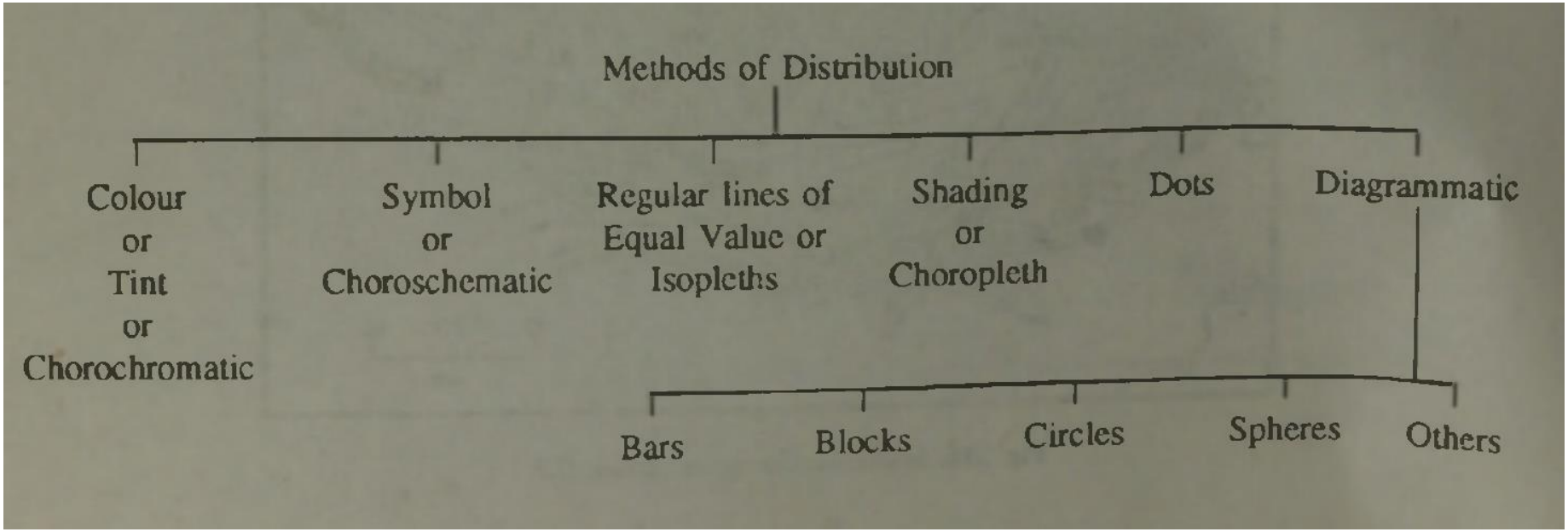
CC4T (Theory)
Cartograms and Thematic Mapping

Distributional Maps

- The distributional maps represent the pattern of distribution of any one element based on some definite statistical data. They resemble cartograms in that they, too, express a single idea and actual location of other features may be altered in them also.

