**Addis Ababa University**

**College of Natural and Computational Science**

**Freshman Course**

# Course Title:
# Geography of Ethiopia and the Horn




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# CHAPTER ONE: INTRODUCTION

## Objectives

- **At the end of this chapter, the learners will be able to:**

  - Comprehend the meaning and scope of Geography.
  - Explain the themes of Geography.
  - Clarify the implications of location, shape and size of Ethiopia and the Horn on the physical environment, socioeconomic and political aspects.
  - Acquire basic skills of map reading.

# Geography: Definition, Scope and Themes

## Meaning of Geography:

- **Geography** is the **scientific study of the Earth** that **describes** and **analyses spatial and temporal variations** of **physical**, **biological** and **human phenomena**, and their **interrelationships** and **dynamism** over the surface of the Earth.

# The Scope, Approaches and Themes of Geography

## ➢ Scope:

- The **scope of Geography** is **the surface of the Earth**, which is the very thin zone that is the **interface (boundary) of the atmosphere, lithosphere, hydrosphere and biosphere**, which provides the habitable zone in which humans are able to live.

## ➢ Approach:

- **Geography** can be **approached** by considering two continuums:
  - **a human-physical continuum and**
  - **a topical-regional continuum**

# Cont’d…

- The **topical (systematic) fields of Geography** view **particular categories** of **physical or human phenomena** as distributed over the Earth.
- **Regional geography** is concerned with the **associations within regions** of all or some of the elements and their **interrelationships.**

# Cont'd…

## ➢ Themes:

- **Geography** has **five basic themes/idea** namely:
  - **location,**
  - **place,**
  - **human-environment interaction,**
  - **movement, and**
  - **region.**

# Location

- **Location** Is defined as a particular **place or position**

- **Location can be of two types:**

  **i. Absolute location and**

  **ii. Relative location.**

**i. Absolute/Astronomical Location :** the location of a place is defined by its **latitude** and **longitude** or its **exact address**.

**ii. Relative/Vicinal :** the **location** of a place with reference to the other countries, landmasses (such as mountains, roads) or water bodies (such as oceans, seas, rivers, lakes), etc

# Place

- **Place** refers to the **physical** and **human aspects** of a location.
- **Place** is associated with:
  - **Toponym** (the **name** of a place),
  - **Site** (the **description** of the **features** of the place), and
  - **Situation** (the **environmental conditions** of the place).
- **Each place** in the world has its **unique characteristics** expressed in terms of:
  - **landforms**,
  - **hydrology**,
  - **biogeography**,
  - **pedology**,
  - **characteristics** and **size of its human population**, and
  - the **distinct human cultures**.
- The concept of **“place”** support geographers **to compare and contrast two places on Earth.**

## Human-Environment Interaction

- **Humans** have always been on **ceaseless interaction with their natural environment.**
- **Human-environment interaction** involves **three distinct aspects/features/characteristics:**
  1. **Dependency,**
  2. **Adaptation, and**
  3. **Modification.**

1. **Dependency** refers to the ways in which humans are **dependent on nature for a living**.
2. **Adaptation** relates to **how humans modify themselves**, **their lifestyles** and **their behavior** to **live in a new environment with new challenges.**
3. **Modification** allowed humans to **“conquer”/overcome** the world for their **comfortable living**.

- **Movement** requires to the **translocation of human beings, their goods**, and **their ideas** from one place to another.

