

# **MIT WORLD PEACE UNIVERSITY**

**Basic Civil Engineering  
First Year B. Tech, Trimester 3  
Academic Year 2021-22**

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## **STUDY OF FOUR TYPES OF MAPS AND UNDERSTANDING THEIR USES.**

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### **EXPERIMENT NO. 1**

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## EXPERIMENT - 1



### Theory :

A map is a geographical representation of selected or man made features of the whole or a part of the Earth's surface on a flat sheet of paper, on a definite scale and in their correct relative geographical positions and elevations, symbols, color differentiations, and contours.

These help show the physical features — mountains, valleys, plains, in their true relationship to the land and to manmade features.



### Map Scale

Maps are drawn to scale. A ~~scale~~ scale is a ratio of the distance between any 2 points on a map to the actual distance between the corresponding points on the ground.

It can be expressed in any of the following 3 different ways.



1 By Statement  $[1 \text{ cm} = 1 \text{ km}]$

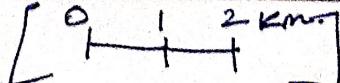


2 By a Numerical Fraction  $[1 : 1000000]$



3 Graphical Section or Linear Map.

[Scale is drawn on map]



(\*) Representative Factor : [RF]

$$= \frac{\text{Distance on Map}}{\text{Distance on Ground}}$$

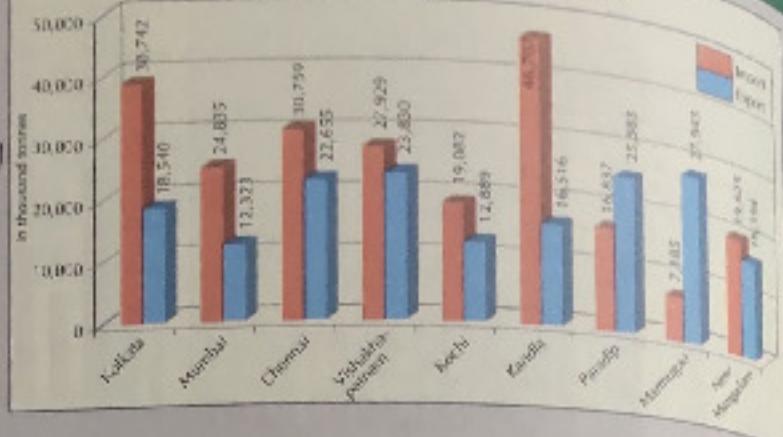
The numerator (1) indicates the distance on the map, while the denominator indicates actual distance on ground; measured in the same units.

