GEO-A-CC-2-03-TH- Human Geography

3. Concept and classification of race. Ethnicity

Race is a biological concept. The concept of race stands on human biological variations, which can be both external and internal. The external variations include skin colour, hair colour, hair texture, eye colour, stature, body build, and nose form and so on. The internal variations are concerned with the susceptibility or resistance to the diseases etc. For an objective and scientific classification, the division of mankind into racial groups should be done on the basis of measurable physical features and qualities inherited from a common ancestor. The important features on the basis of which the races are identified and classified include colour of skin, stature, shape of head, face, nose, eye, type of hair and group of blood.

1. Colour of skin: On the basis of colour, races are classified into white, yellow and black. But calling the races as white, yellow or black is an over generalization. In fact, human beings are not really white or black or red. White people are actually pink; black ones are brown. The so called yellow, brown, and red races are all Mongoloid, and should never have been separated.

The skin colour depends on a number of variables, such as the amount of pigment in the skin, and the depth of the blood capillaries under the skin. Some pigment is always present and those individuals who lack any pigment are called albino. Heavy pigmentation gives dark shades of brown. The little pigmentation and deep blood vessels result into yellow colour as in the case of Mongoloid race. Colour alone, however, may not be an adequate indicator to classify race, as in Northern India there are many people who belong to the Caucasoid race but the colour of their skin is more dark than many persons who belong to the Negroid race.

2. Stature: Stature is influenced by the quantity and quality of food one eats; it is nevertheless an inherited quality. On the basis of stature, peoples may be classified into short, medium and tall. With exceptions, the male range is between about 130 cm and 200 cm, the female range from 120 cm to 187cm

3. The shape of the head: The shape of the head is one of the first parameters, used scientifically for the division of mankind into races. The shape of the head, expressed as an index of breadth over length x 100. It is known as the cephalic index. *i.e.*

C.I = (width of head/ Length of head) x100

Long head (Dolichephalic) below 78.5

Medium head (Mesocephalic) 78.6 to 82.5

Broad head (Brachycephalic) More than 82.5

4. The shape of the face: It gives a variety of features. The face may be long or broad, the chin jutting out or receding. Generally, the face of the Chinese and polish people have more horizontal dimensions or width of the face against the narrowness of that of the Scandinavian or the Nilotic African.

5. The shape of the nose: The width and height of the nose is also of great importance in the physical measurements of the various races. The long narrow noses are less than 70, medium noses are 70-84, and short flat noses are over 84. Coupled with the long nose is the existence of a distinct bridge, whereas the broad nose is often depressed. Generally, the nose of

Europeans is narrow, and those of Africans broad. Broadest nose, among Negroes are the Kajji of the Niger Delta of West Africa, among the Caucasoid with narrowest nostrils are the Swedes.

6. The Eye: Eye colour can be classified in the same way as skin color. But even more significant is the shape of the eye, in this respect Mongoloids differ from other races. The upper fold of the Mongoloid eye drops over to give the impression of a slit- like opening. This is the epicanthic fold, and when it is more emphasized at the inner corner of the eye it tends to give the impression of an outward and upward slant, often accentuated because of the comparative absence of brow ridges and eyebrows in Mongoloids.

7. Hair: The forms and colours of hair also vary from race to race. For the sake of convenience, hair may be classified into: (a) straight hair, long and lank and rigid, and round in cross section; (b) wavy hair, and (c) Kinky or Woolly hair, much flatter in cross section and emerging from its follicle in a spiral, and in extreme cases forming hard tufts. Colour of hair, again depending on the amount of melanin in the hair, sometimes mixed with a red pigment, varies from ash blond (no melanin) and strawberry blond (much red pigment), to black (great amount of melanin).

8. Body build: For the determination of body build and constitution of the body, the shoulder width, breadth, and depth of the chest, width of hip and other dimensions not named here are measured in some of the social groups. People may have three types of body build, those are: short, stocky build; large and brawny built and tall and slender build

9. Blood group: The physiological traits that are employed in the classification of races, blood-types are one of the most important and it has been most studied. Among the Caucasoid (whites) the blood group is more A than B, among the Mongoloids blood group B is most dominant while among the Negroes both A and B groups are found

Characteristics of major racial groups:

Traits	Caucasoid	Mongoloid	Negroid
Skin colour	Pale reddish White to olive brown	Saffron to yellow brown, some reddish brown	Brown to black, yellow brown
Stature	Medium to tall	medium to short	Tall to very short
Head form	Long to broad and short, medium high to very high	Predominantly broad, Height Medium	Predominantly long, height low to medium
Face	Narrow to medium broad	Medium broad to very broad	Medium broad to narrow

