Conservation Geography
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Module - 9
Human population and conservation
Lecture – 25
Population and population growth - I

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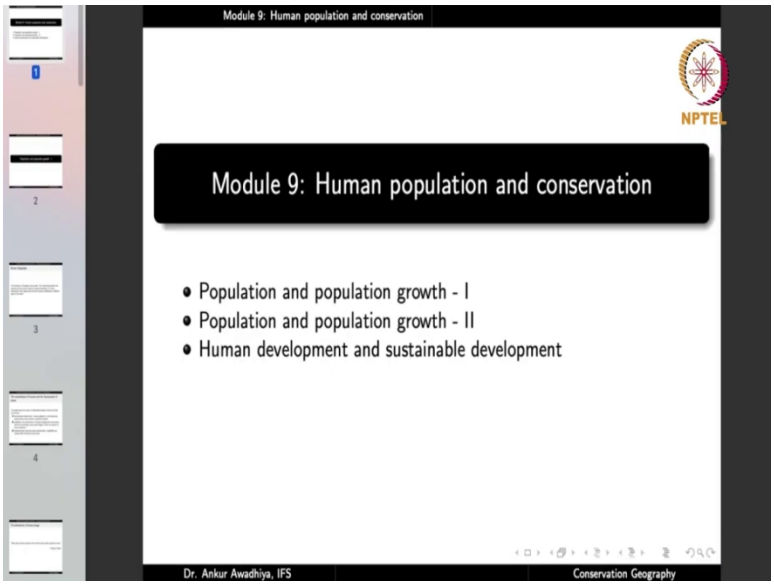

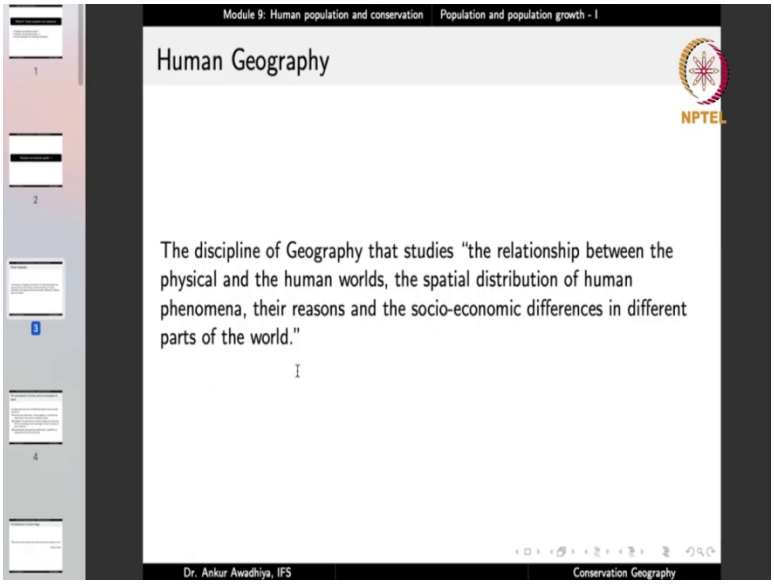

Namaste! Today we begin a new module, which is human population and conservation. This module will have three lectures population and population growth part one and two and Human

Development and sustainable development. So, let us now begin with population and population growth, population is studied under the field of human geography.

And we have looked at human geography before. So, human geography is the discipline of geography that studies the relationship between the physical and the human worlds, the spatial distribution of human phenomena, their reasons and the socio economic differences in different parts of the world.

So, what does it study, it studies the relationship. How are two things, related what two things the physical world and the human world this is very important in today's era of Anthropocene because today, the humans are making such huge changes on this planet, that their impacts themselves become a completely separate and important field of study.

Now, human geography studies the relationship between the physical world that is the world without any changes by the humans and the human world. So, essentially, there are several ways in which the physical world dictates or governs the human world areas that have rivers will probably have settlements nearby, because people need freshwater.