e.g.  $1/1000000$  or

1 : 1000000

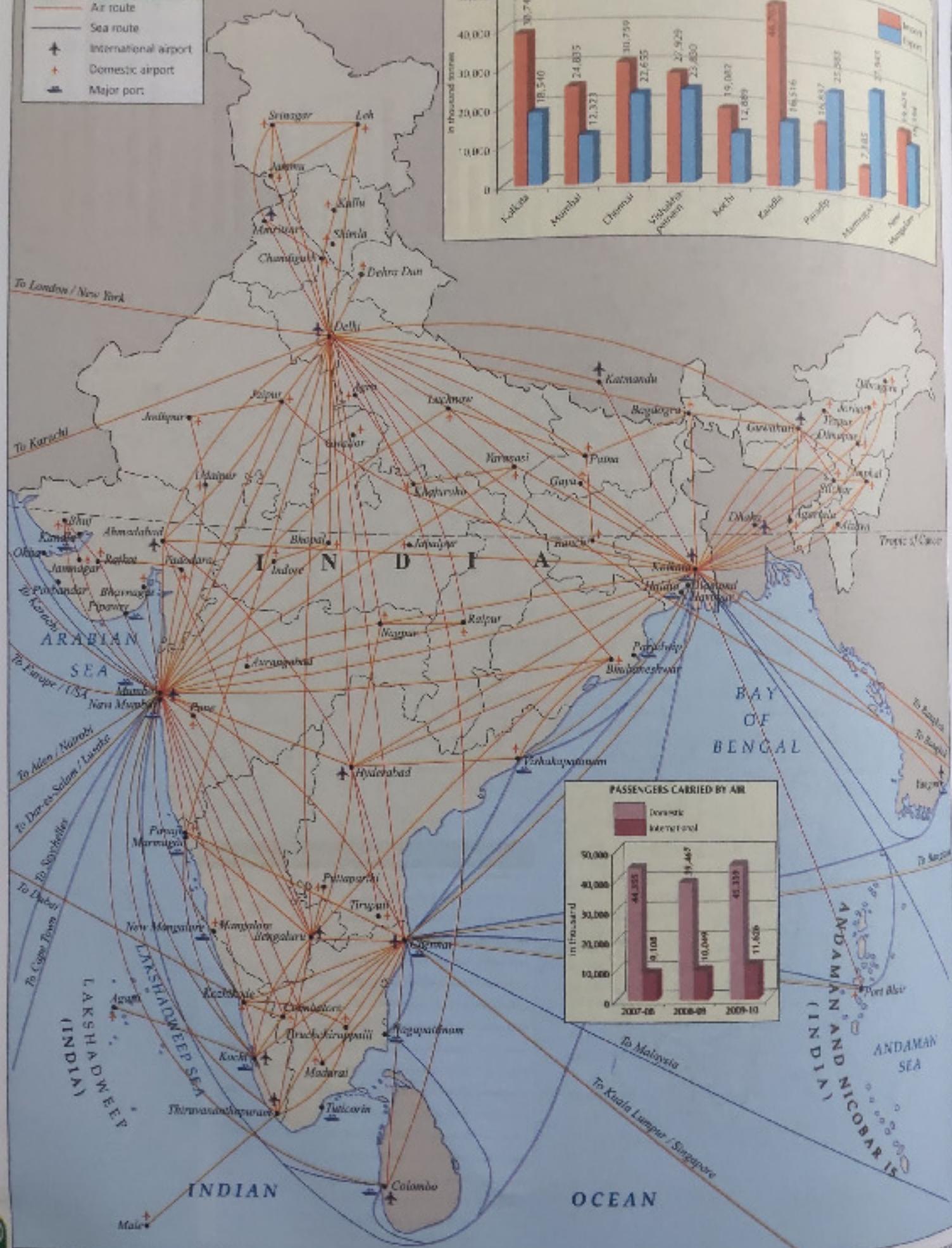
Legend for cargo handled at major seaports:

- India: Red bar
- Other: Blue bar



## MAJOR ROUTES AND PORTS

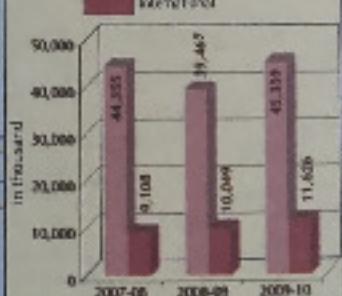
- Air route
- Sea route
- ▲ International airport
- Domestic airport
- Major port



PASSENGERS CARRIED BY AIR

Legend for passengers carried by air:

- Domestic: Red bar
- International: Blue bar



## REFERENCED MAPS

(1) MAP - 1 : Air and Sea Routes of India

(1) Title : Air and Sea routes map of India

(2) Scale : RF = 1 : 15,000,000  $\rightarrow$

(i.e.) 1 is on map = 15,000,000 inches on ground.

(3) Purpose : The air routes and sea routes help the pilot and the captain in navigating the air and sea respectively.

(4) Salient Features:

- Air routes are visible
- Sea routes are visible
- Graph of passengers carried by air
- Graph of cargo handled at major sea ports.