Hair	Head hair: colour, light blonde to dark brown; texture, fine to medium; form, straight to wavy.	Head hair: colour, brown to brown black; texture, coarse; form, straight.	Head hair: colour, brown black; texture, coarse; form, light curd woolly or frizzly.
Eye	Colour: light blue to dark brown; lateral eye fold occasional.	Colour: brown to dark brown, medial epicanthic fold very common	Colour: brown to brown black, vertical eye fold common.
Nose	Bridge: usually high; form: narrow to medium broad	Bridge: usually low to medium; form: medium broad.	Bridge: usually low; form: medium broad to very broad.
Body build	Linear to lateral; slender to rugged	Tends to be lateral; linearity evident.	Tends to be lateral and muscular
Blood	group More A than B	High in B	Both A and B

Source; 1.Haddon, A.C. 1992 5; 2. Krogman, W.M. 1945.

Ethnicity:

An **ethnic group** is a category of people who identify each other, usually on the basis of recognized similarities such as common language, ancestry, history, society, culture, nation or social treatment within their residing area. Ethnicity is often used synonymously with the term nation, particularly in cases of ethnic nationalism, and is separate from but related to the concept of races. Ethnicity is usually an innate status based on the society in which one lives. Membership of an ethnic group tends to be defined by a shared cultural heritage, ancestry, origin myth, history, homeland, language or dialect, symbolic systems such as religion, mythology and ritual, cuisine, dressing style, art or physical appearance.

8. Population-resource regions (Ackerman)

Optimum Population is a condition where the amount of resources available in a country is equal to the country's population needs, so there are enough resources to maintain its population. If it is below its optimum population then it has more resources than needed for the population, if it is above then it has too little resources to maintain its population.

Overpopulation is a condition when an organism's numbers exceed the carrying capacity of its ecological niche. Overpopulation is not simply a function of the size or density of the population. Overpopulation can be determined using the ratio of population to available resources. Overpopulation can result from an increase in births, a decline in mortality rates

due to medical advances, from an increase in immigration, a decrease in emigration, or from an unsustainable use and depletion of resources.

Under-Population is recognized when there are more resources in an area (for example, food, energy and minerals) than can be used by the people living there. Hence, the maximum human potential of that area is not realized as the resources are not fully exploited. Countries like Canada and Australia can export the surplus of food, energy, and mineral resources, have high incomes, good living conditions and level of technology and immigration.

Carrying capacity refers to the number of individuals who can be supported in a given area within natural resource limits, and without degrading the natural social, cultural and economic environment for present and future generations. The carrying capacity for any given area is not fixed. It can be altered by improved technology, but mostly it is changed for the worse by pressures, which accompany a population increase. As the environment is degraded, carrying capacity actually shrinks, leaving the environment no longer able to support even the number of people who could formerly have lived in the area on a sustainable basis. No population can live beyond the environment's carrying capacity for very long.

Population Resource Regions:

Edward A. Ackerman has used three basic criteria for devising the world's regional scheme of population /resource ratio, which are:

• Population factor, • Resource factor and • Technology factor.

Among these three variables used in this scheme, the most critical is the magnitude and quality of available technology. Ackerman while using the three factors of population, resource and technology, emphasized more on technology. He suggested a five-fold classification of the world into population/resource regions on the basis of population resource ratios and the availability of technology:

1. *United States Type*: About one sixth of the world's people live in technology-source areas with low population/resource ratios, as in much of North America, Australia and New Zealand and the erstwhile Soviet Union.

2. *European Type*: One sixth of world's people live in technology-source areas with high population/resource ratios, where industrialization and technology have permitted an expansion of resources through international trade. Most of Europe and Japan fall in this category.

3. *Egyptian Type*: Roughly one half live in areas which are technology- deficient with high population/resource ratios, as in India, Pakistan and China. This type epitomizes some of the most severe population problems.

4. *Brazilian Type*: One sixth live in technology- deficient areas with low population/resource ratios, as in much of Latin America, Africa and South-East Asia, where resources sometimes remain unused because of the problems of developing difficult environments.

5. *Arctic- Desert Type*: The largely uninhabited ice caps, tundra's and deserts are mostly technology- deficient and offer little food-producing potential at the moment.

This classification is a useful general guide but offers little help for more specific cases of pressure of population on resources, which is extremely difficult to define in quantitative terms due to the dynamism of the variables involved: population, resource, technology and the economic expectations and attainments of the people.