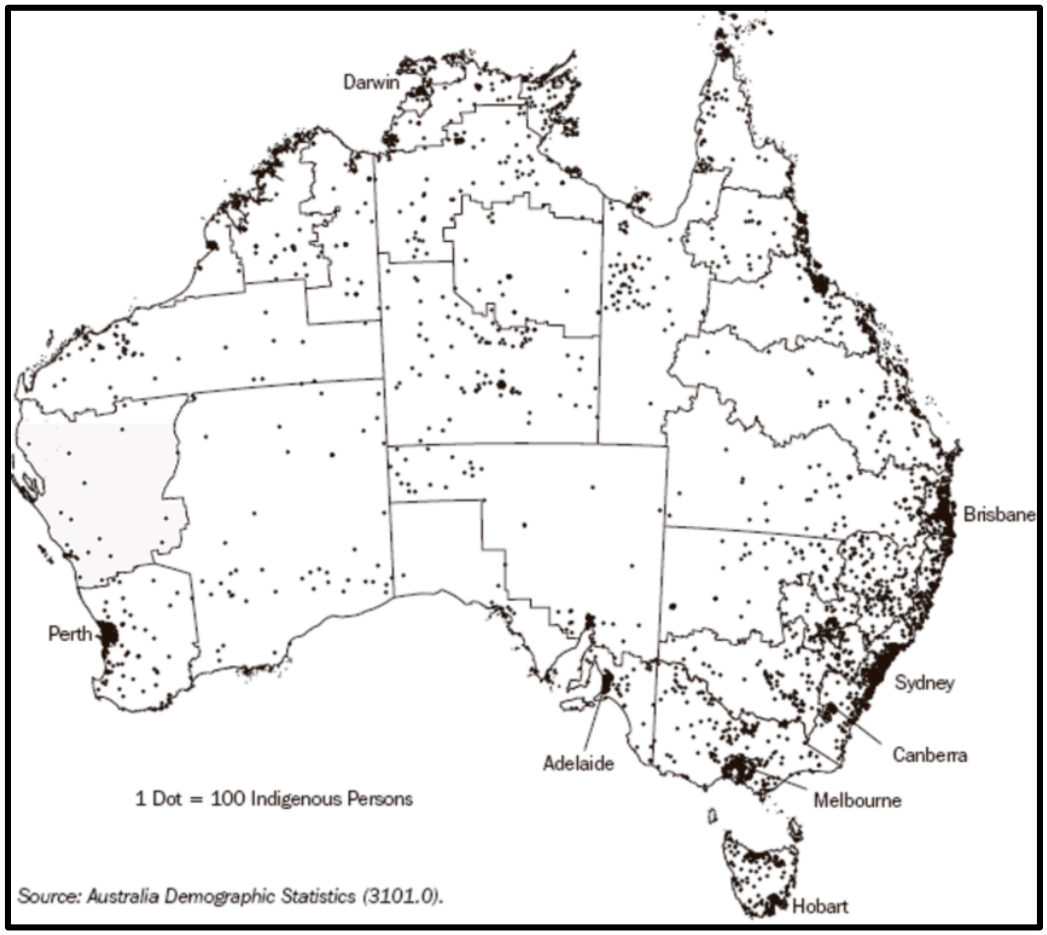


Dot Diagram

Cartograms: Cartograms are representation of statistical data *on a map* in a diagrammatic way by *purposefully* distorting the original shape or appearance of the area concerned.

This is now the most common method for a distribution map representing a quantity or value. This involves the use of dots of uniform size, each dot representing certain number *or* quantity. The chief problems with regard to the computation of distribution maps by this method are:

(i) selection of scale, *i.e.,* the number or quantity represented by each dot;
(ii) placing of dots on the map;
(iii) to make the dots uniform.