Areas that have fertile lands will have humans, because fertile lands can be used for agriculture. On the other hand, areas with very extreme climates, or a scarcity of water or a scarcity of food, will have less number of humans, because they are extreme conditions. So, in a number of ways, the physical world impacts the human world.

It governs how many humans will be there in a particular location, and also what they will be doing. Areas that are rich in minerals will probably have human settlements that are involved in mining operations, and so on. Now, similarly, the human world also makes a big impact on the physical world.

And we have observed it in a number of cases, where the humans are already changing the composition of the atmosphere, the humans are changing the hydrosphere in big ways, by say, increasing the amount of water that is coming into the oceans because of global warming, or by changing the global thermohaline circulation.

Or by building dams and converting fresh, flowing water habitats into stagnant water habitats, low tech into lentic habitats, or by overusing water in certain areas, and so on. So, the humans

also have a big amount of impact on the physical world. And human geography tries to understand what is this relationship between the physical world and the human world?

How are both of them related? How are both of them impacting each other? Then it studies the spatial distribution of human phenomena, meaning that it studies where humans are located and what do they do in different locations? Are there certain locations where we have a greater density of humans?

Are there certain locations where humans are found in lesser densities? Do humans in different areas perform different jobs, different functions? Or do they perform the same functions everywhere? And how are all of these related to the socio economic differences in different parts of the world. So, these are all different things that human geography looks at relationship, spatial distribution, the reasons for the spatial distribution and the relationships and the socio economic differences in different parts of the world.

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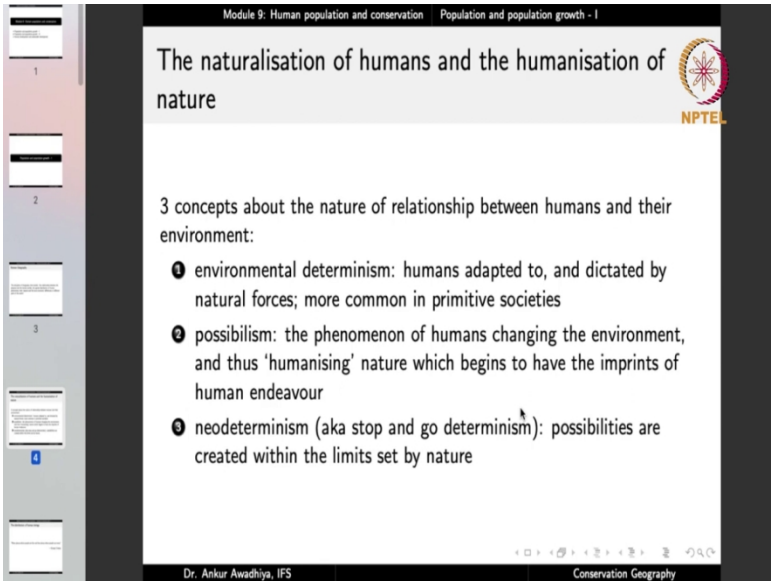

Now, in this context, we can talk about the naturalization of humans and the humanization of nature. Now, this refers to three concepts about the nature of relationship between humans and their environment. The first is environmental determinism. It states that humans are adapted to and dictated by natural forces. And this is very commonly seen in primitive societies. So, the term says environmental determinism, meaning that the environment determines the humans. So,

humans will get adapted to their environment, they will be dictated by the natural forces, there is little that humans can do.

The environment is the more predominant factors. So, when we talk about the relationship between the human world and the physical world, environmental determinism would say that the physical world will always dominate on the human world. That is, humans will only be found in those areas that have a good climate, sufficient availability of water, sufficient amount of food and so on.

The environment determines the humans. And for a very large portion of our existence on this planet, this was true. Because we did not have the tools, we did not have the technology, we did not have the resources. So, what did humans do in those areas where they could find, say, fruits, they would gather fruits, in those areas where they could find hunt animals, they would hunt the animals.