GEO-A-CC-2-04-TH- Thematic Mapping and surveying

2. <u>**Concept of diagrammatic representation of data**</u>:

Diagrammatic presentation of data gives an immediate understanding of the real situation to be defined by data in comparison to the tabular presentation of data or textual representations. Diagrammatic presentation of data translates effectively the highly complex ideas included in numbers into more concrete and quickly understandable form. Diagrams may be less certain but are much more efficient than tables in displaying the data. There are many kinds of diagrams, such as

(i)Geometric diagram
(ii) Frequency diagram
(iii) Arithmetic line graph

Concept of Diagrammatic Presentation

- Diagrammatic presentation is a technique of presenting numeric data through Pictograms, Cartograms, and Bar Diagrams & Pie Diagrams etc. It is the most attractive and appealing way to represent statistical data. Diagrams also help in visual comparison.
- In Cartograms, we make use of maps to show the geographical allocation of certain things.
- Bar Diagrams are rectangular in shape placed on the same base. Their height represents the magnitude/value of the variable. Width of all the bars and gap between the two bars is kept the same.
- Pie Diagram is a Circle which is sub-divided or partitioned to show the proportion of various components of the data.
- Diagrams may be one dimensional, two dimensional and even three dimensional

General Guidelines to represent data by diagrams:

- **Title** – Every diagram must be given a suitable 'Title' which should be small and self-explanatory.
- **Size** – Size of the diagram should be appropriate neither too small nor too big.
- **Scale** – diagram should be drawn on proper scale.
- **Index** – When two or more variables are presented and different types of line/shading patterns are used to distinguish, then an index must be given to show their details.
- **Selection of Proper Type of Diagram** – It's very important to select the correct type of diagram to represent data effectively.

Advantages of Diagrammatic Presentation

Attractive and Impressive:

- Data presented in the form of diagrams are able to attract the attention of even a common man.

Easy to Remember

- Diagrams have a great memorizing effect.
- The picture created in the mind by diagrams last much longer than those created by figures presented through the tabular form.

Diagrams save Time

- It presents complex mass data in a simplified manner.
- Data presented in the form of diagrams can be understood by the user very quickly.

Diagrams Simplify Data

- Diagrams are used to represent a huge mass of complex data in a simplified and intelligible form, which is easy to understand.

Diagrams Are Useful in Making Comparisons

- It becomes easier to compare two sets of data visually by presenting them through diagrams.

More Informative

- Diagrams not only depict the characteristics of data but also bring out other hidden facts and relations which are not possible from the classified and tabulated data.

Limitations of Diagrammatic Representation:

1. Diagrams are approximations.
2. Minute differences in values cannot be represented properly in diagrams.
3. Large differences in values spoil the look of the diagram.
4. Some of the diagrams can be drawn by experts only.

Different types Diagram:

Bar Diagram:

 (1) Simple Bar Diagram

Simple Bar diagram comprises of a group of rectangular bars of equal width for each class or category of data.

(2) Multiple Bar Diagram

This diagram is used when we have to make a comparison between two or more variables like income and expenditure, import and export for different years, marks obtained in different subjects in different classes, etc.

(3) Sub-divided Bar Diagram

This diagram is constructed by sub-dividing the bars in the ratio of various components.

(4) Percentage Bar Diagram

Sub-divided bar diagram presented on a percentage basis is known as Percentage Bar Diagram.

(5) Broken-scale Bar Diagram

This diagram is used when the value of one observation is very high as compared to the others.

In order to gain space for the smaller bars of the series, the largest bars may be broken.

The value of each bar is written at the top of the bar.

(6) Deviation Bar Diagram

Deviation bars are used for representing net changes in data like Net Profit, Net Loss, Net Exports, Net Imports, etc.

Pie Diagram:

A Pie Diagram is a circular diagram where radius of each circle is proportionate to its total value. Again one attribute (such as population) may be divided into different categories (such as male population and female population) and may be converted into angular value (*i.e.* degree); the pie should be divided accordingly and thus termed as divided proportional circles.

Dot and Sphere Diagram:

In Geography we often use dot diagram to represent rural population and sphere diagram to urban population of a particular administrative unit.

Square Diagram:

Square diagram is such a diagram where length of one side of square is proportionate to its total value represented.

Line Graph:

In line graph, we may show amount of any attribute in Y axis according to its time span represented in X axis.