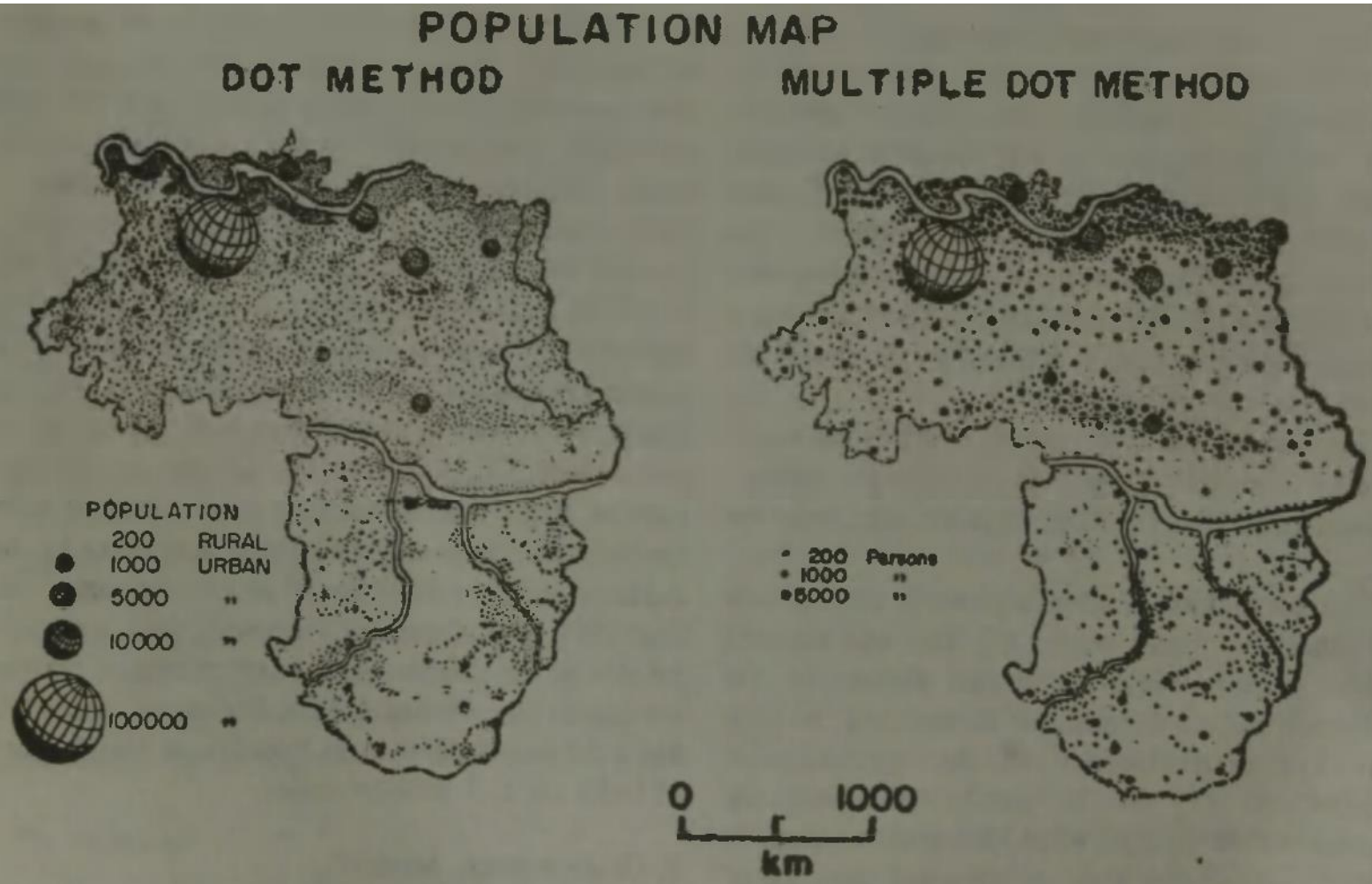


Fig. 219. Population Distribution in Mirzapur District.

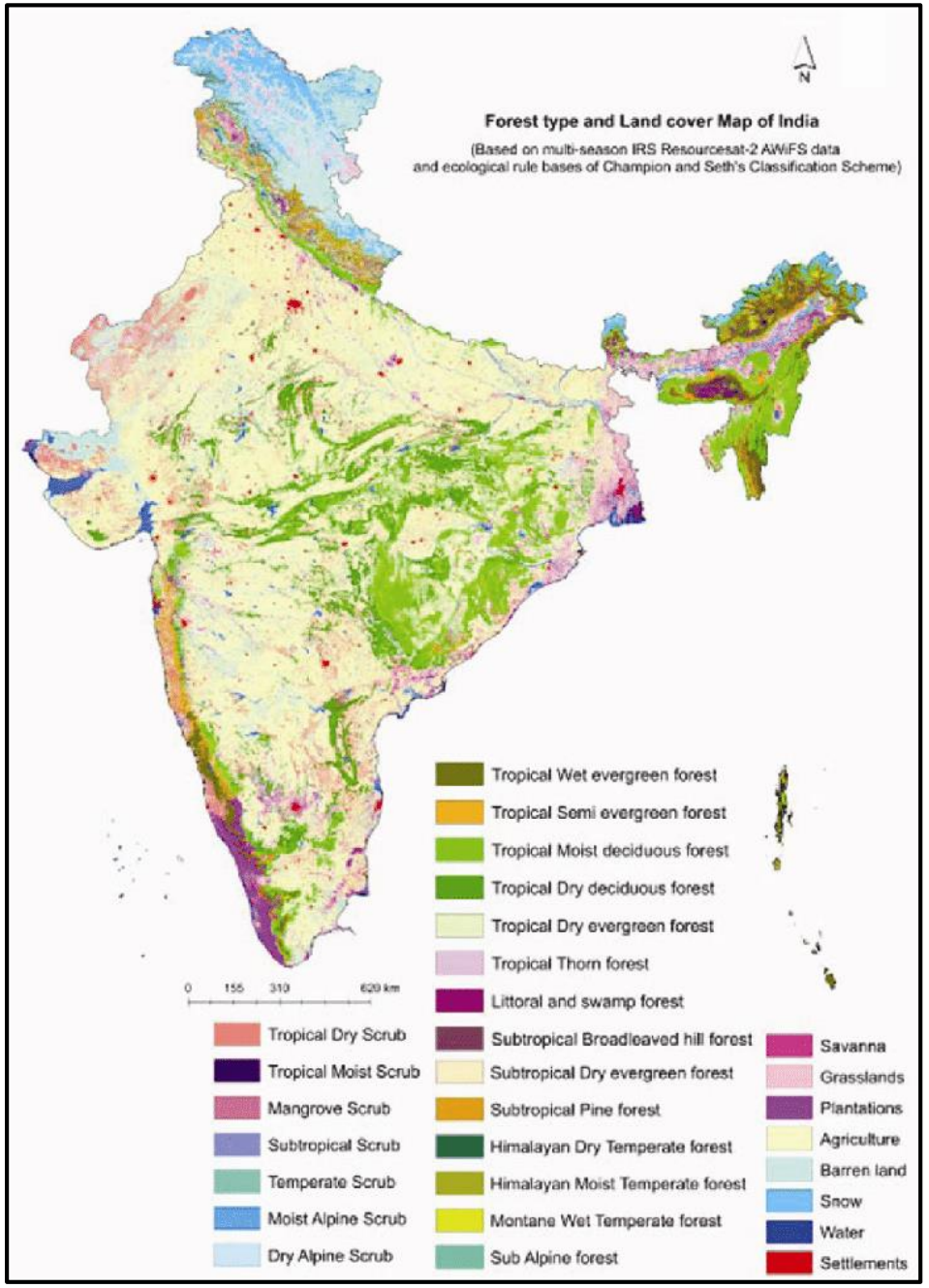
Thematic Maps

- A map that displays the spatial distribution of an attribute that relates to a single topic, theme, or subject of discourse. Usually, a thematic map displays a single attribute (a "univariate map") such as soil type, vegetation, geology, land use, or landownership.
- **Qualitative:** For attributes such as soil type or land use ("nominal" variables), shaded maps that highlight regions ("polygons") by employing different colors or patterns is generally wanted.
- **Quantitative:** For other attributes (like population density - a "metric" variable), a shaded map in which each shade corresponds to a range of population densities is generally wanted.