Now, the humans could not say grow their own crops or rear the animals by themselves, because they were at the mercy of nature. The environment determined what they were doing, whatever was available, that was used, and if things were not available, there was hardly anything that humans could have done.

So, in this stage, the nature pre-dominated, the humans had very little if any impact on the nature. So, that is environmental determinism, the stage where the environment determines things. Later on, we shifted to possibilism. It is the phenomena of humans changing the environment, and this humanizing nature, which begins to have imprints of human endeavor.

So, in the case of possibilism, this philosophy states that it is possible for humans to do things, it is possible for humans to dominate nature to change nature. And we see the beginnings of possibilism with the advent of agriculture. So, when humans learned how to grow their own crops, they started to settle down.

Now, there was no more need for them to move from one place to another place in search of food in search of animals. And when the humans started to settle down, they started to bring in very large scale changes in their environment. Because when they settle down, they built their own

homes. When they began to perform agriculture, they cut trees. And they converted vast stretches of forests into farmlands.

When they started rearing animals, they started to use the pastures. And in this stage, the humans started to have big impacts on nature, because what was forest erstwhile, was now converted into agricultural fields or ranches. Now, many areas began to have hearts and different symbols of human existence. We built roads, we built communities.

And once this was done, now, humans were no longer at the mercy of nature, because the humans were now able to turn nature to their own advantage. This especially became true when we discovered the use of fire. So, when humans learned how to use fire, they began to dominate nature in very great ways.

Because now, large stretches of forest could be burned. Now, the humans could different themselves against animals. Then we began to make use of tools. We invented weed, we invented weapons. So, once humans had weapons like spears, or bows, and arrows, or even things like knives, then the impact of humans increased even further.

Because now, the humans could no longer be dominated even by the ferocious animals. Now, we could hunt even tigers and lions. So, with the advent of possibilism, the humans began to become a dominant force over nature. And when we shifted to possibilism, we even made our habitations in those areas, where erstwhile there could not be any habitation.

So, today's world if you think about areas such as Saudi Arabia, Saudi Arabia has a large portion that is desert, but still we humans can live there. Why because build houses, we can install air conditioners, and we can mold the nature in such a manner that we make it a hospitable place for us. Similarly, if you look at very cold areas, there too you will find humans.

Now, in the early stages, when the nature used to dominate, then humans could not venture into these areas, because they were completely inhospitable. Now, we are able to bring water even to very passed out areas very extremely arid deserts are now being supplied water, through pipelines, through canals, and even through lift irrigation.

And so, now, we are in a stage where we can mold nature and for the past few centuries, this has been the dominating force. So, we always celebrated the conquest of man over nature, we

celebrated when people ascended to the mountaintops, we celebrated when stretches of the continents like Africa were explored, because beforehand, humans could not venture into those areas. So, this is possibilism, that it is possible for humans to change nature. And in certain cases, it was even said that it is the duty of humans to change in nature to dominate nature. And in this stage, we started to observe large imprints of human activity over nature. Now, currently, the thought processes about near determinism which is known as stop and go determinism, possibilities are created within the limits set by nature.

What does that mean? It means that yes, we can change nature, but to only a certain extent. If we overdo things, then we will have to face consequences. For example, if we overdo irrigation in arid areas, so we are able to bring in water from different rivers say by using pump sets, by building canals, and by building pipelines, and we can bring water to desert areas and we can even perform agriculture there.

But then if we overdo it, if we start to grow crops like paddy that require a large amount of water. So, in those cases, we will start to observe the negative consequences, the land will become aligned, the land will lose its fertility. So, we can change nature but only to a certain extent. If in our conquest to say make even very inhospitable areas hospitable.

If we generate enormous amounts of electricity, we make tremendous new amounts of gadgets then we are today facing the consequences in terms of global warming and climate change. So, the stop and go determinism states that, we can change things, but the environment still dominates, things can only be done to a certain limit possibilities are created, but within the limits set by nature, we cannot overdo these limits.