(5) Distance between 2 places : Distance between Varanasi and Khajuraho,

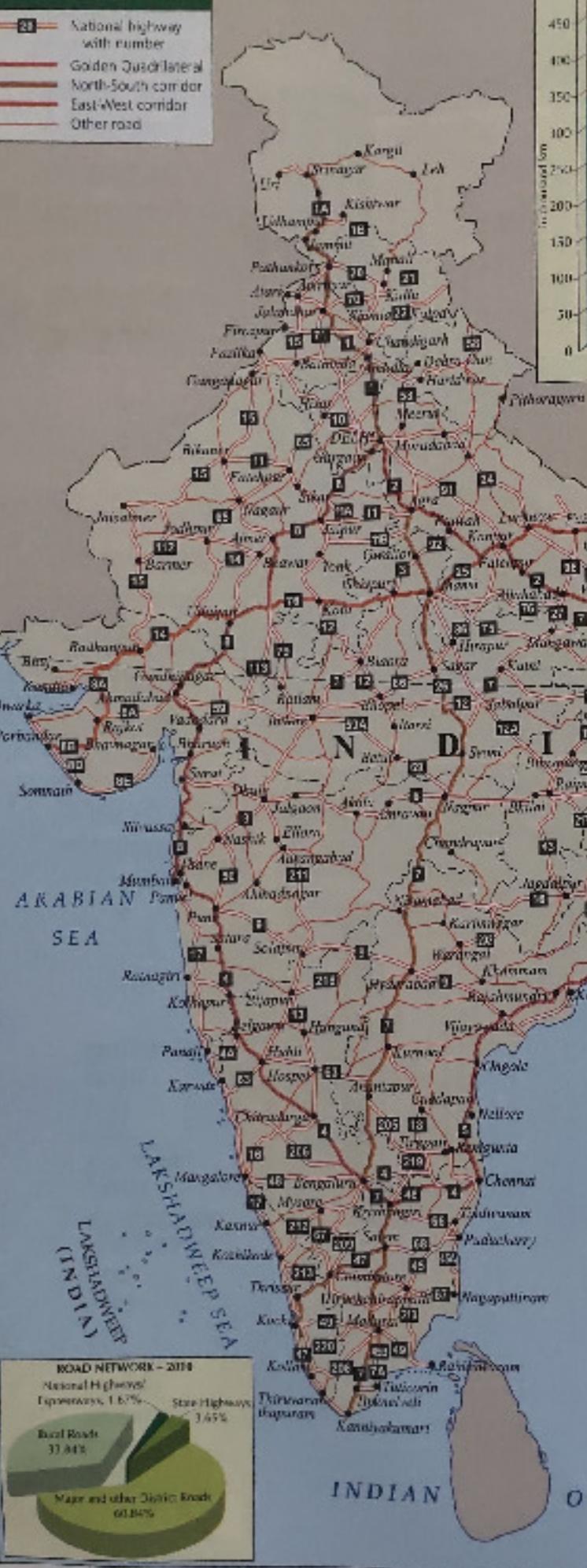
$$D_m = 1.03 \text{ inches}$$

$$D_g = 15,433,040 \text{ inches on ground}$$
$$= 392.05 \text{ km}$$

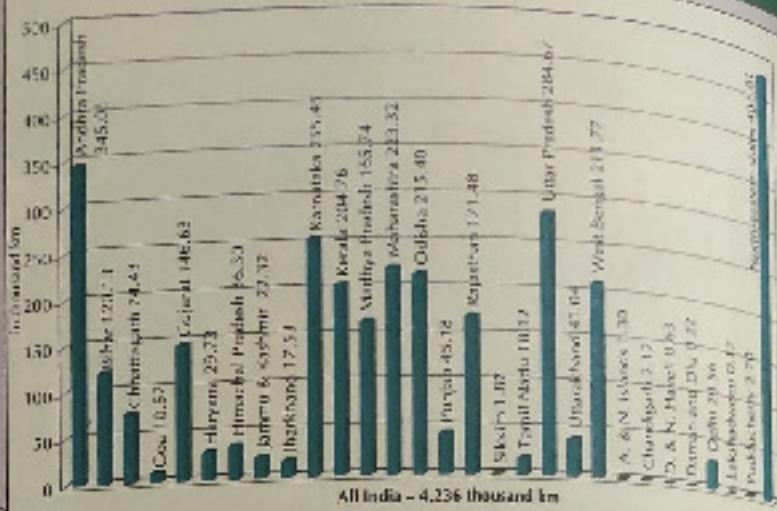
(6) Symbols :   
— : Air Route  
— : Sea Route  
+ : Domestic Airport  
† : International Airport  
■ : Major Port.