**That is,**

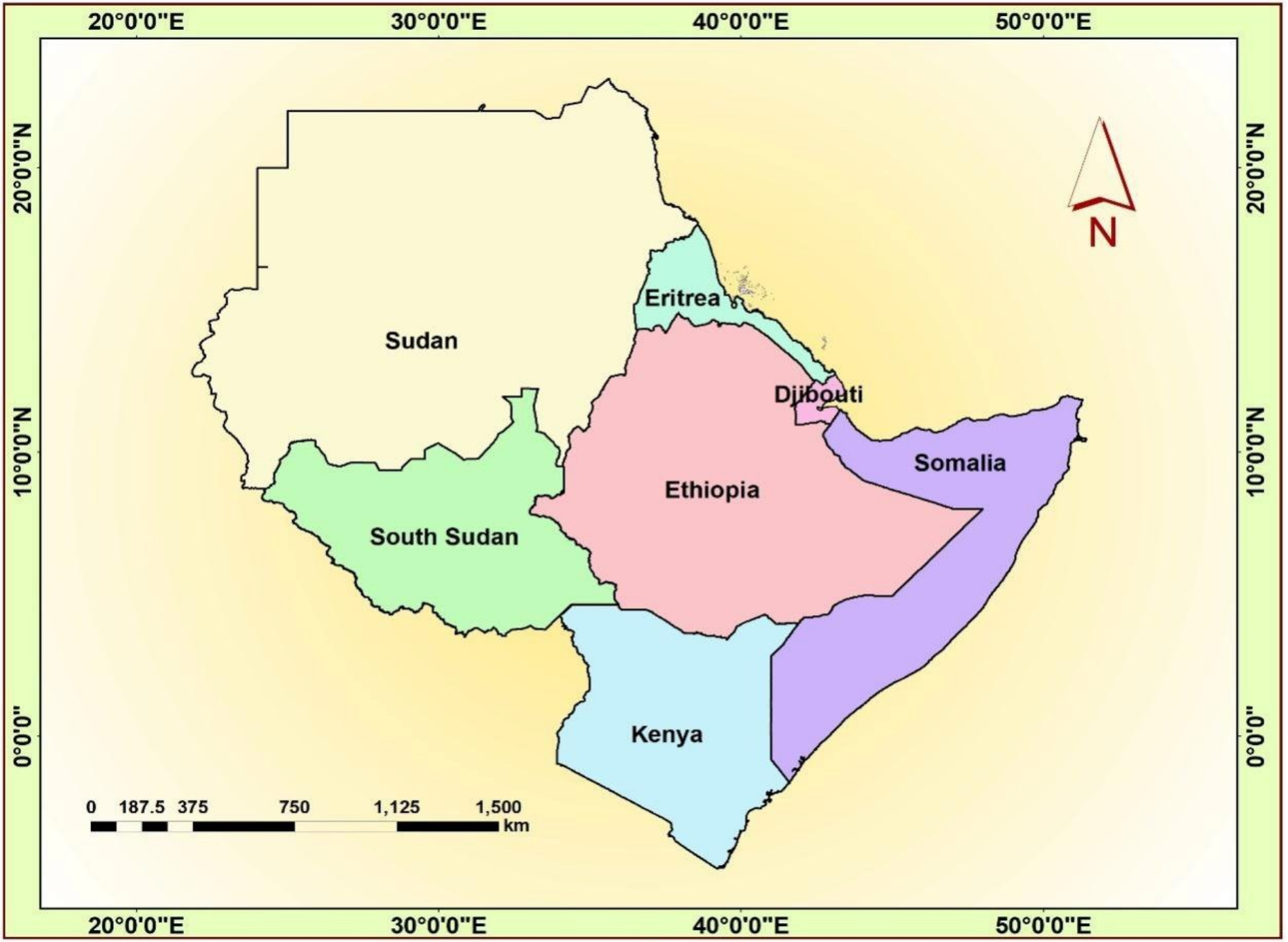
- Translocation of human beings **(physical movement of people),**
- Transport of their goods, and
- Flow of their ideas that allows the **unification** of the **human civilization** and **promotes** its **growth** and **prosperity**

# Region

- A **region** is a **geographic area** having **distinctive/unique characteristics** that distinguishes itself from adjacent unit(s) of space.
- It could be:

1. **Formal region:** it is characterized by **homogeneity** in terms of a **certain phenomenon** (**soil**, **temperature**, **rainfall**, or **other cultural elements** like **language**, **religion**, and **economy**).
2. **Functional or nodal region:** it is **characterized by functional interrelationships in a spatial system defined by the linkages binding particular phenomena.**