So, these are the three different viewpoints or three different concepts about the nature of relationship between humans and their environment. And over time, it has been changing. So, in the very beginning we had environmental determinism, the environment determines things, then we shifted to possibilism we can do anything to nature. And we did that. And now it is nondeterminism which is that possibilities are created, but within the limits set by nature, so we have to respect those limits.

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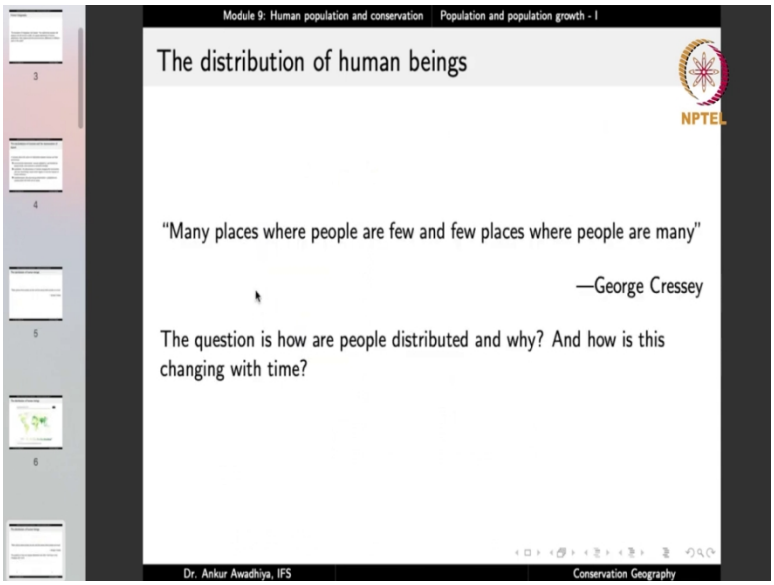

Now, if we talk about the distribution of human beings on this planet, it can be summarized by this statement. There are many places where people are few, and few places where people are many. Meaning that the distribution of human beings on this planet is not uniform. There are a large number of places where the humans are few in number, meaning that they have a less population density.

These are especially those areas that have extreme conditions, things like deserts, or things like ice caps, or things like very dense forests. So, in those areas, the humans are few. But in certain locations, in few locations, humans are many, we have a very great amount of population density, especially in those areas that have fertile lands, and hospitable climate with plenty of water.

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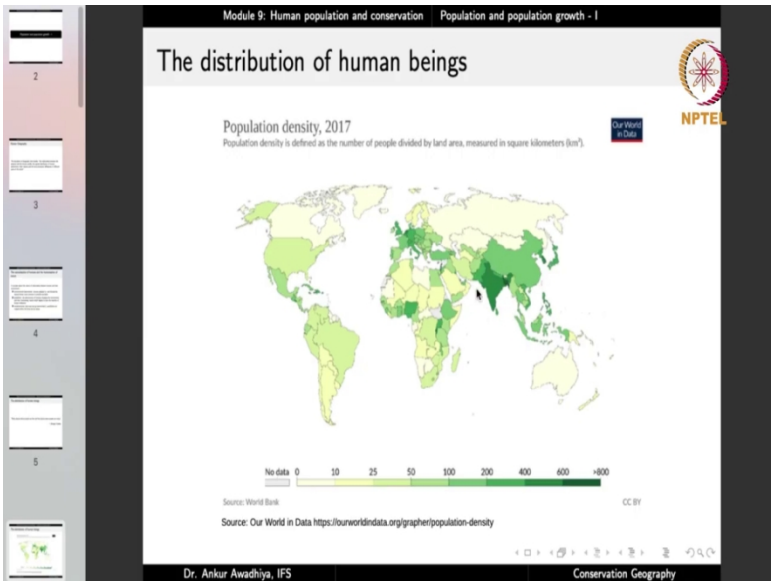