## ROADS

- National highway with number
- Golden Quadrilateral
- North-South corridor
- East-West corridor
- Other road



ROAD LENGTH - 2010

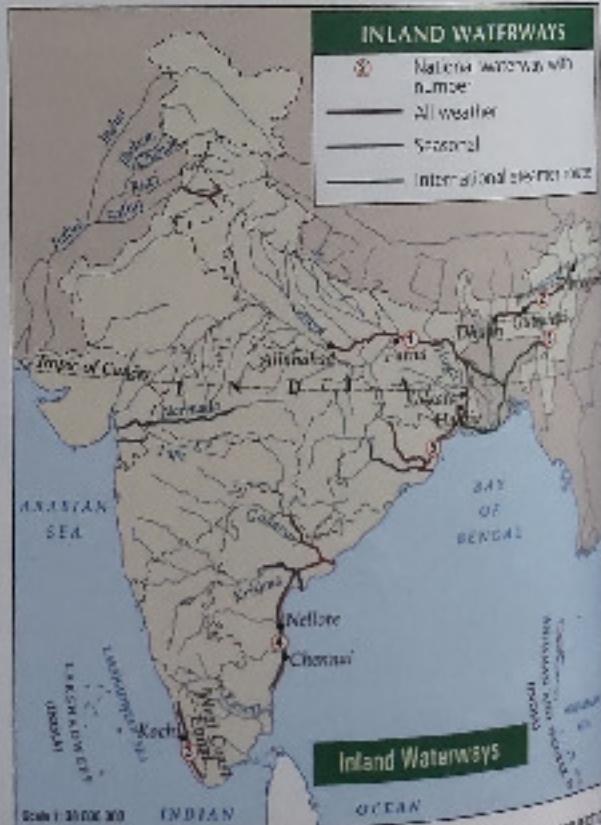


Total length of Golden Quadrilateral: 5,546 km

Total length of N-S and E-W corridors: 7,142 km



## INLAND WATERWAYS



(7) Special features : Graphs  
Air and sea routes

(8) Uses :

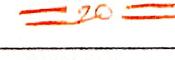
- Used to identify the number of passengers carried by air.
- Used to know the numbers of cargo handled at major sea ports.
- It helps pilot to navigate through air and sea.

