E.A. map. Then write the description of the boundaries of the E.A. on form U-4. The description should be completed clockwise starting from the north. These E.A's have to be given a provisional serial number till the final code number is given as indicated in step 8.

Step 7

The map that you have already prepared is a map of the urban centre with all the necessary details i.e. the boundaries of the keftegna kebele, E.A.'s and some other relevant informations (church, mosque, school, road, market place etc.). Now in the camp prepare another identical copy of the urban centre by transferring all the information on the extra map provided to you. Then prepare the tinal copy of the E.A. map by cutting out one of the identical copies on which the E.A's are delineated. Glue each E.A. on a folder. Write the region, the awraja, the wereda, the name of the urban centre with its keftegna and kebele etc. on form U-6 and glue it on the front cover of the E.A. folder. Don't forget to enter all the legend, northern direction, adjacent E.A's and other marginal information of the E.A. Put all the relevant components of the E.A. such as the description form, the house listing form, and listing form for collective quarters ....etc.

Step 8

Usually the kebeles and keftegnas in the urban centers have numbers identifying them. In this case you don't assign code numbers to keftegnas and kebeles but take the number as they are. Your job will be to assign code numbers to E.A's within the kebele. To code the E.A's within the kebele two digit running numbers should be used. If the kebele has three E.A's, then the coding within the kebele will be 01, 02, and 03. It the kebele has five E.As, the coding of the E.As. will be 01, 02, 03, 04, and 05. If urban centres where kebele have not been formed E.A's in these urban centres should be given a two digit running number.

Step 9

After you have finished coding the E.A's divide the entire urban centre into supervision areas with red pencil by taking into account the following points:

a) Each supervision area (S.A.) could have about six E.A's.

b) As far as possible a supervision area should be contained within the same kebele/keftegna ie. one supervision area may consist of one kebele or more than one kebele within the same keftegna.

c) Prepare two more identical copies of the S.A. maps. Then starting from the northern part of the urban centre and proceeding in serpentine manner give a two digit running code number 01, 02, 03.... for each S.A. Now take one of the copies and cut it into separate S.A's. Glue the S.A. maps separately on folders and add the details as indicated under the title "supervision area map". Finally place the S.A. map files on the top of the documents of their respective E.A's. and bind or tie them together.

3. Special E.A's in Urban Centres.

If there are collective quarter(s) in the urban centre which require (s) special treatment as regards E.A. formation follow the procedures indicated on section 4 of chapter III.

4. Map Sketching.

A sketch map is a hand drawn map of an area which is usually constructed with the aid of simple tools. Sketch maps are needed in two types of situations:

a) Where there is no map of any kind for the area, or where the only map available is of small scale to show sufficient details,

b) where the map sent to the field turns out to be out of date, that it would be easier to draw a sketch than to try to make changes on the available map.

For these purposes, the sketch map should include necessary features such as church, school, mosque, market places, ...etc. so as to make it sufficiently detailed to enable the geographical assistant (G.A.) to carve out the E.A's. The sketch should be consistant in scale and direction and features should be indicated by standard map symbols.

A. Sketching Techniques.

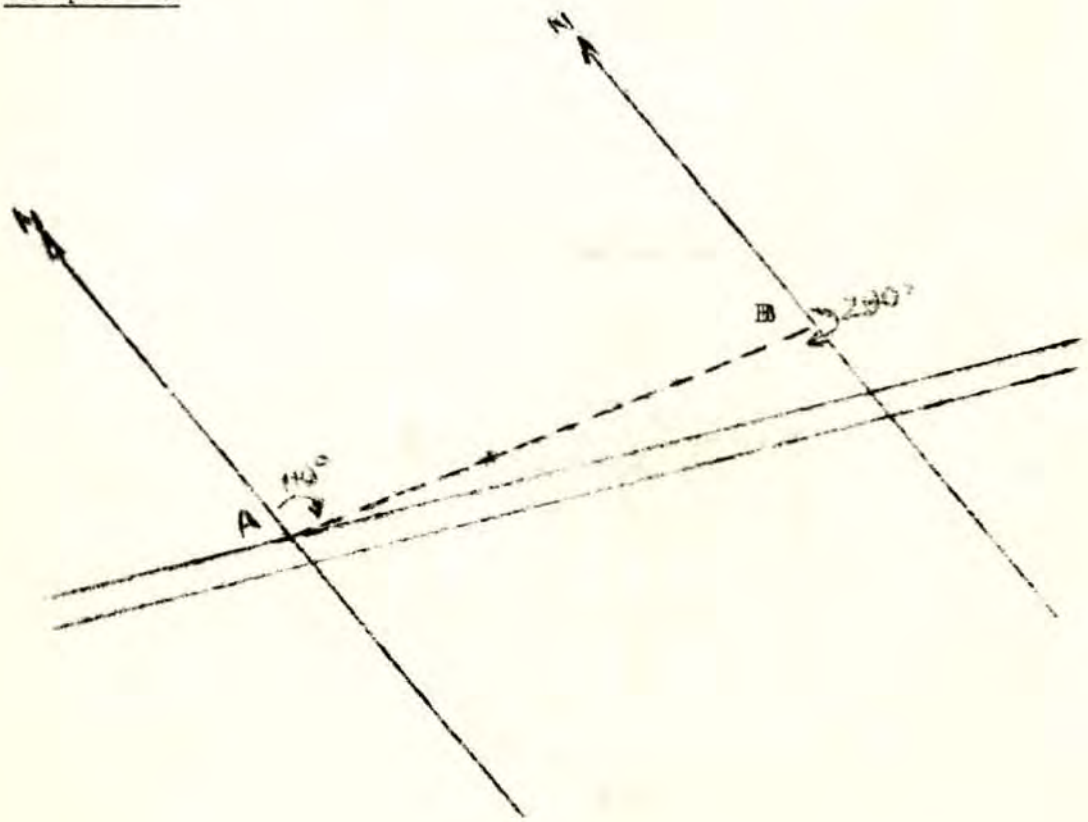
Map sketching involves locating ground features in relation to each other and measurements of the distances between them. It consists of two main operations:

a) Measuring angular direction and
b) Measuring linear distance.

a) Measuring Angular Direction.

A simple device for carrying out this operation is a magnetic compass with a free swinging needle which directs itself parallel to the earth's magnetic field and thus points to magnetic North pole. The observer measures (reads) the angle between magnetic north, as indicated by the needle of the compass and the line of sight between himself and the object. The angular direction of each object is measured from both ends. Measuring from both ends will serve as a check on the accuracy of the first reading. The two readings should differ by exactly 180^{o}.