Thematic maps are used to display geographical concepts such as density, distribution, relative magnitudes, gradients, spatial relationships and movements. Also called geographic, special purpose, distribution, parametric, or planimetric maps.

Chorochromatic Maps

- **Chorochromatic:** *(Choro means area/space, chrome means colour)*
- This is known as chorochromatic method. This method, in general, makes use of different colours to make the distribution of various features distinct on the map; for instance, in a vegetation map forests may be show n by green colour, grasslands by yellow and desert vegetation by brown and so on.
- Preparation of this map requires detailed knowledge upon the spatial distribution of the element. Legend of the map is important part of representation.
- The main defect of this method lies in the fact that it entirely obliterates all other features.



Choroschematic Maps

- **Choroschematic:** One or more elements may be shown by conventionally selected symbols of equal size or varying sizes as the case may be.
- The general defects of the method are:

i) the map may not be easily measurable;

ii) Though represented with the same height, some of the letters may appear smaller than others; for instance, showing iron looks smaller than C showing coal.

- The chief advantage of this method is that many elements may be shown together on one map.

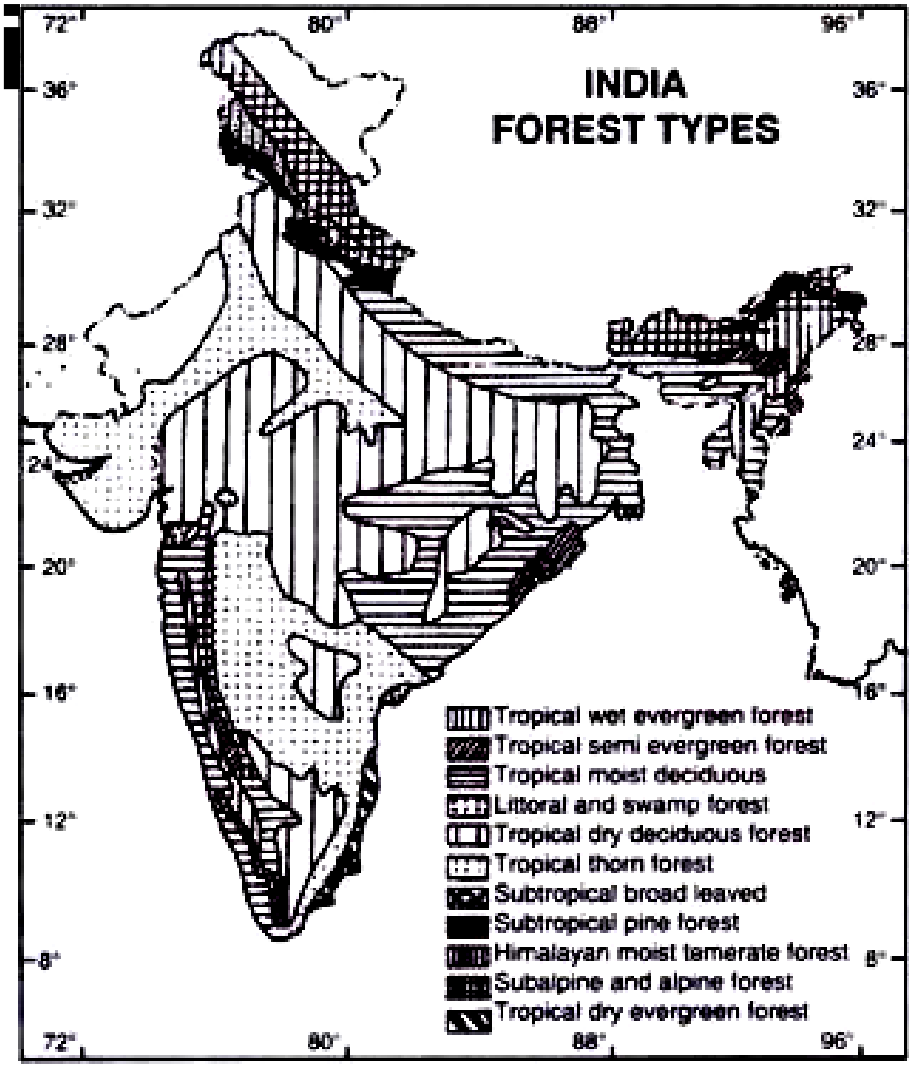


Fig. 11.2. Outline map of India showing distribution of different forest types *(After Champion and Seth, 1968).*