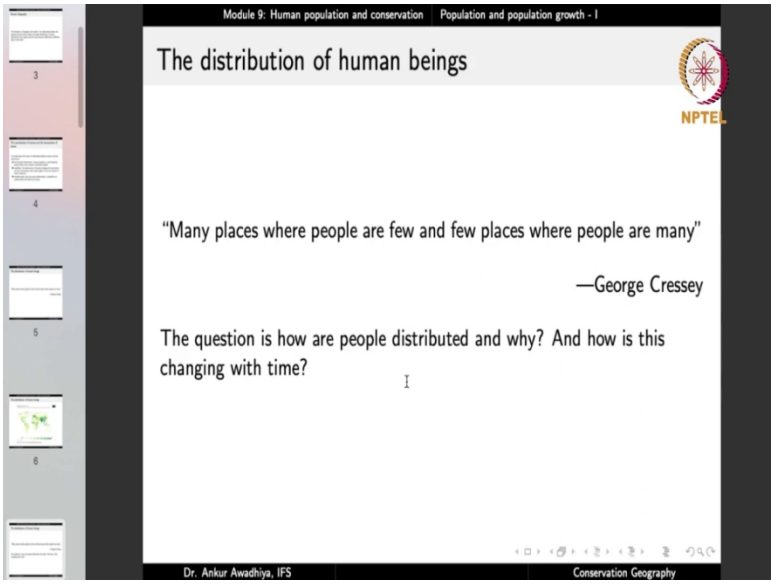

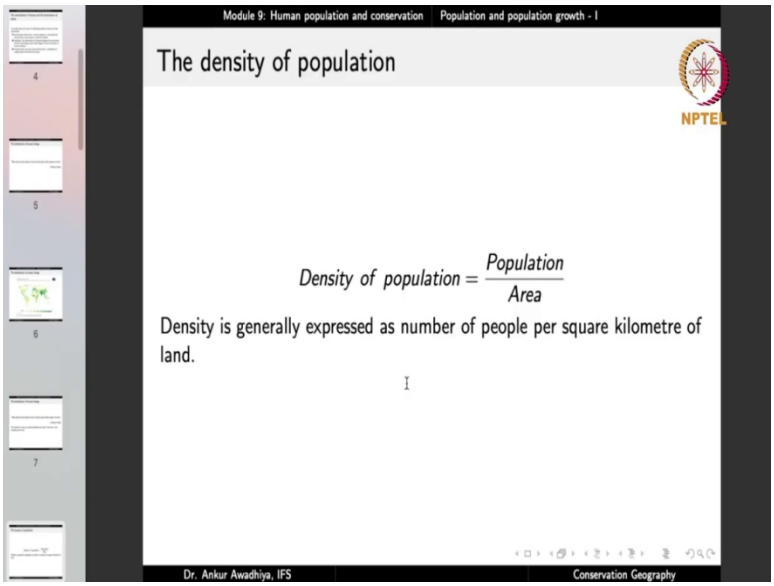

So, if we look at the distribution of human beings on the planet, will find that there are certain locations like India and Bangladesh, where the population density is very large. On the other hand, we have large areas like Northern America or parts of Europe and Asia a large portion of South America most of Australia, where the population density is very low.

So, the population density is different at different locations. There are a few places where people are many places like South Asia, Europe or Japan and there are many places where people are few in number. Now, the question in human geography is how are people distributed and why are they distributed in the ways that they are distributed?

And is this distribution changing with time? If yes, how is this changing with time. So, to understand this distribution, we define the concept of density of population, density of population is defined as population per unit area, it is generally expressed as number of people per square kilometer of land.

So, in this chart, you will see that here we are looking at number of people. So, it is measured in square kilometers. population density defined as the number of people divided by land area measured in square kilometers. So, this scale is representing areas where we have 0 to 10 people per square kilometer up to greater than 800 people per square kilometer.