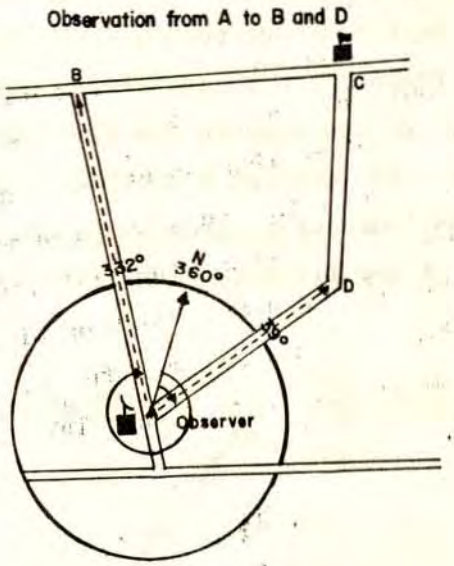
Example - 1

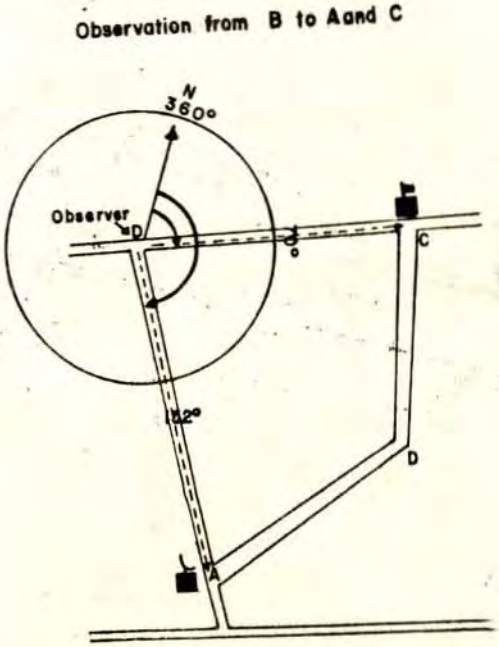


In example 1 the observer first finds the north direction at point A. Then turns or makes an angle clockwise and observes through the small lens and lines up the vertical wire or line with the object B. Let the angle measured from point A to point B be 110^{o}. Now go to point B and find the north direction and measure the angle in a clockwise direction to point A. Then the reading at point B is 290^{o}. Note that the difference between the two readings is 180^{o}.

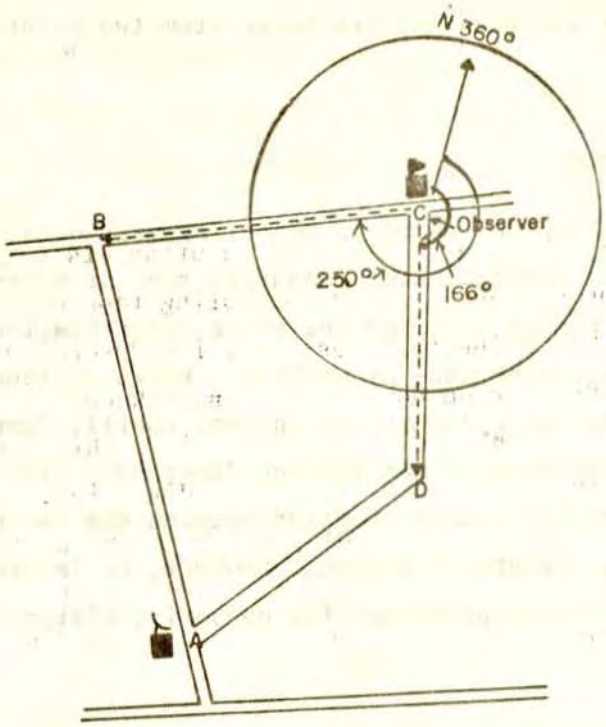
The example given above shows how to measure the angles between two points. The same procedure is repeated when measuring angles of more than two points.

Example - 2

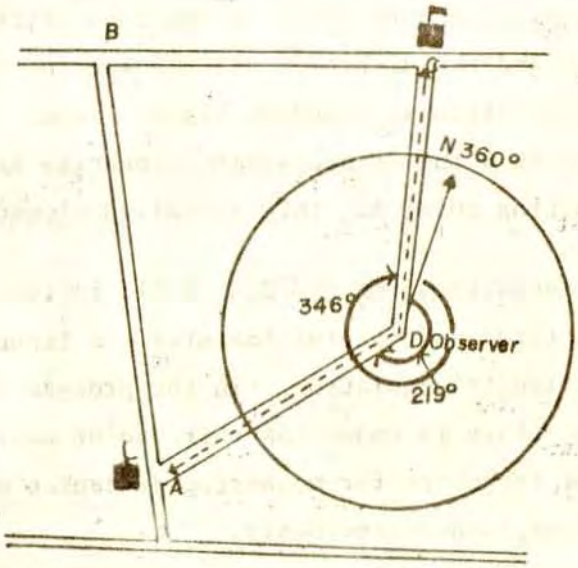




OBSERVATION FROM C TO B AND D



OBSERVATION FROM D TO C AND A



In example two, note that the readings are taken from two points at each point of observation.

b) Measuring Linear Distances.

Another important task in map sketching is measuring distances, between the points. This can be done by pacing, using measuring tape or measured rope. The measurement of distance by pacing requires the prior determination of the average length of a pace. This can be done by walking a known distance between two points under different topographic conditions (plain, uphill, downhill, rough terrain .....etc.) at least three times in each direction. Thus the distance is measured by counting the number of paces between the two points and by multiplying it by the average length of a pace. However, it is preferable to use either a measuring tape or measured rope for measuring distances.

c) Traversing.

Traversing means walking around and within the area to be sketched and noting the distances and the directions. The G.A. must traverse the area several times to ensure that all the roads, trails and other prominent and cultural features are included in the sketch.

The G.A. should first produce a rough sketch as indicated in figure 1 that would show major landmarks on both sides of the road or trail as well as the points of intersection and the direction of intersection of land features such as roads, trails, streams, boundary lines,...etc. The traversing is done by starting from a point A and by proceeding clockwise around the area, until coming back to the starting point A. This is called closed traverse.

After completing the closed traverse the G.A. fills in the rough sketch with all important cultural and natural features. A technique for locating such features is called triangulation. In the process of triangulation, if the location of two points is known the third point could be established with a magnetic compass. The technique for measuring distances and angles in triangulation can be done as explained previously.

d) Establishing Boundaries.

In making the sketches the G.A. should first establish the boundaries such as limits for urban centre or peasant association or sub-division in rural areas. This is to be done by a closed traverse system. If the area is large the sketch can be done in segments starting with the outer segments first and the internal segments next and so on.

e) Adjusting the Sketch.

The sketch prepared in the field is a rough drawing done in pencil. It should be adjusted with the help of directional information given on record form for sketching. Additional details have to be inserted from your observations. Then a fine drawing of the adjusted sketch as shown in figure 2 is to be done in ink and all marginal information must be put at their appropriate places.