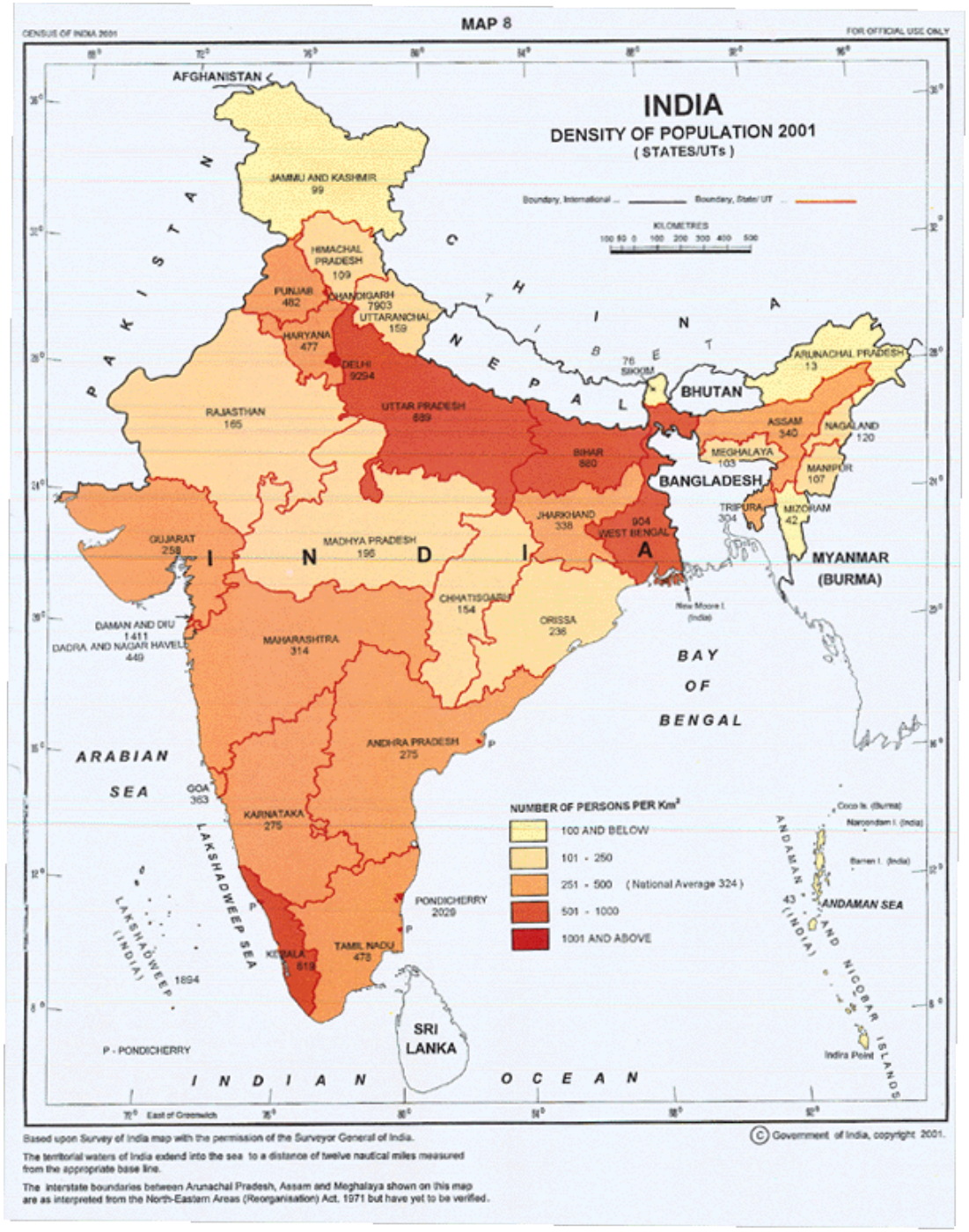
Choropleth Map

- **Choropleth:** (Choros means area/ spaces, Plethos means crowd) This is in some way similar to the colour or tint method. Here too, the distribution of one element is shown by different shades to represent varying intensity or density.
- A suitable scheme of shades of various intensities may be prepared and shown in some corner of the map. The lighter shades, just like lighter tints, show lower densities and deeper or darker shades, like deeper tints of the same colour, show higher densities.
- G.F.Jenks and C. Caspall (1971) had defined choropleth as **“ planimetric representation of volumetric statistical distribution”**