# Location, Shape and Size of Ethiopia and the Horn


20°0'0"E
30°0'0"E
40°0'0"E
50°0'0"E
20°0'0"N
10°0'0"N
0°0'0"
N
Sudan
Eritrea
Djibouti
Somalia
Ethiopia
South Sudan
Kenya
0 187.5 375 750 1,125 1,500
km

# The Horn of Africa

- The **Horn of Africa**, a **region of eastern Africa**, is a narrow tip that projects into the northern Indian Ocean, separating it from the **Gulf of Aden**.
- It is the **easternmost extension** of **African land** defined as the **region** that is **home** to the countries of **Djibouti**, **Eritrea**, **Ethiopia**, **Somalia**, **Kenya, Sudan and South Sudan.**
- These countries **share common features** since they have **cultural link** through **long time history** and also have **great diversity** due to their **unique characteristics.**
- In terms of **size**, **Ethiopia** is the **largest** of all the Horn of African countries, while **Djibouti** is **the smallest**.

# Cont'd…

- The **Horn** contains such **diverse areas** as the **highlands of the Ethiopian Plateau**, **the Ogaden desert**, and **the Eritrean and Somali coasts**. Its **coasts** are **washed** by the **Red Sea**, the **Gulf of Aden**, and the **Indian Ocean**, and it has **long** been in **contact** with the **Arabian Peninsula** and **Southwestern Asia.**

# Location of Ethiopia

- The **location of a country** or **a place** on **a map** or **a globe** is expressed in **two different ways**. These are:

**1. Astronomical location** and

**2. Relative location.**

**1. Astronomical location/absolute** or **mathematical location** states location of places using the **lines of latitudes** and **longitudes.**

- Astronomically, **Ethiopia** is a **landlocked country** located between **3$^{o}$N** and **15$^{o}$N latitudes** and **33$^{o}$E to 48$^{o}$E longitudes.**

**- 3$^{o}$N** (Moyale)

**- 15$^{o}$N** (Bademe **-** the northernmost tip of Tigray) and

**- 33$^{o}$E** (Akobo)

**- 48$^{o}$E** (the tip of Ogaden in the east)

- The **east west** distance (15$^{0}$) which is **longer** than the **north-south** distance (12$^{0}$).