1. ROUGH SKETCH

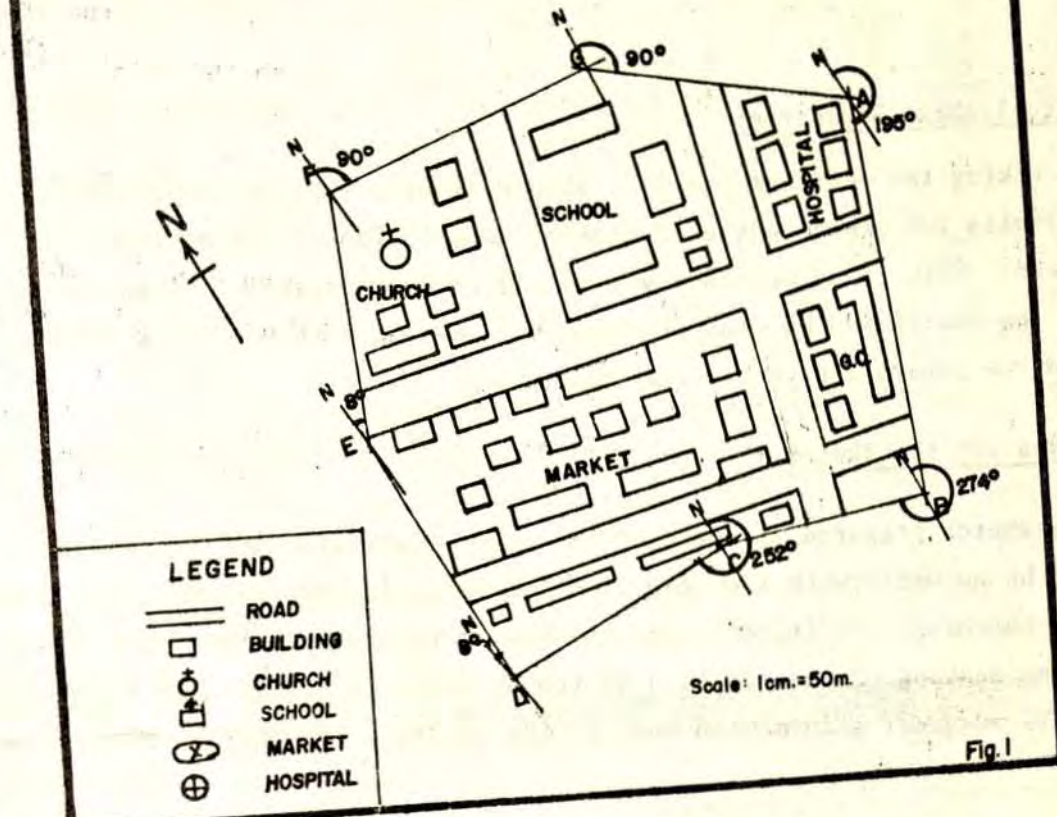


Fig. 1

2. ADJUSTED AND VERIFIED SKETCH

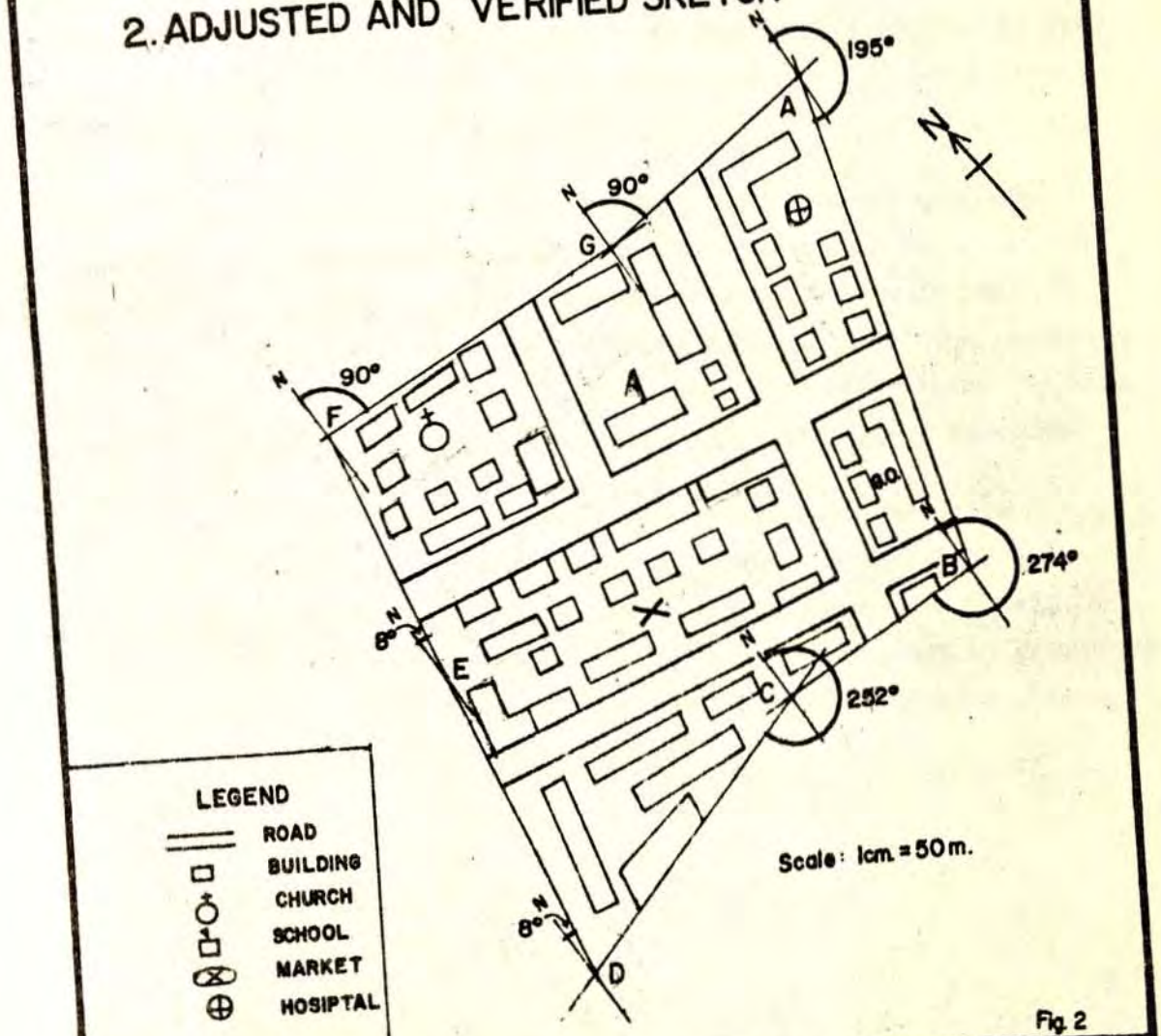


Fig. 2

RECORD FORM FOR SKETCHING

REGION _____ AWRAJA _____

WEREDA _____ NAME OF URBAN CENTER _____

STATUS " " " _____

S.Nº.	POINTS	AZIMUTH OR ANGLE	DISTANCE	UNIT OF MEAS.	REMARK
(1)	AB	195°	400	METERS	
(2)	BA	15°			
(3)	BC	274°	175	"	
(4)	CB	94°			
(5)	CD	252°	264	"	
(6)	DC	72°			
(7)	DE	8°	270	"	
(8)	ED	188°			
(9)	EF	8°	188	"	
(10)	FE	188°			
(11)	FG	90°	269	"	
(12)	GF	270°			
(13)	GA	90°	213	"	
(14)	AG	270°			

SKETCHED BY _____ DATE _____ INITIAL _____

SUPERVISED BY _____ DATE _____ INITIAL _____

N.B: IF YOU HAVE USED PACE OR STRIDING FOR DISTANCE MEASUREMENT CONVERT BY USING THE AVERAGE LENGTH.