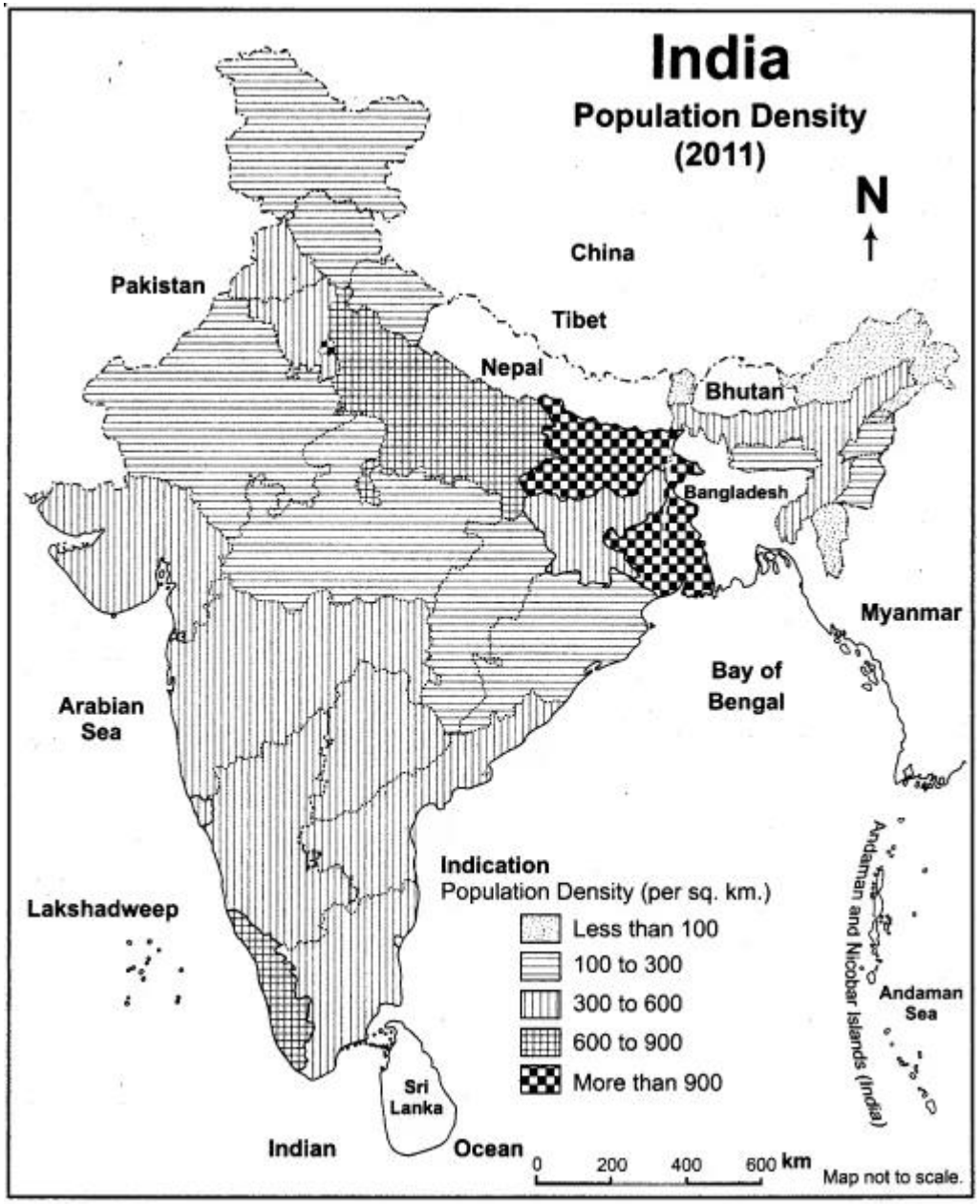
Choropleth Map

- The shading generally follows the administrative boundaries, because the very data are available in reference to them; the actual variation may not necessarily correspond to these boundaries; so the boundary of different shading may not follow the exact line of variation. Moreover, the element may not be distributed uniformly over large areas; so some very small areas showing a higher density will be obliterated by areas of moderate density.
- This defect may, how ever, by minimised by increasing the number of shades, that is, by decreasing the gradation of scale so that the interval of variation becomes small. Further, little consideration is possible regarding unused or waste lands such as deserts, marshes, rugged and rocky areas, hills, mountains, etc.; they all disappear beneath the shading. Such lands have been called *negative areas.*
- It is, therefore, important to note that the interval should be wisely selected not only with reference to maximum and minimum figures but also to intermediate figures so that wide gaps may not be left. Here it may also be noted that the limits of belts should not be regarded as isopleths.