# Cont'd…

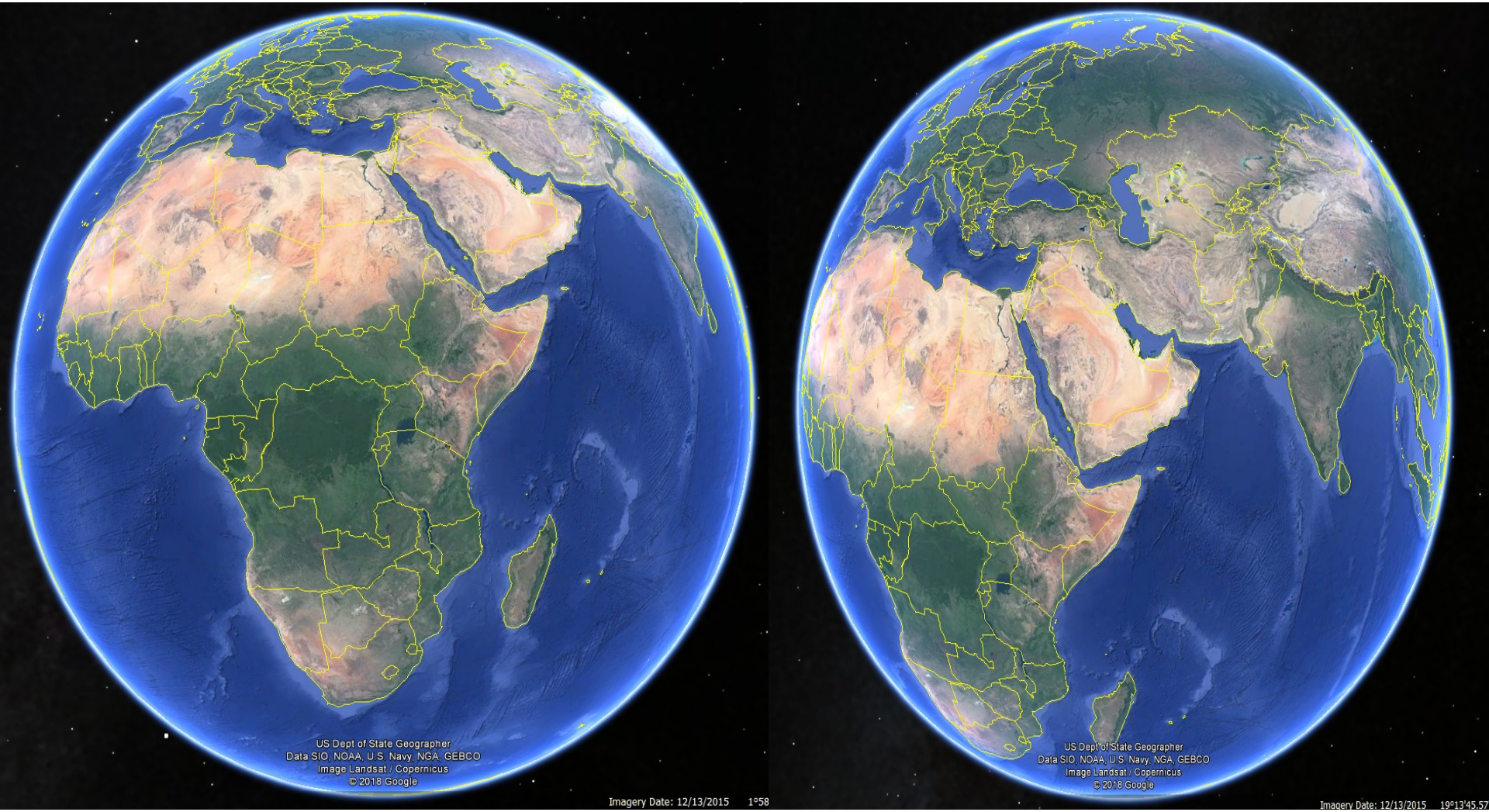
- The **latitudinal** and **longitudinal extensions** are important in two ways.

- First, as a result of its **latitudinal extension** the country experiences **tropical climate** and

- Secondly due to its **longitudinal extension** there is a **difference of one hour between the most easterly and most westerly points of the country**. **It is only for convenience that the 3 hours-time zone is used in all parts of the country.**

2. **Relative location** **expresses** the location of countries or places with reference to the location of other countries (vicinal), landmasses or water bodies.

# Globe


US Dept of State Geographer
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
© 2018 Google
Imagery Date: 12/13/2015 1°58
US Dept of State Geographer
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
© 2018 Google
Imagery Date: 12/13/2015 19°13'45.57

# Relative Location of Ethiopia



# Cont'd…

## The Relative Location of Ethiopia:

| Vicinal location | In relation to water bodies & land masses |
|---|---|
| ➲ Sudan to the west and northwest<br>➲ South Sudan to southwest<br>➲ Djibouti to the east<br>➲ Somalia to the east and southeast<br>➲ Eritrea to the north and northeast | ➲ In the Horn of Africa<br>➲ Southwest of the Arabian Peninsula<br>➲ South of Europe<br>➲ Northwest of the Indian Ocean<br>➲ In the Nile Basin |

➲ Kenya to the south

# Implications of the Location

- The **implications** of the **location** of **Ethiopia** are described as follows:

**A. Climate**: the country has **a tropical climate,** though modified by its **altitude**.

-The location of Ethiopia relative to the **Indian Ocean**, the **Atlantic Ocean** and the **African** and **Asian landmass** has also various bearings on the climate of Ethiopia.

**B. Socio-cultural:** Ethiopia **is one of the earliest recipients** of the **major world religions** namely **Christianity, Islam and Judaism** due to its **proximity** to the **Middle East**, which was the **origin of these religions**. The **linguistic** and **other cultural relationships**, which Ethiopia shares with its neighbors, reflect the influence of location.