B. Step by step Procedure for Making Sketch Map.

Step 1

Before starting sketching get as much information as possible by walking around the urban centre. Make a note of prominent land marks such as market place, church, school .....etc.

Step 2

Starting from a convenient point of the outer boundary of the urban centre, preferably from north, traverse the area by measuring angles and distances till you close up as previously explained. Do not forget to record the angles and the distance on form U-5.

Step 3

Now you have a skeleton of the area you are sketching. Then using the technique of traversing and triangulation fill in the necessary details such as roads, trails, major buildings, churches, schools, market places....etc.

Step 4

Go back to your camp and adjust your rough sketch with the help of the record on form U-5. Determine the scale of the sketch. Then adjust the angles using protractor and distances using scales. Here, if you have any doubt about the accuracy of your sketch or if you are not satistied with the details in the sketch, go back to the field for verification. Finally make a fine drawing of the sketch on a clean tracing paper in ink.

Step 5

Now that you have the final detailed map of the urban centre, the next procedure is to divide the urban centre into keftegnas, kebeles and E.A's. following the steps given for E.A. formation in urban centres. In case the urban centre does not have keftegnas or kebele, the sketch map of the urban centre in question should be curved out directly into E.A's.

5. FILLING THE FORMS FOR MAP WORK IN URBAN CENTRES.

Form U-1- Form For Listing Urban Centres, Keftegnas and Kebeles In A Wereda.

Col.1-3 (Region, Awraja and Wereda)

In these columns, write the names of the Region, Awraja and Wereda in which the Urban Centres, Keftegnas and Kebele are located.

Col. 4 (Serial Number)

In this column, write the serial number of the urban centres using two digit number.

Col. 5-6 (Urban Centres)

Col. 5 (Name)

In this column, write down the name of each urban centre. If the urban centre has two names, write the commonly known name and next to it record the other name within a bracket.

Col. 6 (Status)

Write the status of the urban centres using in the following codes.

1= only wereda capital with municipality
2= " awraja " " "
3= " regional " " "
4= " wereda " without "
5= " awraja " " "
6= both wereda and awraja capital with municipality
7= " awraja and regional " " "
8= wereda, awraja and regional capital with municipality
9= both wereda and awraja capital without municipality
10= any other urban centre with municipality
11= " " " " without municipality.

col. 7 (Serial Number)

In this column write the serial number of eack Keftegna using a two digit number.

Col. 8 Keftegna

In this column, write the name of the keftegna or the keftegna number, if any.

Col. 9 (Serial Number)

In this column, write the serial number of each keble using a two digit number.

Col. 10 (Kebele)

Write the name of the kebele, if any, or the kebele number in this column.

Col. 11. (Kebele Official)

Write the name of the Kebele official who is currently in office in this column.

Col. 12 (Remark)

In this column, write any other additional information regarding columns 4-11, if any. Note that the space provided at the bottom of this form are accurately and completely filled by you and your supervisor.

FORM U-1

CENTRAL STATISTICAL OFFICE

FORM FOR LISTING URBAN CENTERS KEFETEGNAS & KEBELES IN A WEREDA

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4	5	6	7	8	9	10	11	12
SERIAL NO	URBAN CENTERS		SERIAL NO	KEFITEGNA	SERIAL NO	KEBELE	KEBELE OFFICIAL	REMARK
	NAME	STATUS						

NAME OF G.A _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

Form U-2 Housing unit and Household listing form

Col. 1-4 (Region, Awraja, Wereda and Urban Centre)

In this columns, write the name of the Region, Awraja, Wereda and urban centre.

Col. 5-6 (Keftegna and kebele)

In this columns write the name of the keftegna and kebele in the urban centre. If the keftegnas and the kebeles which have been formed in the urban centre do not have particular name, write the keftegna and kebele numbers in these columns. If the keftegna and kebele have both name and number then write the name and next to it record the number within a bracket.

Col. 7 (E.A. Number)

In this column, write the E.A. number. Note that the number should be written after delineating and finalizing the E.A.

Col. 8 (Serial Number)

Write systematically the serial numbers of the housing units within the kebele. The serial numbers should have three-digit number. That is for the first housing unit, the serial number should be 001, for the 2nd, 002 etc. until you cover all the housing units within the imagined E.A.

Col. 9 (Housing Unit Number)

In this column, write the housing unit number as given by the kebele office. There may be numbers assigned on the main gates or entrances of a group of housing units and sub-numbers to the housing units. In this case first write the number given on the main gate or entrance, make a stroke after this number and write the sub-numbers eg. if the number on the main gate or entrance of a bulding is 0087 and sub-numbers 1,2,3 etc. the housing unit number of the first will be 0087/1, the 2nd 0087/2 the third 0087/3 etc.

Col. 10 (Purpose)

In this column, write the purpose of the housing unit, that is, residential, partially residential or non-residential.

Col. 11-12 (For Residential or partially Residential Housing Units)

Col. 11 (Serial Number)

Write the serial numbers of the households.

Columns 11 and 12 are meant generally for listing private households including those in collective quarters with less than 100 persons. However, when you come across collective quarters you should also continue giving serial numbers in column 11 and write the name of the collective quarters in column 12.

Col. 13 (Household Members)

In this column, write the total number of the household members including the head by sex. In the case of collective quarters also write the total number by sex if the total number of inmates are less than 100 persons. Note that you should not include the owner of the institution if he/she has his/her private households. If the collective quarters has 100 or more persons (inmates) leave this column blank.

Col. 14 (Remark)

In this column, write some additional information regarding columns 8 - 13. For every collective quarters with more than 100 persons "CQ - SEA meaning" collective quarters forming a special Enumeration Area", and write "C.Q." for collective quarters with less than 100 persons. Note that you should sum up the number of persons by sex on each form.

Finally you should also indicate the grand total on the last page of the listing form (that is, Form U-2) in the space provided.

Do not forget to write your name, initial and date of completion at the bottom of the form. The supervisor and the kebele official should also do the same thing

CENTRAL STATISTICAL OFFICE

FORM-U-2

HOUSING UNIT & HOUSEHOLD LISTING FORM

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4. URBAN CENTER _____ 5. KEFETEGNA _____ 6. KEBELE _____

7. E.A. NO. _____

8	9	10	11	12	13			14
S. Nº	HOUSING UNIT Nº	PURPOSE	FOR RESIDENTIAL OR PARTIALLY RESIDENTIAL		MEMBERS OF THE HOUSEHOLD			REMARKS
			S. Nº	NAME OF THE HEAD OF THE HOUSEHOLD	M	F	T	
				GRAND TOTAL				

NAME OF G.A. _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

NAME OF KEBELE OFFICIAL _____ INITIAL _____ DATE _____

Form U-3 Form for listing Collective Quarters in Urban Centres

This form will be used for listing all collective quarters in every urban centre regardless of the total number of persons in the collective quarters.

