

DC-4A; NEP-MC-2A

GEOGRAPHIC DATA REPRESENTATION and TECHNIQUES of THEMATIC MAPPING

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What is a thematic map?

A **thematic map** is a special purpose map and different from general reference maps. It is designed to show the *distribution of human or natural features or the relation between features*. Thematic maps are called so because they show features relating to a particular theme or aspect of geography. It focuses on a specific theme or subject area such as physical phenomena like temperature variation, rainfall distribution and population density in an area and so on.

Principle

The basic principle of thematic A thematic map fundamentally consists of i. a base map (topographic or political) to provide background information and, ii. superimposing thematic content usually expressed in *conventional colours, graphs & symbols* (geometric-symbol, point, line, area, volume, letter symbols and *pictographics*).

What are the types of Thematic Map?

Thematic maps may classify in a variety of ways.

A. Based on structure:

- I. **Simple**- where one element and its components may be represented by means of diagrams on the base map.

Simple thematic maps may further be divided into three categories based on their nature of construction and representation.

- a. **Qualitative in construction as well as appearance**: Chorochromatic, Color patch etc.

GEOGRAPHIC DATA REPRESENTATION and TECHNIQUES of THEMATIC MAPPING

- b. **Quantitative in construction but qualitative in appearance:** Dot map etc.
 - c. **Quantitative in construction as well as appearance:** Most of the thematic maps fall in this category. Choropleth, Isopleth and all the Cartographic representation.
- II. **Complex-** where two or more equally important elements are displayed by means of diagrams on the base map to show combination, correlation and association or interaction.

Example- Dot and Sphere map, Choropleth with proportional symbols, map showing disease morbidity, mortality, hospital beds etc.

B. Based on subject or theme:

1. Geomorphological Map

- Isoline maps (contour map, contour layer shading)
- Chorocromatic map (landscape colour map, soil types,)
- Isopleth maps of Morphometric parameters (relative relief, absolute relief, Dissection Index, Ruggedness Number, Average slope, Drainage density, Stream frequency, Drainage texture etc.),
- Chorocromatic map of terrain type, slope direction, slope amount etc.

2. Geological

Chorochromatic/ Colour patch map of Rock characteristics, geological formation, etc.

GEOGRAPHIC DATA REPRESENTATION and TECHNIQUES of THEMATIC MAPPING

3. Climatological Map

- Isoline and isopleth maps of for atmospheric pressure, precipitation, temperature, cloudiness, insolation, etc. and their various measurements;
- Isopleth map of value, date and frequency of different climatic data.
- Synoptic chart, station model, etc.

4. Economic Map

- Chorocromatic maps of various land use,
- Choroschematic map of distribution of different minerals,
- Choroschematic map of distribution of different **crops** and **livestock**
- Large scale Chorocromatic maps of crops, vegetation types,
- Agricultural Isopleth (crop acreage ratio etc.) Data must be available in smaller areal units to be converted into points.
- Choropleth of various **agricultural statistics** and measurements like cropping intensity, Cropping pattern, crop combination, crop specialisation, productivity, labour used etc., **land use statistics** (ratio or percentage to total), **Transport** (transport density, length of transport lines, No of vehicles, timing and frequency of traffic, etc.) and **livestock statistics**.
- Small scale Choropleth of economic data *i.e.* GDP, per capita income, poverty,

GEOGRAPHIC DATA REPRESENTATION and TECHNIQUES of THEMATIC MAPPING

- Transport accessibility Isopleth based on transport cost, travel time, travel distance,
- Flow line graph for traffic, goods, passengers or information movement,
- Industrial Choropleth (Production, value addition, employment,)
- Quantitative and Qualitative Dot map of **agricultural**, **Industrial** and **livestock** distribution,
- Diagrammatic maps (circle, square, cube, pie, etc.) of economic Statistics etc.

5. Demographic Map

- Chorocromatic maps of ethnographies *i.e.* caste, class, religion, language, race, ethnicity etc.
- Large scale Chorocromatic map of social structure in urban area
- Choropleth map of various **population statistics** (population density, percentage distribution of age, sex, occupation, birth, death, natural growth rates, etc. and It's various measurements), demographic coefficients, population pressure, dependency ratio, **migration data**, and **ethnic statistics** (caste, class, religion, language etc.) etc.
- Dasymetric map (Modification of Population density Choropleth by excluding the areas of no population such as water body, waste land etc.)
- Choropleth of level of urbanisation,

GEOGRAPHIC DATA REPRESENTATION and TECHNIQUES of THEMATIC MAPPING

- Flow line map of migration,
- Dot distribution of rural population,
- Diagrammatic maps population data like, population figures, occupation, age-sex structure, caste, class, ethnic and racial structure (circle, square, pie, cubes, sphere etc.

6. Settlement

- Chorochromatic (tint or colour) map of different settlement zonation, large scale urban/rural land use zones, settlement types, house type, building materials, transport flow etc.,
- Choroschematic (symbols) maps showing different **elements of settlement** (house, roads, rails, stations, stoppages, land uses etc.), **types of settlement** (based on site, situation, shape etc.)
- Dot map showing location of different **facilities/ Service** (school, college, bank, post office, health centre, water, fire, electricity etc.)
- Dot map showing location and types of different **settlements** (size categories, centrality), functional categories of settlement (Qualitative dot)
- Large scale Choropleth map of land values, shop rent index, dispersion index, settlement groupings, index of concentration, settlement density, Settlement frequency etc.

GEOGRAPHIC DATA REPRESENTATION and TECHNIQUES of THEMATIC MAPPING

- Isopleth (Isochrones) map of travel-time from different settlement to urban centre/ CBD
- Large scale 3D surface map of height of buildings, land value, shop rent in urban areas.

7. Environmental

- Chorochromatic map (Soil erosion types)
- Chorochromatic map of hazards types with their location and distribution of various hazards
- Choropleth map (Soil erosion amount, landslide susceptibility zone, vulnerability map).
- Choroschematic map of hazards types.

C. Based on Scale of base map used:

1. Small Scale (Country level, State level)
2. Large scale (Mouza, City, Block level)

D. Based on Techniques used:

1. Diagrammatic map (Proportional symbols, flow line maps etc.)
2. Distribution maps (Dot map, Chorochromatic, Choropleth, Isopleth etc.)
3. Combination map (Complex thematic map)