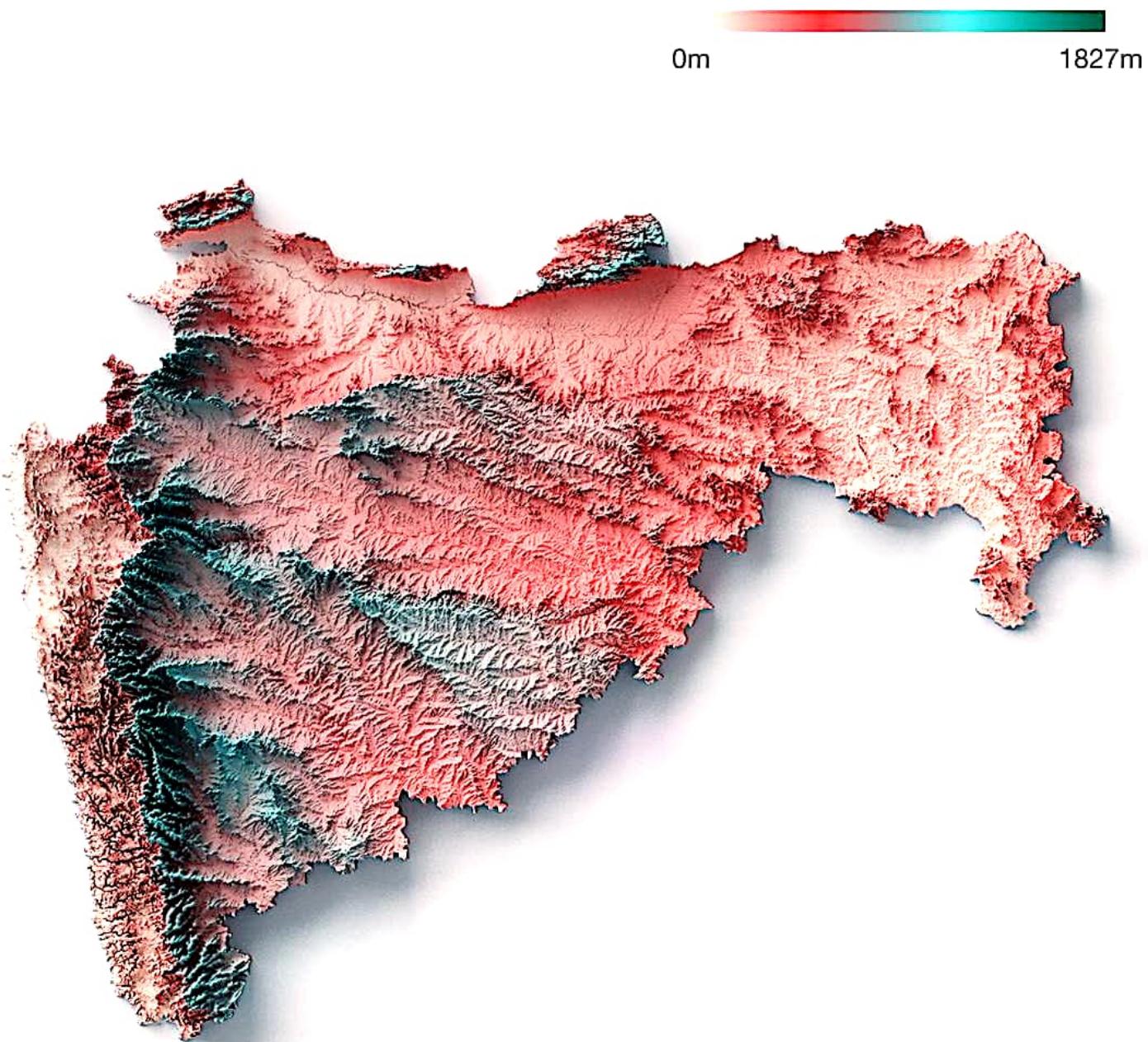
(2) MAP - 2 : ROADS AND INLAND WATERWAYS

(1) Title : Roads and inland waterways map of India

(2) Scale : RF : 1 : 15,000,000  
i.e. 1 inch on map is equal to 15,000,000 inch in real world.

(3) Purpose : To visualize the roads (highways) in India

(4) Symbols :  : National highway with no.  
 : Golden Quadrilateral  
 : East-West corridor  
 : Other roads.



# Maharashtra

Topographic Map

@ pixa.naut

### (5) Salient Features:

- (1) Roads all over India are visualized.
- (2) Inland Waterways are represented
- (3) Geopls are also present.

### (6) Special Features:

- (1) Road Navigation
- (2) Waterways Navigation.

### (7) Uses:

- Used to know the road length of different states.
- Used to know percentage of Rural roads, express highways, state highways, other district roads.
- Inland Waterways are used for water navigation.
- Road maps are used to navigate road for transferring goods.

### (8) MAP 3: TOPOGRAPHICAL MAP OF MAHARASHTRA

1. Scale : RF = 1 : 24000

1 cm on map is equal to 24000 inches in real world.

(2) Purpose : Topographical maps are used to show important features such as relief, vegetation etc.

(3) Salient Features : Elevation is shown on map.

(4) Special Features : Detailed elevation regions are shown on map in 3D.

(5) Uses of topographical map.

- hunting
- Fishing
- hiking
- Resource management
- Urban planning
- Surveying.