Col. 1-4 (Region, Awraja, Wereda and Urban Centre)

In these columns, write the names of the Region, Awraja, Wereda and urban centre in which the collective quarters is located.

Col. 6-7 (Serial numbers and housing unit number as given in Form U-2, Columns 8-9)

Transcribe the serial number and housing unit number of each collective quarters which has been listed in form U-2 as residential or partially residential into columns 6 and 7.

Col. 8 (Name of the Collective Quarters)

In this column, write the name of the collective quarters. If the collective quarters is identified by the name of the owner, write the name of the person.

Col. 9-11 (Address)

In this column write the address of the collective quarters specifying its keftegna, kebele and P.O. Box, if any. If the keftegna and kebele in the urban centre are identified by numbers, then write down the keftegna and kebele numbers in this column. Otherwise write the name of the keftegna and kebele.

Col. 12 (Function of the Institution)

In this column write the function of each collective quarters, example - hospital, boarding scholl, orghanage, rehabilitation centre specifying its major function (mental asylum, leprosarium, etc.), military camp ....etc.

Col. 13-16 For Collective Quarters with 100 or more Inmates/Members

Col. 13 (Number of Inmates/Members in the Collective Quarters)

In this column enter only the number of inmates or members by sex residing in the Collective Quarters.

Col. 14 (Serial Number)

In some Collective Quarters, the manager or other staff members of the institution resides in private households within the premises of the collective quarters in question. In such cases use Column 14 to enter the serial number of the private households.

Col. 15 (Name of the head of the household)

In this col. write the name of the head of the household residing in private households within the premises of the Collective Quarters.

Col. 16 (Number of persons in private households)

In this column enter the number of persons residing in private household by sex.

Col. 17 (Enumeration Area Number)

In this column, write the E.A. number of each collective quarters, that is, if the collective quarters do not form special enumeration area, write the E.A. number within which the collective quarters are located. If the collective quarters form special enumeration area, write the appropriate special enumeration area number in this column.

Col. 18 (Remark)

In this column, write only other additional information about the collective quarters. Note that the space provided at the bottom of this form are accurately and completely filled.

FORM U—3

CENTRAL STATISTICAL OFFICE

FORM FOR LISTING COLLECTIVE QUARTERS

1 REGION _____ 2 AWRAJA _____ 3 WEREDA _____ 4 URBAN CENTER _____

6	7	8	9	10	11	12	13			14	15	16			17	18
SERIAL NO AS GIVEN IN FORM U-2 COL 1	HOUSING UNIT NO AS GIVEN IN FORM U-2 COL 8	NAME OF THE C.Q.	ADDRESS			FUNCTION OF THE INSTITUTION	FOR CQ WITH 100 PERSONS OR MORE ONLY								E.A. NO.	REMARKS
			KEFTEGNA	KEBELE	P.O.B		NUMBER OF INMATES OR MEMBERS			PRIVATE HOUSEHOLDS						
							M	F	T	S.NO	NAME OF HEAD OF THE HOUSEHOLD	NO OF PERSONS IN PRIVATE HOUSEHOLD				
												M	F	T		

NAME OF G.A _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

Form U-4 Form for Describing urban Enumeration Area

Col. 1-4 (Region, Awraja, Wereda and name of Urban Centre)

In these columns write the name of the Region, Awraja, Wereda and urban centre.

Col. 5-7 (Keftegna, kebele and Enumeration Area Number)

In these columns write the keftegna and kebele numbers or the names of the keftegna and kebele, if any. Finally write the enumeration area number in column 7.

In describing the boundaries of the E.A., you should use the cultural and physical feature and the names of the heads of the households including housing unit numbers, etc. You should not at all use trees as reference points when describing the boundaries of your E.A. Because the trees may perish some time in the future and this could create complications in identifying the E.A. either during the actual enumeration period or during subsequent surveys. Write neatly and legibly when describing the boundaries of the E.A., and complete the desciprion of the boundaries in clockwise direction, starting from northern direction of the E.A. including all adjacent E.A.'s. When you complete the description, do not forget to attach Form U-4 to the E.A. map. Finally, note that the space provided at the bottom of this form must be filled by you and your suppervisor.

FORM U—4

CENTRAL STATISTICAL OFFICE

FORM FOR DESCRIBING URBAN ENUMERATION AREA

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4. NAME OF URBAN CENTER _____ 5. KEFETEGNA _____ 6. KEBELE _____

7. E.A. Nº _____

DESCRIPTION OF THE E.A.

DESCRIBE THE IDENTIFIABLE BOUNDARIES FROM NORTH AND COMPLETE THE DESCRIPTION CLOCKWISE

NAME OF G.A. _____ INITIAL _____ DATE _____

NAME OF SUPERVISOR _____ INITIAL _____ DATE _____

N.B ATTACH THIS FORM TO FORM U-2 AND USE ADDITIONAL FORM IF NEEDED

Form U-5 Record form for sketching

Col. 1-4 (Region, Awraja, Wereda and Urban centre)

In these columns write the name of the Region, Awraja, Wereda and Urban centre.

Col. 5 (Status)

In this column write the status of the urban centre as labeled in Form U-1 Col. 6.

Col. 6 (Serial Number)

In this column write the serial number of the points you have taken as reference.

Col. 7 (Points)

In this column write points of references alphabetically starting from the first point where you have taken angle reading.

Col. 8 (Azimuth or Angle)

In this column enter the angle of the reference points. That is, if the angle between A and B is 239^{o} on column 8.

Col. 9 (Distance by Pacing)

In this column enter the number of paces that you have counted between the two points. Example, if the distance between A and B is 100 pace, then write 100 in this column.

Col. 10 (Converted Distance in metres)

In this column, enter the length of the distance that you have taken between the two points, that is AB in metres only. Example, as given in column 9, if the distance between A and B is 100 paces, then convert it into metres by dividing 100 by the average length of a pace. If the average length of a pace is.80 metres then the converted distance will be 80 metres.

Col. 11 (Remark)

In this column, write any additional comments, regarding columns 6-10. Note that you must not forget to fill the space provided at the bottom of this form.

FORM – U-5

CENTRAL STATISTICAL OFFICE

RECORD FORM FOR SKETCHING

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4. NAME OF URBAN CENTER _____ 5. STATUS OF URBAN CENTRE _____

6	7	8	9	10	11
S. No	POINTS	AZIMUTH ANGLE	DISTANCE BY PACING	CONVERTED DISTANCE IN METERS	REMARKS

SKETCHED BY _____ INITIAL _____ DATE _____

SUPERVISED BY _____ INITIAL _____ DATE _____

N. B:- IF YOU HAVE USED PACE OR STRIDING FOR DISTANCE MEASUREMENT CONVERT BY USING THE AVERAGE LENGTH

Form U-6 Form for filling Urban Enumeration Area Particulars

This form should be glued on the front cover of the E.A. folder.

Col. 1-4 (Region, Awraja, Wereda and name of Urban centre)

In these columns, write the names of the Region, Awraja, Wereda and urban centre.

Cols. 5-6 (Keftegna and Kebele)

Write the keftegna and kebele numbers or names, if any, in these columns.