Choropleth Map



Choropleth Map

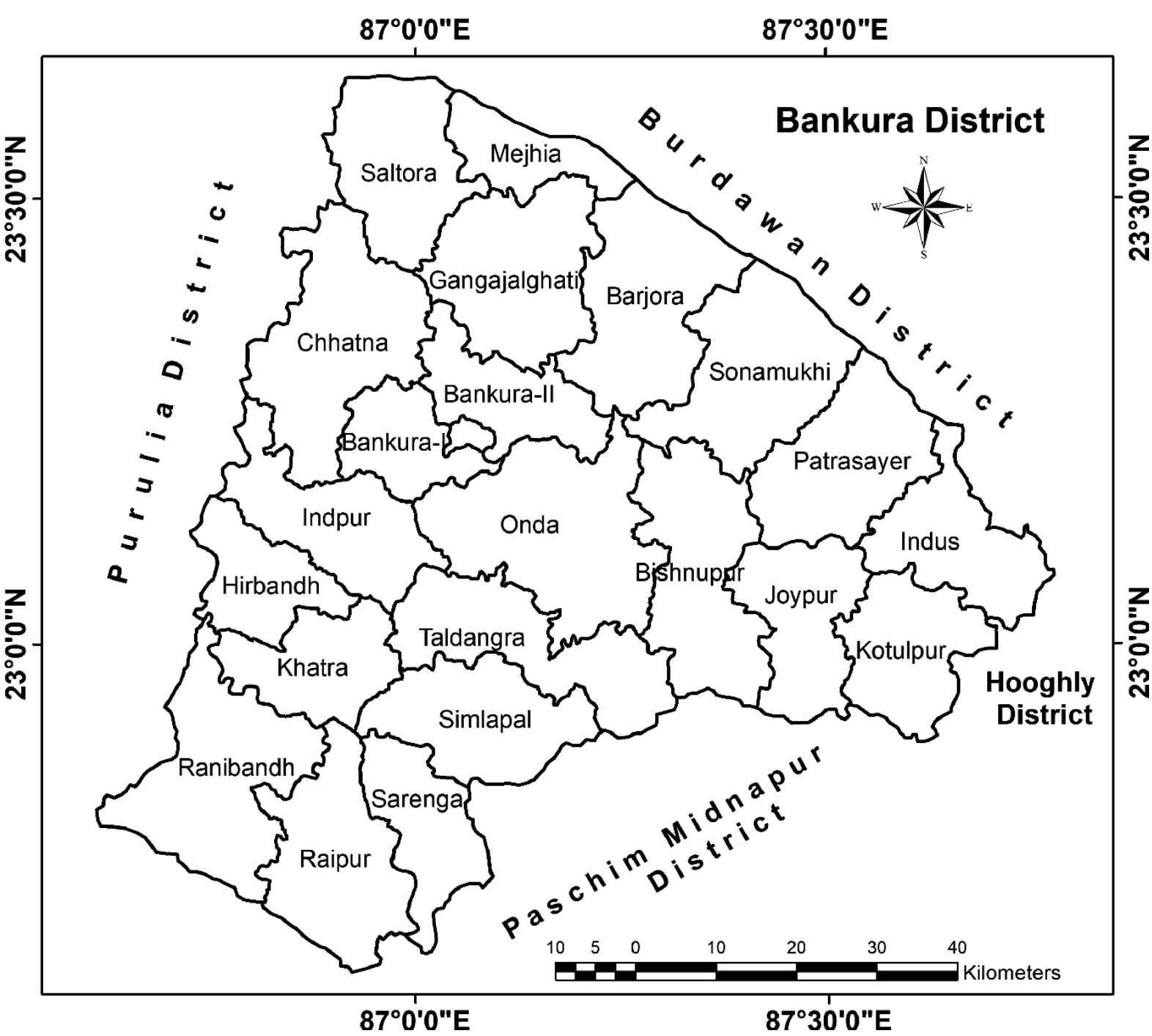


Indian Population Density Distribution (per sq. km.)

Choropleth Map

Preparation of Choropleth maps (Chorochromatic & Choroschematic):

- Administrative boundary wise collection of data
- Calculating the density value. For example: Population density: population/ area
- Selection of class interval on the basis of maximum and minimum value
- Shading administrative units according to the classes taken.