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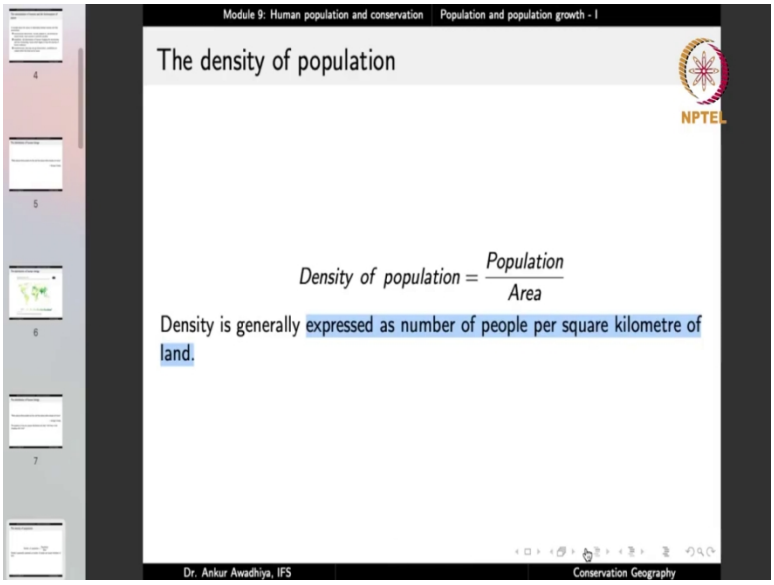

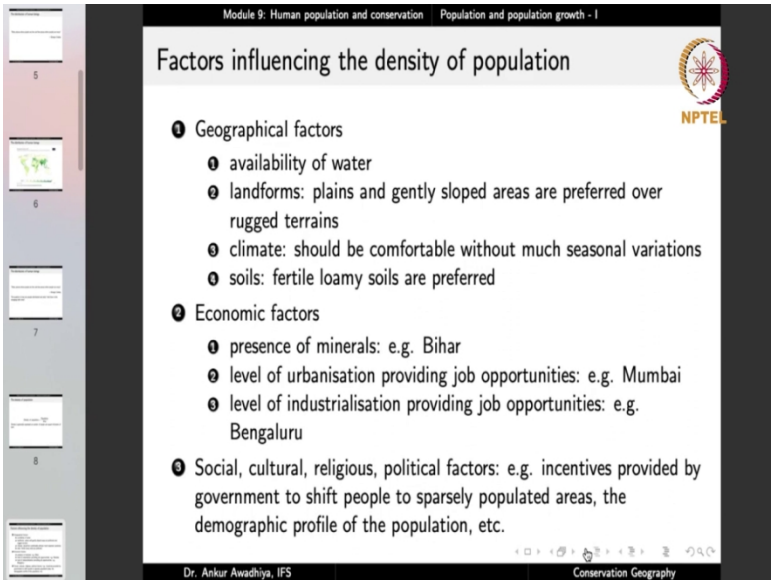

So, this is population density, number of people per unit area, generally number per square kilometer and there are several factors that influence this density of population. So, we have geographical factors economic factors social, cultural, religious and political factors. Geographical factors include things like availability of water.

So, when we were looking at the hydrosphere we saw that the fresh water is a very small percentage of the total water on this planet. Now, fresh water is available in areas that have rivers or streams or creeks or ponds and lakes. And in those locations we will find a higher density of humans because we humans require water so, we congregate in those areas that have water.

Next, we have landforms. Generally, the density of cooperation is greater where we have plains and gently sloped areas. Why because it is easy to perform cultivation in these areas it is easy to move in these areas, transportation is easy and cheap versus if an area is say a hilly area a very rugged topography in those areas.

It is difficult to move things it is difficult to move people and so, people do not prefer to live in those areas. So, plains and generally sloped areas are generally preferred over rugged terrains. So, for instance, in our country, you will find that the northern plains are very densely populated, they are plain areas with lots of water because of the river Ganges.