5: Preparation and Interpretation of Landuse -landcover maps

The Land use/land cover map depicts the land use and land cover patterns on the surface of the earth on any desired scale. Land use refers to man's activities and the various uses which are carried on land. Land cover refers to natural vegetation, water bodies, rocks/soils not modified by human being rather covered by nature. The term land use and land cover are closely related and interchangeable. The purpose for which land is being used, commonly are associated with different types of cover such as forest, agriculture, wasteland, water bodies. This map is an important input in the derivation of other thematic maps from satellite remote sensing data.

Preparation of landuse-landcover maps:

Landuse landcover map of a smaller spatial unit such as a rural mouza may be prepared by manual survey with the help of cadastral map. But for larger spatial unit, we have to prepare such maps complying toposheets, satellite imageries and other spatial maps by following way

a. Acquisition of satellite data.

b. Processing of satellite data has to make data free from all the errors caused by atmosphere, geometry, and radiometry during the acquisition of data.

c. Geo-referencing of satellite data using geo-referenced toposheets and GCPs collected from field survey.

d. Overlaying of the geo-referenced satellite data on respective toposheets to check whether the features are perfectly matched or not with toposheets, if some error results, repeat the above procedure of geo-referencing. .

e. To Mosaic different scenes to show continuous terrain of an area.

Interpretation of landuse landcover maps:

Proper interpretation of Landuse-landcover maps are very important because it forms the base for future development and planning of a particular area. Information on existing Land use / land cover and their spatial distribution forms the basis for any developmental planning. The current land use assessed for its suitability with the surface and ground water information in the light of land potential before suggesting alternate land use practices. The land use maps provide the up to date information on the type, location, spatial, distribution and extent of land use/ land cover.

Knowledge on the land use/land cover and its pattern of change promotes to understand, present and the past land utilization pattern. Up to date information on the rate and kind of change is essential for proper land use planning and management of land resources for productive use.

For instance the gross acreage estimates provided under different categories of land use/ land cover will be useful to the departments like agriculture, irrigation, revenue, forest & environment, state land use boards, town & country planning, National afore-station & eco-development board etc., for land use planning and decision making.

8: Prismatic compass surveying

Basic Terminologies:

True meridian: Line passing through geographical North Pole and geographical South Pole

Magnetic meridian: When the magnetic needle is moved freely and balanced properly, unaffected by magnetic substances, it indicates a direction. This direction is known as magnetic meridian. The angle between the magnetic meridian and a line is known as magnetic bearing or simple bearing of the line.

Whole Circle Bearing (WCB): The magnetic bearing of a line measured clockwise from the North Pole towards the line is known as WCB. Varies 0-360°

 Quadrantal Bearing: The magnetic bearing of a line measured clockwise or anticlockwise from NP or SP (whichever is nearer to the line) towards the east or west is known as QB. This system consists of 4-quadrants NE, SE, NW, and SW.

Reduced Bearing: When the whole circle bearing of a line is converted to quadrantal bearing it is termed as reduced bearing.

<u>Fore and Back Bearing</u>:

In WCB the difference between FB and BB should be exactly 180°

BB=FB+/-180°; Use the +ve sign when FB<180° and Use the –ve sign when FB> 180°

<u>Magnetic declination</u>: The horizontal angle between the magnetic meridian and true meridian is known as magnetic declination.

<u>Dip of the magnetic needle</u>: If the needle is perfectly balanced before magnetization, it does not remain in the balanced position after it is magnetized. This is due to the magnetic influence of the earth. The needle is found to be inclined towards the pole. This inclination of the needle with the horizontal is known as dip of the magnetic needle.

Method of correction for traverse:

First method: Sum of the interior angle should be equal to (2n-4) x 90. If not then distribute the total error equally to all interior angles of the traverse. Then starting from unaffected line the bearings of all the lines are corrected using corrected interior angles.

Second method: Unaffected line is first detected. Then, commencing from the unaffected line, the bearing of other affected lines is corrected by finding the amount of correction at each station.

Check on closed traverse:

Sum of the measured interior angles (2n-4) x 90°

Sum of the measured exterior angles (2n+4) x 90 °

The algebraic sum of the deflection angles should be equal to 360°. Right hand deflection is considered +ve, left hand deflection –ve

Check on open traverse

Taking cut-off lines: measured the bearings and lengths of cut off lines after plotting and tally with actual values.

Taking an auxiliary point:

Take P permanent point as auxiliary point measured bearings and lengths of P from each traverse point. If survey is accurate, while plotting all the measured bearing of P should meet at P.

Problems:

Convert the following WCBs to QBs

(a) WCB of AB = 46°30' (Ans 46°30')

(b) WCB of BC = 123°45' (Ans 180- 123°45' = 56° 15')

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