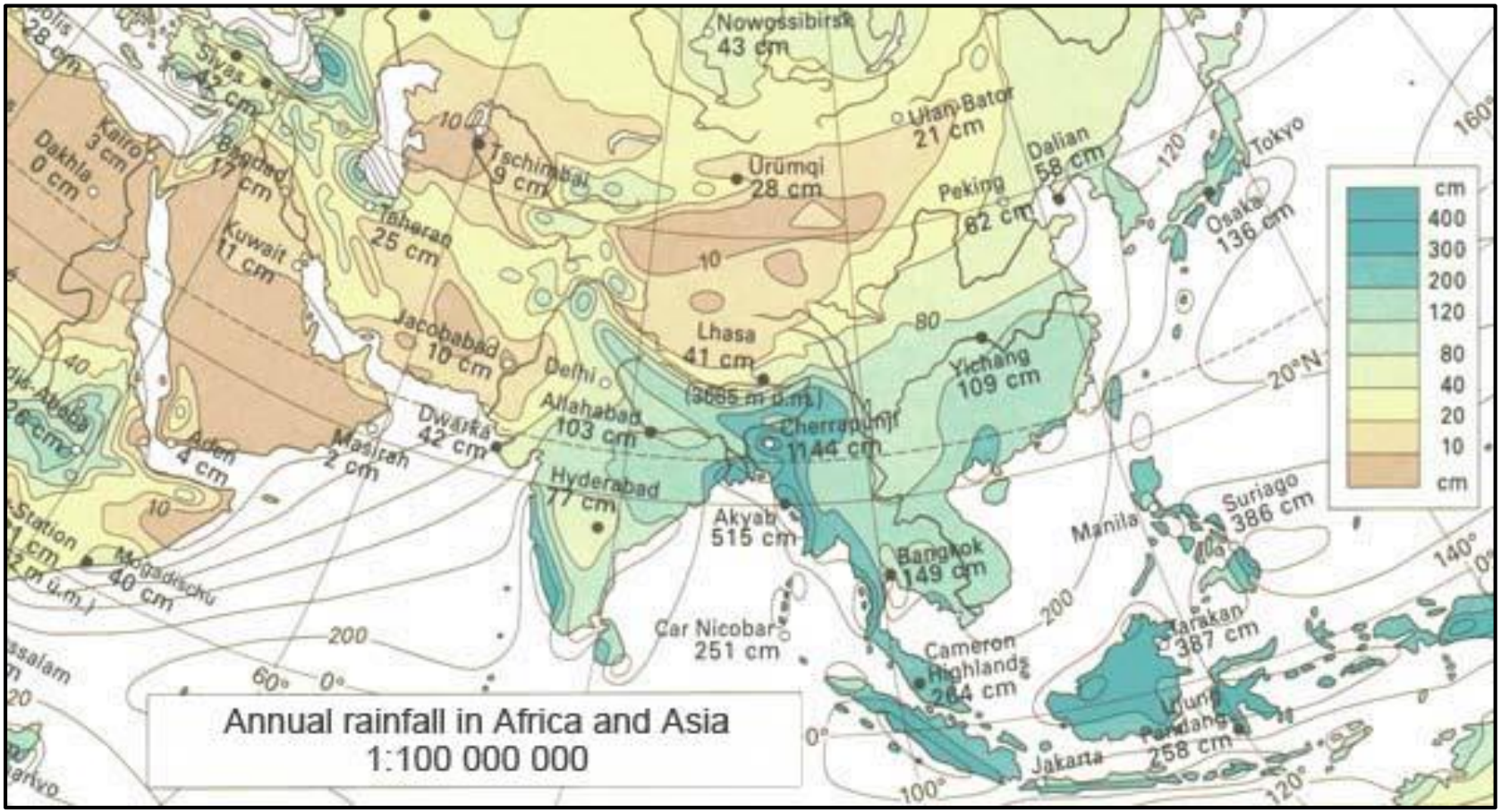

Bankura District
87°0'0"E
87°30'0"E
23°30'0"N
23°0'0"N
Saltora
Mejhia
Gangajalghati
Barjora
Chhatna
Sonamukhi
Bankura-II
Bankura-I
Patrasayer
Indpur
Onda
Indus
Hirbandh
Bishnupur
Joypur
Taldangra
Kotulpur
Khatra
Simlapal
Ranibandh
Sarenga
Raipur
Purulia District
Burdawan District
Hooghly District
Paschim Midnapur District
N
W
E
S
10 5 0 10 20 30 40
Kilometers

C.D. BLOCKS	AREA(SQ KM)	TOTAL POPULATION (2011)	DENSITY OF POPULATION (PERSON/SQ.KM)
SALTORA	314.13	110929	
MEJHIA	162.9	69294	
GANGAJALGHATI	371.2	143595	
CHHATNA	441	156147	
INDPUR	300.2	125106	
BANKURA-1	167.64	84437	
BANKURA-2	252.3	107141	
BARJORA	393.4	159060	
SONAMUKHI	368.3	123665	
PATRASAYAR	321.07	140600	
INDUS	255.1	132344	
KOTULPUR	250.5	144528	
JOYPUR	262.74	122082	
BISHNUPUR	392	115286	
ONDA	502.2	191078	
TALDANGRA	349.7	111573	
SIMLIPAL	309.2	111308	
KHATRA	232.4	89414	
HIRBANDH	215.6	62216	
RANIBANDH	428.4	93748	
RAIPUR	298.96	107951	
SARENGA	293.51	107919	

Isopleth Map

- **Isopleth:** The term isopleth— isos+ plethron; isos meaning same and plethron means crowd/measure. Thus, isopleths are lines of equal value in the form of quantity, intensity and density. Iso lines can be drawn by **interpolation and extrapolation method**.
- The spacing of lines expresses the rate of variation. If the lines appear much apart, variation is gentle and when they are closely set, variation is sharp.
- Each line is labelled according to the quantity or number it indicates.
- Their use is limited by (i) the amount of information or data, and (ii) the extent of transitional belt
- When the transitional belt is not extensive, that is, when variability is great, such as in the case of the distribution of population, the isopleths lose their significance. It is due to this reason that this method has been commonly used for isotherm, isobar and isohyet maps because these elements are uniformly distributed over wide areas.

Isopleth Map



Isopleth Map

Preparation of isopleth map:

- Find out the maximum and minimum value
- Divide the range equally
- Boundary values will be the value of isolines
- Draw the isolines through interpolation and extrapolation method
- In case of administrative base map point data will be placed at geo-centre