So, we have a huge amount of population density in those areas. But if you look at areas that have a rugged topography area such as the western ghats, you will find that the population density is lesser in those areas. Next we have climate, the climate should be comfortable without much seasonal variations.

So, if the climate is very hot or very cold or there are large amounts of variations, then people do not prefer living there. But areas with an equitable climate or a cool climate, you will find a large population density. Now, this is one reason why our coastal areas are very densely populated. They have an equitable climate all the year round.

Next soils, fertile loamy soils are preferred over things like added soils or saline soils that do not have large fertility. So, in fertile soils are less preferred. Because it is difficult to do agriculture their agriculture becomes more expensive, because you have to treat the soil. Whereas in those areas where we have fertile loamy soils agriculture is easy.

Agriculture is cheap, and we find a greater population density in those areas. Then we have economic factors. Now, some of the economic factors are related to these geographical factors. Things like presence of minerals. So, areas that have minerals will have generally a greater population density.

Because in these areas we can have mines, we can have industries and these mines and industries provide jobs to people. And so, you will typically find a greater population density in those areas that have minerals. Now, the minerals are concentrated in those areas that are determined by the geographical factors or the physical factors.

So, in this case, the physical factors are also playing an economic role. Similarly, if we talk about areas such as the coast, so, if the waters are deep in a coastal area, then we will have suitable conditions for setting up of ports. So, here again you have physical factors that determine the economic consequences.

So, in the case of a port city, you will have more amount of development you will have more trade and commerce, which will lead to more population density. Then other economic factors include levels of urbanization, which provide job opportunities or levels of industrialization that provide job opportunities.

Now, in certain cases, these cities or these industries are set up in those areas that are governed by the physical factors. So, for example, Mumbai is a port city, because it has suitable landforms that permit ships to come there and over time, it has developed into an economic mega center, but you also have areas that have economic activity without a very great physical factor.

So, for example, in the case of industries, while the Chota Nagpur plateau has got industries, specially mining industries, because of the presence of minerals, but if you talk about areas like Hyderabad or areas like Bangalore, then we have set up a huge IT industry there. And because of the development of the IT industry.

Now, we have a very good amount of transportation and communication network that has been set up. Now, the primary factors why IT industry was set up in these areas was human beings, we did have a small role of climate because both of these areas have an equitable climate. But then we have an equitable climate in a large number of other locations as well.

But once humans set up the industry in these areas, then there was no looking back. Now, that has become a major economic pull factor, because the IT industry is providing jobs. And so now the population density in these areas has gone up. Then we have social, cultural, religious and political factors.

In certain cases, incentives are provided by government to shift people to sparsely populated areas. And in those cases, the population density in this past few populated areas will slowly go up. Then the demographic profile of the population also plays a role. How many children are being born is governed by what is the proportion of the population that is of the reproductive age. And if more children are born, then slowly the population density would go up.

Similarly, those areas where we have lots of political term oils will have a lesser population density because people flee from those areas. And so we have geographical factors, economic factors, social, cultural, religious, and political factors, that all governed the density of the population.

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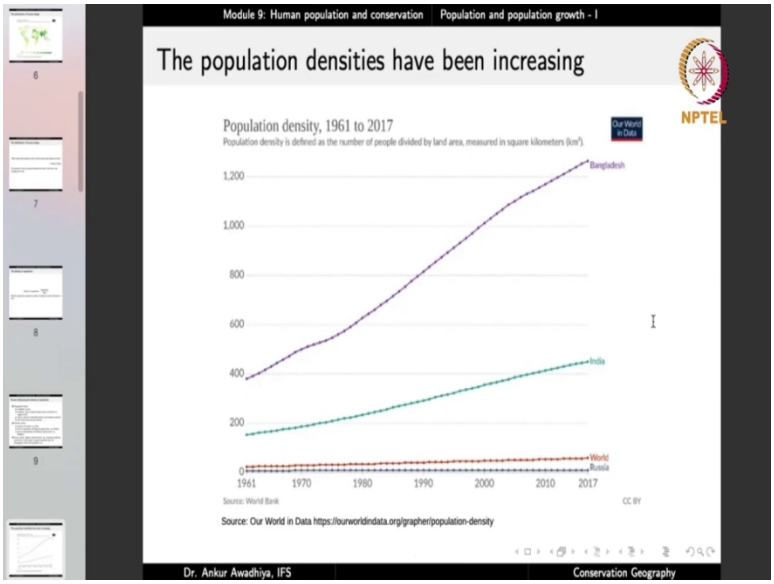

