Landscape analysis through maps SS2-4

What is Topographical maps?
-Topographical maps depict in minute detail all the natural and man made features on the earth's surface.
-These maps contain the important surface features such as the undulations of the terrain, rivers, other water bodies, forests, agricultural land, barren land, villages, towns, and transport and telecommunication systems.
-These maps show both natural and man-made features in details.
-Topographic maps are large-scale maps.
-Large-scale maps are maps depicting detailed information of relatively small areas.

Who is responsible for making the Topographic map in India? Why?
-Survey of India
-Certain restrictions have been imposed on the use of topographic maps of strategic regions owing to the national security concerns.

Uses of topographical maps?
-Analysis of the physical and the cultural features of the earth surface.
-For military operations and the preparation of military maps.
-Identification and studying of the natural and the cultural resources of a region as part of economic planning.
-For urban planning.
-To understand land use.
-To understand the topography.
-For resource conservation and allocation.
-For computerized form of maps - GIS

What are the essential elements for a topographic maps reading?
-Knowledge of the numbering scheme,
-Locational aspects,
-The conventional signs and symbols,
-The elevation and slope of the terrain,
-The methods of their representation are very essential for comprehending topographic maps.

Layout and numbering of toposheets
-Toposheets for the whole world have been prepared in several sheets of same size and shape.
-The whole world is picturised in 2222 sheets as follows.
-There are 1800 sheets for regions between 60° North and South latitudes.
-420 sheets for regions between 60° and 88° latitudes in both hemispheres and 2 sheets for both the poles.
-The numbering of India's toposheets are done on the basis of the India and Adjoining Countries Map Series.
-As each of the maps in this series is in 1:1000000 scale, these are known as million sheets.

Million sheets
-Each of the maps in troposheets is in 1:1000000 scale.
-These are known as million sheets.
-The million sheets covering 4° latitudinal and 4° longitudinal extent are given numbers from 1 to 105.
-These numbers are known as index numbers(55).

Degree sheets
-Each million sheet is divided into 16 parts in the order A, B, C, D, ... up to P.
-For example, the million sheet numbered 55 is divided into 16 parts as 55A, 55B, 55C, …..55P.
-Each of these sheets with 1° latitudinal and longitudinal extent is prepared in 1:250000 scale.
-These sheets are prepared in 1:250000 scale.

Minutes sheets
-Degree sheets are divided into 16 parts and each has 15 minutes longitude and longitude.
-These are Minutes sheets.
-Minutes sheets are numbered as 1, 2, 3, ... 16 (55D/1, 55D/2,.....55D/16).
-These sheets are prepared in 1 : 50000 scale.

Conventional signs and symbols in Troposphere
-various features on the Earth's surface are represented in topographic maps using different colours and symbols.
-The colours and symbols used in the toposheets are internationally accepted.
-So the maps prepared in one country can be easily understood and analysed by the people of another.

conventional colours used to represent different geographic features

Feature	Colour
-Latitudes and longitudes -Non perennial water bodies -Railway lines, telephone and telegraph lines -Boundary line	Black
-Oceans, rivers, wells, tube wells..... (perennial water bodies)	Blue
-Forests -Grasslands -Trees and shrubs -Orchards	Green
-Cultivable land	Yellow
-Barren land	White
-Settlements, roads, paths	Red
-Grid lines (eastings, northings and their numbers)	Red
-Contour lines and their values	Brown
-Sand dunes and sand hills	Brown

Grid reference
-In Toposheets include red lines in the north-south and east-west directions.
-The north-south lines are called eastings.
-And east-west lines are called northings.
-The grids formed jointly by the eastings and the northings are called reference grids.
-Grid reference is the determination of the position of the terrestrial objects using this grid.

-In 1:50000 toposheets each grid with 2 cm width & 2 cm breadth covers an area with 1 kilometre length & 1 kilometre breadth on the earth's surface.
-Eastings and Northings lines are used to solve the difficulty of accurately determining the location of small geographical features on toposheets.

Eastings
-These are north-south lines.
-Their value increases towards the East.
-The value of the easting immediately left to the geographic features is considered for identifying a location.
Northings
-These are lines drawn in the east-west direction.
-Their value increases towards the north.
-The value of the northings immediately to the south of the feature in the map is considered for identifying a location.

4 - figure grid reference
-In the 4 - figure grid reference method, the value of the easting to the immediate left of the feature is to be written first.
-Then the value of the northing just south of the feature is to be written.
-This positioning method is known as four-figure grid reference.

6-figure grid reference
-Relatively smaller geographic features are generally located through the 6-figure grid reference method.
-While determining the location of the geographical features the value of the easting to the left of it is to be written first.
-Then divide the area up to the next easting into 10 equal Parts.
-Then find the exact division on which the geographical feature is located and write it next to the value of easting already found.
-Now write the value of the northing just below the feature along with the easting's value.
-Divide the area up to the next northing as being divided into 10 equal parts.
-Then find the exact division on which the feature is located and write it with the values already written.
-What is obtained is the exact 6 figure grid reference of the geographical feature.

Contour Lines
-Contours are imaginary lines drawn on maps connecting those places having equal elevation from the sea level.
-The respective altitude will be marked with each contour line.
-These are called contour values.
-The closely spaced contours represent steep slopes and the widely spaced contours represent gentle slopes.

What are the three things can be assessed from the contour lines in topographic maps?
-Altitude of the place
-Nature of the slope
-Shape of the land form

Intervisibility
- If any two places are mutually visible, then we can establish that these places are intervisible.

- Intervisibility assessment is being applied for erecting electric posts, mobile towers and wireless transmission towers.
- To find out the intervisibility between two place we must draw the shape of geographical feature by using contour lines.

Toposheet interpretation
- Marginal Information/Primary information,
- Physical/Natural features,
- Cultural/Man-made features.

These are the different stages of study and interpretation of toposheet.

Marginal Information or Primary information.
-The general information given outside the margins in topographic maps is known as marginal/primary information.

Marginal Information or Primary information & indicators.
- Topo sheet number - (a)
- Name of the place represented - (b)
- Latitudinal location - (c) 1 , (c) 2
- Longitudinal location - (d) 1 , (d) 2
- Easting - (e) 1 , (e) 2
- Northing - (f) 1 , (f) 2
- Scale of the map – (g)
- Contour interval - (h)
- Year of survey - (i)
- Year of publication - (j)
- Agency in charge of survey - (k)

Physical features of toposheets
Water bodies such as (-rivers, -streams, -springs, etc) and
-different landforms are the physical features in topographic maps.

Cultural features
-Cultural features are man-made objects on troposheet.
-Settlements,
-Well,
-Tube well,
-different types of roads,
-boundaries,
-places of worship,
-agricultural lands,
-post office,
-police station,
-bridges,
-wells and tube wells are a few cultural features shown in toposheets.

BIJU KK
GHSS TUVVUR
MALAPPURAM