(4) MAP - 4 - GDP Map

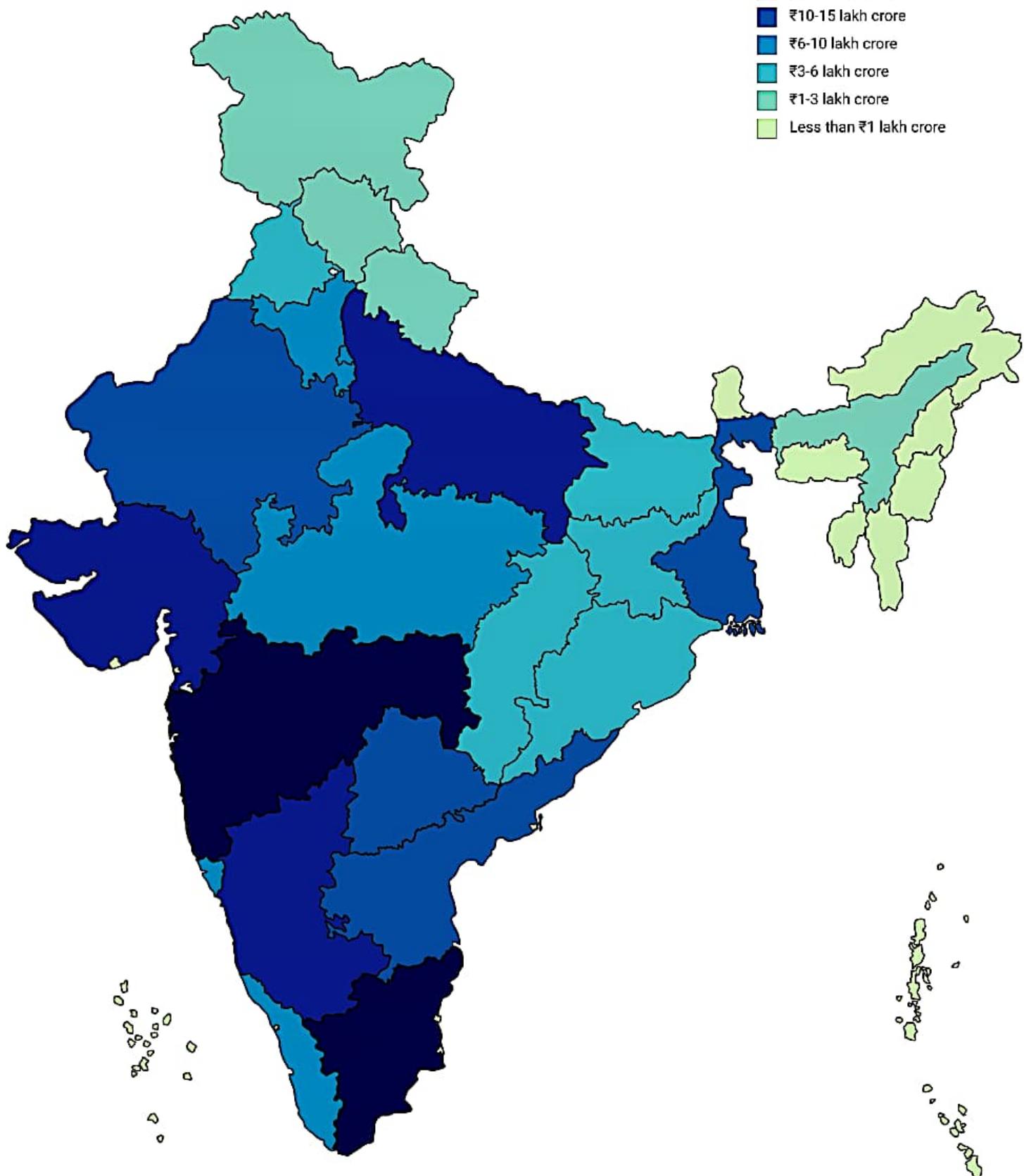
(1) Title : Gross Domestic Map of India

(2) Scale : RF  
1 : 415,000,000

is 1 inch on map is 1500000 meters on ground.

(3) Purpose :- This map represents GDP of each state in India of year 2020.

- Greater than ₹20 lakh crore
- ₹15-20 lakh crore
- ₹10-15 lakh crore
- ₹6-10 lakh crore
- ₹3-6 lakh crore
- ₹1-3 lakh crore
- Less than ₹1 lakh crore



(4) GDP is the total monetary value of all goods and services produced within a country's borders in specific time period.

(5) Salient Features : The columns represent the GDP growth of each state.

Dark - highest

Light - lowest

(\*) Uses of GDP Map :

- Used to indicate size of an economy.
- It allows policy makers, economists and businesses to analyse the impact of variables such as monetary tax and spending plans.
- It is used to identify how economy is performing.
- Used to identify when inflation may hit.
- It tells us if economy is expanding by producing more goods and services or contract due to less output.