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**C. Political:** The political history of Ethiopia has been considerably influenced by:

**- Geopolitical considerations of superpowers.**

**- Adjacency to the Red Sea (a major global trade route).**

**- The Middle East geopolitical paradigms**.

- As a result, **Ethiopia** has been **exposed for external invasions** in a number of times; though the country **resisted foreign intervention** and **remains free of external domination.**

## Size of Ethiopia

- **Ethiopia** with a **total area** of approximately **1,106,000 square kilometers** is the **8th largest country** in **Africa** and **25th** in the **World**.
- It extends about **1,639 kilometers East-West**, and **1,577 kilometers North-South.**
- About **0.7%** of the country is covered by **water bodies**.
- The **size of Ethiopia** also **affects** both the **natural** and **human environment** of the country.

# Advantages and Disadvantages of Ethiopia's Large Size

| Advantages | Disadvantages |
|---|---|
| Possess diverse agro ecological zones | Demands greater capital to construct infrastructural facilities |
| Variety of natural resources | Requires large army to protect its territory |
| Own extensive arable land | Difficult for effective administration |
| Have larger population size | Difficult for socio-economic integration |
| Home for diverse cultures | |
| Greater depth in defense external invasion | |

# The Shape of Ethiopia and its Implication

- **Countries** of the World have **different kinds** of **shape** that can be **divided into five main categories**:
  1. **Compact,**
  2. **Fragmented,**
  3. **Elongated,**
  4. **Perforated, and**
  5. **Protruded.**
- **Shapes** have **implications** on **defense**, **administration** and **economic integration** within a country.

# Categories of Shape of a Country

1. **Compact shape countries:**

- The **distance from the geographic centre** of the state to any of the borders does **not vary greatly**. It is **easier** for **defense, socioeconomic and cultural integration**.

2. **Fragmented shape countries:**

- They are **divided** from their other parts by either **water**, **land** or **other countries**.

3. **Elongated shape countries**:

- They are geographically **long and relatively narrow** like Chile.

4. **Perforated shape countries:**

- A country that **completely surrounds another country** like the Republic of South Africa.

5. **Protrude shape countries:**

- Countries that have **one portion that is much more elongated** than **the rest of the country** like Myanmar and Eritrea.

# Indices of Compactness

- There are **various ways of measuring shape of countries**. These **measures** are known as the **indices of compactness**.
- **Indices measure** the **deviation of the shape of a country** from a **circular shape.**
- There are **four most commonly used measures** of **compactness**. These are:

1. **Area - Boundary Ratio**
2. **Boundary - Circumference Ratio**
3. **Area - Circumference Ratio**
4. **Area- Area (A/A) Ratio**

# Cont'd…

1. **The ratio of area of country to its boundary length**: **Area-Boundary ratio**. **The higher the A/B ratio, the greater the degree of compactness.**
2. **The ratio of boundary length of a country to the circumference of a circle** having the same area as the country itself: **Boundary-Circumference ratio**. It measures **how far the boundary of a country approximates the circumference of a circle of its own size.** Therefore, **the nearer the ratio to 1 the more compact the country is.**

# Cont'd…

**3. The ratio of the area of the country to the circumference of the smallest inscribing circle: Area-Circumference ratio. It compares the area of the country with the circumference of a circle** that **passes touching the extreme points on the boundary of the country**. The **higher the A/C ratio, the greater the degree of compactness**.