Col. 7 (Name of kebele official)

Write the name of the kebele official in this column.

Col. 8 (Enumeration Area Number)

In this column, write the E.A. Number which you have already finalized within the kebele. Do not forget to distinguish the normal E.A. number from that of the special E.A's of the collective quarters with 100 or more inmates/members.

Col. 9 (Estimated Area)

In this column write the estimated area of the E.A. in kilo metre square.

Col. 10 (Total Number of the Housing Unit)

In this column enter the total number of the housing units in the E.A.

Col. 11 (Total Number of the Households)

Record the total number of the households in the E.A. in this column and also write separately:-

(a) the total number of households in regular housing units

(b) the total number of private households in the collective quarters.

Col. 12 (Total Number of Persons in the Collective Quarters)

In this column, write the total number of persons in the collective quarters, if any, by separating:-

(a) the total number of persons in private households within the premises of the collective quarters.

(b) the total number of persons (inmates) in the collective quarters.

Note -

In the space provided write additional comments or notes regarding your E.A., if any. Finally do not forget to write your name in the space provided.

CENTRAL STATISTICAL OFFICE

FORM U-6

URBAN ENUMERATION AREA PARTICULARS

1. REGION _____ 2. AWRAJA _____ 3. WEREDA _____

4. NAME OF URBAN CENTER _____ 5. KEFITEGNA _____ 6. KEBELE _____

7. NAME OF KEBELE OFFICIAL _____ 8. E.A. Nº _____

9. ESTIMATED AREA _____ Kms^2 10. TOTAL Nº OF HOUSING UNIT _____

11. TOTAL NUMBER OF HOUSEHOLDS _____

A. NUMBER OF HOUSEHOLDS IN REGULAR HOUSING UNIT _____

B. NUMBER OF PRIVATE HOUSEHOLDS IN COLLECTIVE QUARTERS _____

12. TOTAL Nº OF PERSONS IN COLLECTIVE QUARTERS _____

A. Nº OF PERSONS IN PRIVATE HOUSEHOLDS WITHIN COLLECTIVE QUARTERS _____

B. Nº OF PERSONS IN COLLECTIVE QUARTERS _____

NOTE _____

_____

NAME OF G.A. _____

N.B. GLUE THIS FORM ON THE FRONT COVER OF THE E.A FOLDER

6. The Design and Content of Urban Centre Maps

There are three types of maps that should be prepared these are:

1. Enumeration Area Maps
2. Supervision Area Maps.
3. Urban centre maps (For those that do not have master plan).

Enumeration Area Map. The EA map should contain and show the following in their proper places (See fig.3).

a) The name of Region, Awraja and Wereda
b) The name of the urban centre
c) The name or the number of Keftegna and Kebele
d) The code number of the EA
e) The total number of housing units and households in the EA
f) The estimated area of the EA
g) The boundaries of the EA as described by its adjacent EA's and some references
h) The orientation of the map ie. the northern direction
i) The legend used to explain the symbols on the map
j) The scale of the map
k) The name of the geographyical Assistant
l) The date on which the map work is completed.

Supervision Area Maps. The supervision area map should contain the following.

a) The name of Region, Awraja and Wereda
b) The name of the urban centre
c) The name (s) or the number of the Keftegna and Kebeles
d) The code number of the SA
e) The code number of the EA's it contains
f) The location of important land marks and the meeting points of adjacent SA's.
g) The scale of the map
h) The Northern direction
i) The legend which have explained the symbols used in the map.

Urban Centre Maps (For those that do not have master plan maps)

a) The name of Region, Awraja and Wereda

b) The name of the urban centre

c) The boundaries of the urban centre

d) The orientation of the map

e) The legend used to explain the symbols on the map

f) The scale of the map

g) The name of the geographical assistant

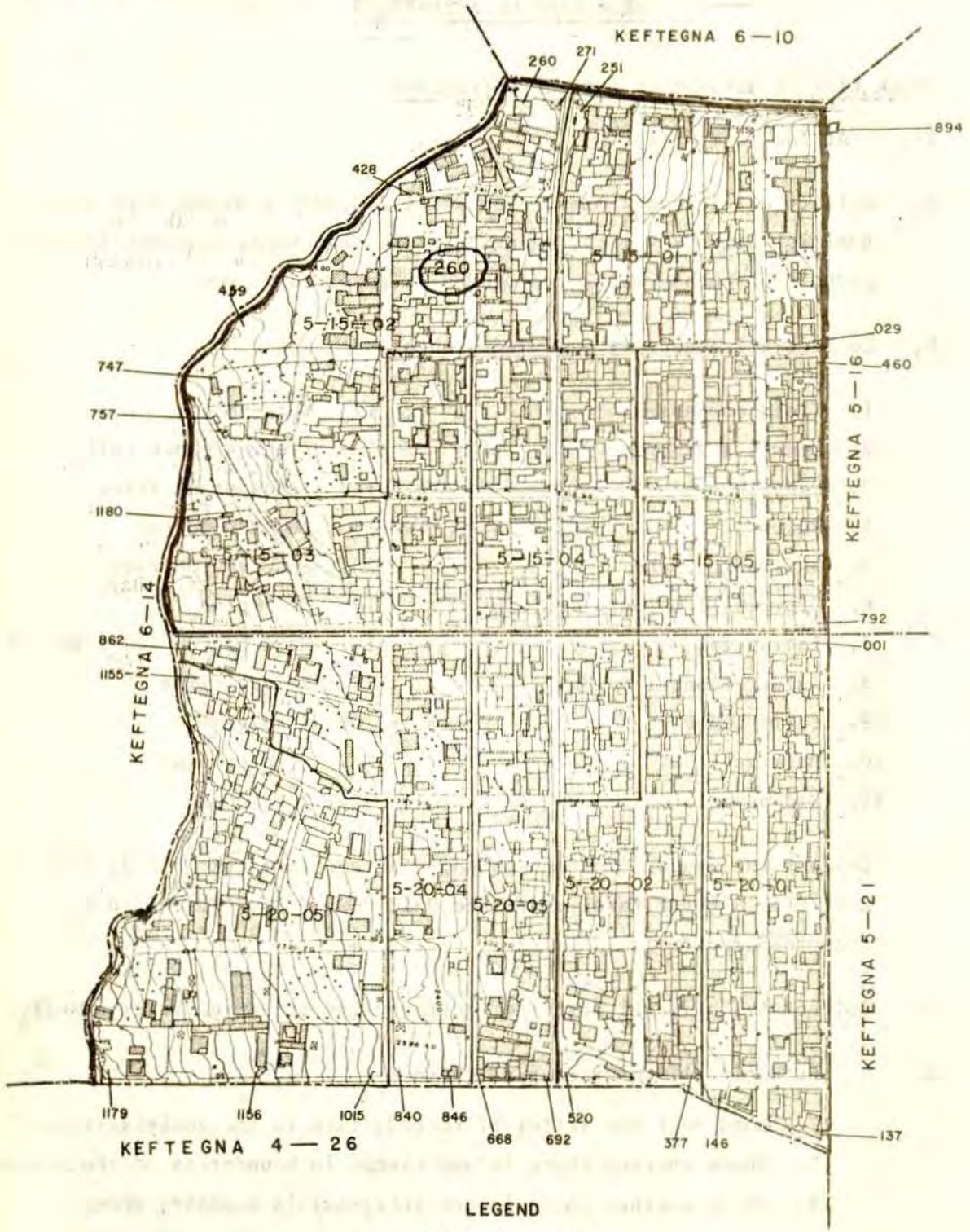
h) The data on which the urban centre map is completed.