**4. Area- Area (A/A‟) ratio:**

- The **area** of the **inscribing** circle is the **area** of the **smallest possible circle** whose circumference passes through the extreme points on the boundary.
- The **nearer** the **ratio to 1**, the **more compact the country is.**

Ethiopia's shape compared to its neighbors in the Horn

| Country | Area($km^2$) | Boundary (km) | A/B ratio | B/C ratio | A/C ratio |
|---|---|---|---|---|---|
| Ethiopia | 1,106,000 | 5,260 | 210.27 | 1.41 | 296.61 |
| Djibouti | 22,000 | 820 | 26.83 | 1.56 | 41.83 |
| Eritrea | 117,400 | 2,420 | 48.51 | 1.99 | 96.83 |
| Kenya | 582,644 | 3,600 | 161.85 | 1.33 | 215.28 |
| Somalia | 637,657 | 5,100 | 125.03 | 1.80 | 225.22 |

*Source: Bekure (1982, 1983)*

# Basic Skills of Map Reading

## What is a Map?

- A **map** is a **two-dimensional scaled representation of part or whole of the Earth surface on a flat body** such as **piece of paper**, **black board**, **wood** or **cloth**.
- A **map** is a **simplified**, **diminished** and **plain** representation of **some** or **whole** of the surface of the earth.
- **Map reading** encompasses a **systematic identification** of **natural** and **manmade features**.

**- Natural features** include mountains, plateaus, hills, valleys, river, ocean, rocks, plain etc.

**- Manmade features** include roads, railway, buildings, dam etc.

- For Geographers, **map** is a **primary tools** for **displaying** and **analyzing spatial distributions**, **patterns** and **relations.**

## Importance of Maps

- Provide the **basis** for **making geographical details** of regions represented i.e. the **geographical facts of an area** such as relief, drainage, settlement etc.
- Maps are **powerful tools for making spatial analysis** of geographical facts of areas represented.
- Maps are useful for **giving location of geographical features** by varied methods of grid reference, place naming etc.
- Maps are **used on various disciplines** like land use planning, military science, aviation, tourism, marine science, population studies, epidemiology, geology, economics, history, archaeology, agriculture etc.
- Map makes **storage of the geographical data** of areas represented.
- Maps are potentially **used to asses reliable measurements** of the geographical features. The measurements can be of **area, size, distance** etc.

- There are many types of maps according to their **purpose** and **functions**.

## a. Topographical maps:

- **Topographic maps** depict **one or more natural** and **cultural features of an area**.
- They could be small, medium or large scale depending on the size of the area represented.

- **Contents of topographical maps** depend on:
  - **purpose** of a **map,**
  - **scale of a map,**
  - **date of compilation, and**
  - **nature** of **the land** represented.

## b. Special purpose/statistical maps:

- These are maps, which show **distribution of different aspects** such as temperature, rainfall, settlement, vegetation etc.

- **Marginal information** is shown on a map to **enable the reading and interpretation of the geographical information** of an area represented. This includes:

## a. Title:

- It is the **heading** of the given map which tells what the map is all about.

## b. Key (legend):

- It is the **list of all convectional symbols and signs** shown on the map with their interpretation.

## c. Scale:

- It is the **ratio** between the **distance on the map** and the **actual ground distance**.

- **Scales** enable the map user to **interpret the ground measurement** like road distance, areal sizes, gradient etc.

- It can be **expressed** as **Representative Fraction (RF)**, **Statements/Verbal scale**, and **Linear (Graphic) scale**.

# Cont'd…

## d. North arrow:

- It is indicated with the **north direction** on a map; used to know the **other important directions** of the mapped area like east, west, south, and west.

## e. Margin:

- Is the **frame of the map**. It is important for showing the end of the mapped area.

## f. Date of compilation:

- It is a **date of map publication**. This enables map users to realize whether the map is **updated** or **outdated**.

## Basic Principles of Map Reading

- In **developing map reading abilities and skills**, certain **basic principles** must be applied by the **map-reader** to **translate map symbols into landscape images**.

1. **Readers** must have **ideas** about the **symbol** and also the **real world (landscapes).**
2. **knowledge of directions** is an important principle in reading maps.
3. **Grid reference – there are series of lines (easting and northing lines which have numbers) that make up a grid on map; grid system** makes it **simple** to give an **accurate description of your location,** this description is called **grid reference.**

# Discussion Question

- **Answer the following questions briefly.**

1. What are the implications of location, shape and size of Ethiopia and the Horn on the physical environment, socioeconomic and political aspects?
2. Explain the themes of Geography.
3. What are the basic principles of map reading?

# Thank You!!!