REGION SHEWA | AWRAJA MENAGESHA | WEREDA TEKLE HAYMANOT

NAME OF URBAN CENTER ADDIS ABEBA | KEFETEGNA 5 | KEBELE 15

ESTIMATED AREA ——— Kms² | NAME OF KEBELE | E.A Nº 5—15—02

TOTAL Nº OF HOUSEHOLDS 260 | OFFICIAL ——— | TOTAL Nº OF HOUSING UNITS 150



LEGEND

- KEFTEGNA BOUNDARY
- KEBELE "
- SUPERVISION AREA BOUNDARY
- E.A. BOUNDARY
- HOUSING UNITS
- ROADS

Fig. 3

CHAPTER IV

CHECK LIST OF ACTIVITIES

1 . Check List of Activities for the Supervisor.

I. At The Head Office:-

A. Collect all relevant maps, such as: 1:250,000, 1:50,000 Topo maps, administrative key maps, malaria eradication maps, planimetric maps, picto maps, urban maps, and others as supplied to you.

B. Collect all necessary equipments such as:-

1. Field compasses
2. Pencil sharpeners
3. Pencils
4. Rulers
5. Ball point pens
6. Crow-quill holders and nibs
7. Indian Ink
8. Rulers (pencil & ink)
9. Cello tapes
10. Masking tapes
11. Red pencils
12. Note-books
13. Tracing paper rolls
14. Transparent files
15. Paper folders
16. Enumeration Bags
17. File pins
18. Hard boards (40 x 40 cm)
19. Buldog clips
20. Stapler
21. Stapler pins
22. Metal box

C. Collect the manuals for census map work and forms (R-1, R-2, R-3, R-4, R-5, R-6 for rural areas and U-1, U-2, U-3, U-4, U-5, U-6, for urban centres).

D. Collect the official letter of introduction to administrative region.

II. At Regional Administrative Office:-

1. Hand over the letter of introduction to the administrator.
2. Check whether there is any change in boundaries of the Region.
3. Check whether there is any inter-Awraja boundary change.

4. If there is any change inform the head office and plot the boundaries on your base map in consultation with the supervisors of adjacent Awrajas.

5. Get the list of Awraja and Weredas and urban centres.

6. Get a letter of introduction to the Awraja Administration Office.

III. At Awraja Office:-

1. Hand over letter of introduction to the Awraja Administrator.

2. Verify the list of Weredas, Urban Centres and collect the list of their respective officials.

3. Check Awraja boundary.

4. Check with the supervisors of adjacent Awraja that you have the boundaries in the same position.

5. Collect letters of introduction to Weredas Administrators. Give a copy of each letter to the G.A's. as per their assignments.

6. Supply your G.A's with all necessary working materials including base maps.

7. Plan how to keep in contact with the G.A's and arrange their itinerary.

8. Deploy your G.A's to their respective Wereda.

IV. At Wereda Office:-

1. Plot the Wereda boundary on your working sheet.
2. Check whether there is any problem encountered by the G.A's.
3. Get information about the whereabouts of the G.A's.
4. Plan your route to the G.A's.

V. In the Field:-

1. Meet the G.A's.
2. Counter check the Wereda boundary you have ploted with the work of the G.A's.

3. Check that all the forms are completed according to the instruction given in the manual.

4. Check that the step by step procedures described in the manual are maintained in the formation of E.A's.

5. Check that the work is progressing as scheduled.

6. Check that the C.A's. have adequate supplies of materials.

7. Check that the E.A. boundaries are clear.

8. Check that all localities and other important features have been located and named.

9. Check that the E.A's are numbered accordingly.

10. Check that the E.A. descriptions are understandable.

11. Check that the legends and symbols are properly followed.

12. Check that there is no "no-man's land" in the Wereda.

13. Make sure that there is no overlapping between the E.A's and that there is no gap between the E.A's

14. Check and settle boundary disputes in consultation with the officials of the areas concerned.

15. When the G.A's have completed making an additional two copies of an E.A. map, collect the E.A. maps and the forms that go along with the maps and keep them with you till you dispatch them to the head office.

VI. At Wereda Capital:-

1. Check that the listings have been done properly.

2. Check that every Wereda and Urban Centres have been divided into E.A's according to the instructions.

3. Check that every Wereda maps and Urban Centres are carved out into S.A's.

4. Check that all original copies of the E.A. maps are prepared correctly and neatly as per the instruction.

5. Check that the team has prepared two more copies of each E.A. map.

6. When you assure that all the work of the Wereda is done properly and completely, move your G.A's to the next Wereda of your assignment.

7. At the new Wereda assign two of your G.A's to finalize the work of the Wereda you have already finished.

8. Make sure that the G.A's assigned to finalize the map work of the former Wereda have adjoined the E.A's systematically so as to make a Wereda map showing the relative locations of the E.A's and other relevant details.

9. While the two G.A's are working on the finalization of the previous Wereda, assign the rest of the G.A's to start the map work in the new Wereda.

10. Check that the team has prepared three identical copies of the Wereda map divided into S.A's and that one of the copies is carved out into S.A's

11. Collect all files and other relevant documents.

V II. At Awraja capital (2nd Round);-

1. Check that all the Weredas within the Awraja have been divided into enumeration areas.

2. Check that the enlargement of every Wereda map of the Awraja is properly done.

3. Collect all files and other relevant documents for despatch to the Head Office.

4. Redeploy the G.A's. who have completed their Weredas to other Weredas if needed.

VIII. Progress Report - It should be sent fortnightly to the head office (15th and 30th of each Ethiopian month). In the report:-

1. Write the number of the completed lowest administrative units.
2. Write the number of the lowest administrative units in progress.
3. Indicate the number of the lowest administrative units not yet started.
4. Indicate the number of E.A's. completed.
5. Show the average number of E.A's. completed per work team per week since last report.
6. Estimate percentage of Wereda and urban centres completed.
7. Estimate the number of additional days needed to complete the Wereda.
8. Indicate the major problems and steps taken to resolve them.

2. Check list of activities for the Geographical Assistants.

I. At training centre before leaving for the area of assignment.

A. Collect all relevant maps such as:

1:250,000, 1:50,000 Topo maps, administrative key maps, malaria eradication maps, planimetric maps, picto maps, urban maps, and others as supplied to you.

B. Collect all necessary equipments such as:

1. Field compass
2. Pencils
3. Pencil sharpner
4. Rulers
5. Ball point pens
6. Crow-quill holders and nibs
7. Indian ink
8. Rubber (pencil & ink)
9. Cello tape
10. Masking tape
11. Red pencils
12. Note-book
13. Tracing paper
14. Transparent file
15. Paper folder
16. Enumeration bag
17. File pins
18. Hard board (40 x 40 cm)
19. Bulldog clips
20. Protractor
21. Metal box
22. Stapler
23. Stapler pins
24. Triangles

C. Collect the manuals for census map work and forms (R-1 - R-6 for rural areas and U-1 - U-6 for urban centres).

D. Collect the official letter of introduction to the Wereda Administrator.

II. At Wereda Office:-

1. Hand over the letter of Introduction to the wereda Administrator.

2. Collect the list of the lowest administrative units (P.A.A's. or subdivisions), and the name of the officials in the wereda.

3. Collect list of urban centres, U.S.A's. and collective quarters and list of names of the respective officials.

4. Plot the wereda boundary on your working sheet.

5. Collect letters of introduction to the PAA/subdivision and U.D.A. officials.

6. Plan your route to the various parts of the wereda.

III. In the field:-

1. Hand over the letter to the PAA/subdivision and U.D.A. officials.

2. Discuss your work plan and accomodation problem.

3. Check the list of urban centres and collective quarters.

4. Check the wereda boundary if that particular area is on the border.

5. Plot the relative position of the PAA/subdivision and U.D.A. on the working sheets.

6. List the households in the PAA/subdivision by localities and the housing units as well as households in U.D.A's.

7. Delineate the E.A's. according to the criterion given in the mannual.

8. Locate and mark details of the E.A.

9. Make enlargement of the E.A. on squared paper if a 1:50,000 scale map has not been used as indicated in the manual.

10. Go back to the field with the anlargement and check and verify the boundaries of the E.A. Add more details to your E.A. map as explained in the manual.

11. Write full description of E.A. boundary as explained in the manual.

12. Make a fair drawing of the E.A. map on the tracing paper in ink using appropriate legend and symbols.

13. After completing the preparation of six E.A. maps you should stay in your camp for one day for making two more identical copies of every E.A. map.

14. Proceed in the same manner till you cover the whole wereda.

15. Make sure that there is no omission or duplication in forming E.A.'s. When you work on adjacent E.A's start from the common boundary and proceed outwards. Never work towards the already formed E.A. Try to maintain uniform scale for all adjacent E.A's.

16. Write progress reports to your supervisor fortnightly (i.e. on the 7th and 21st of each Ethiopian month). In the report:

    a. List the lowest administrative units whose map work have been completed.

    b. List the lowest administrative units whose map work are in progress.

    c. List the lowest administrative units whose map work have not yet started.

    d. Indicate the number of E.A's whose map work have been completed.

    e. Indicate the average number of E.A's completed per team, per week since last report.

f. Estimate the number of PAA/subdivision and UDA's in the wereda whose map work has been completed.

g. Estimate the number of additional days needed to complete the remaining portion of the wereda.

h. Indicate any problem you have come across and steps taken to solve them during the map work.

V. At the next wereda Capital

1. Adjoin your E.A's systematically in order to show their relative locations. Put the wereda boundary correctly. Super impose a tracing paper and copy the details in ink. This will result in a wereda map containing all the E.A's and other details.

2. Prepare two more identical copies of the wereda map you have already prepared, i.e. you should make three identical copies of every wereda. The copies have to be made in ink on tracing paper.

3. Mark the limits of the adjacent weredas and write their names.

4. Code the P.A's in a serpentime form starting from the northern part of the wereda and proceed in clockwise manner until you give running code numbers to all the P.A's. Then you should give E.A. code numbers or sub-numbers within the P.A. (For details see instruction in step 9. page 31, in this chapter).

5. Divide the Wereda map into S.A's and give running code numbers according to given criteria.

6. Curve out supervision area from one of the 3 identical copies of the wereda map, according to the given criteria.

7. Arrange the maps, forms and other documents according to the coding.

8. Hand over completed maps, documents and working materials to your supervisor and get an official receipt.

Note:-

1. To maintain uniformity, it is important that you use the standard legend adopted for the purpose (See the Appendix)

2. Do not hesitate to put on the maps as many details as possible.

3. While the G.A's are finilizing the map work of the previous wereda on the basis of the instructions given in section two "item V" of this chapter, the remaining G.A's should start the map work in the next wereda.

APPENDIX

LEGEND

I BOUNDARIES

1. INTERNATIONAL BOUNDARY
2. ADMINISTRATIVE REGION
3. AWRAJA BOUNDARY
4. WEREDA BOUNDARY
5. SUPERVISION AREA BOUNDARY (Thick solid line in red)
6. P.A.A/SUBDIVISION BOUNDARY
7. E.A. BOUNDARY

II CULTURAL FEATURES

1. LARGE SETTLEMENT
2. CIRCULAR HOUSE, RECTANGULAR HOUSE
3. CHURCH, MOSQUE, CHURCH WITH CEMETRY
4. SCHOOL, CHURCH AND SCHOOL (Joint use)
5. HOSPITAL, CLINIC, HEALTH CENTRE
6. MARKET PLACE
7. ALL WEATHER ROAD
8. DRY WEATHER ROAD
9. TRAIL/FOOT PATH
10. RAILWAY LINE
11. ANTIQUITY, RUIN
12. HISTORICAL SITE (Battle field)
13. MINERAL WORKING-QUARRY
14. CEMETRY: CHRISTIAN, MUSLEM
15. BRIDGE
16. FLOUR MILL (WATER OR OTHERS)
17. SAW MILL

N.B Where two or more boundaries coincide only the symbol reprsenting the higher ranking boundary is shown

18. A ADMINSTRATIVE OFFICE
19. H HOTEL
20. HA PERMANENT HIGHWAY CAMP
21. PO POST OFFICE
22. PS POLICE STATION
23. ..... ADMINISTRATIVE REGION CAPITAL
24. ..... AWRAJA CAPITAL
25. ..... WEREDA CAPITAL
26. ..... OTHER TOWN
27. PP POLICE POST
28. Tele TELE OFFICE
29. FS FILLING STATION
30. AIRFIELD (airstrip)
31. FACTORY

III VEGETATION (ABBREVIATION USED)

1. DF DENSE FOREST
2. OW OPEN WOODLAND
3. E EUCALYPTUS
4. G GRASS LAND
5. SC SCRUB
6. PLANTATION
   - a. C COFFEE
   - b. CN COTTON
   - c. O ORANGE (citrus fruit)
   - d. S SISAL
   - e. SU SUGAR-CANE
   - f. T TEA
   - g. VY VINE YARD (grapes)
   - h. CH CHAT
   - i. ET ENSET
   - j. OS OIL SEEDS

IV NATURAL FEATURES

1. PERENNIAL STREAM
2. INTERMITTENT STREAM
3. DISAPPEARING STREAM
4. WELL, SPRING, WATER HOLE, WATER TANK
5. RESERVIOUR, DAM
6. SWAMP OR MARSH
7. AREA SUBJECT TO INUNDATION
8. WATER FALL
9. LAKE
10. MOUNTAIN
11. SINK OR DEPRESSION
12. LAVA
13. VALLEY