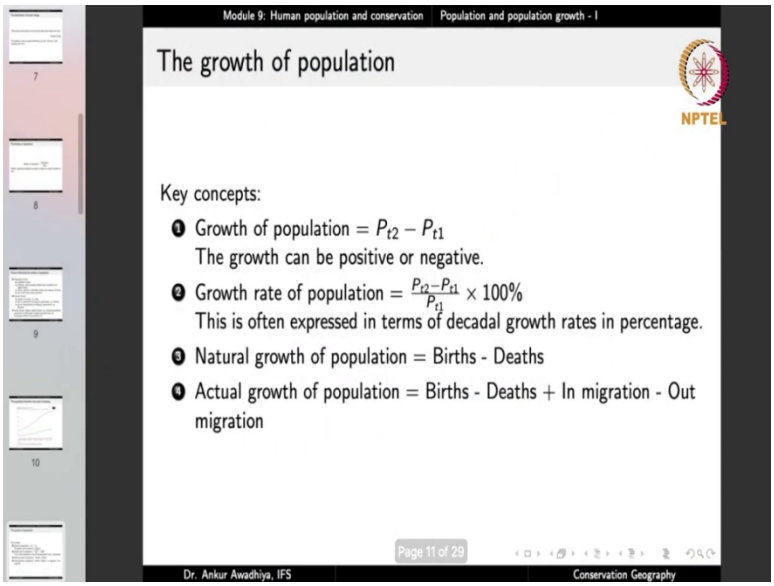

But on an average, if you look, will find that the population densities have been increasing with time. In the last 60 years, the population density in areas like Bangladesh or India has roughly tripled. So, in Bangladesh, it moved from around 400 people per square kilometer to roughly 1200 people per square kilometer.

In India, it moved from roughly 150 people per square kilometer to roughly 450 people per square kilometer. And overall in the world as well, will find that the population density has been increasing because the human population is growing and the total world area remains the same. It is in certain countries like Russia that we have roughly 0 or in some cases even a negative population growth.

But overall, if we see the world population density of humans has been growing with time. Now, how does this growth occur? The growth of population can be understood by certain Key concepts the growth of population is defined as population at a time t2 minus population at a time t1, where t2 comes after t1.

So, this growth can be positive or negative, if the population increases with time that is population at t1 is greater than the population at t2, then the growth is positive, if the population reduces with time, then the population growth is negative. And this growth in population can also be represented in terms of the growth rate of population which is defined as population at time t2 minus t1 divided by population at time t1 into 100 percent.

Now, typically, because the population grows slowly so, we express the growth rate of population in terms of decadal growth rates in percentage that is the difference t2 minus t1 will be 10 years. So, how much has the population changed in the last 10 years and in terms of percentage, that would be the growth rate of population or the decadal growth rate of population.

Now, this growth can be a natural growth in population, which is the number of people who are born minus the number of people who have died in this particular period or we can have the actual growth of population which is birth minus death plus the people who have shifted into the population from outside.

So, for example, in our country, if somebody comes from another country and begins to live in our country, we will say that this is in migration. Whereas, if certain people leave our country and start living in certain other countries, then we will see that this is out migration. So, the actual growth of population is the natural growth plus changes because of migration. So, you have births minus deaths, plus in migration people who are coming in minus outmigration, people who are going out.

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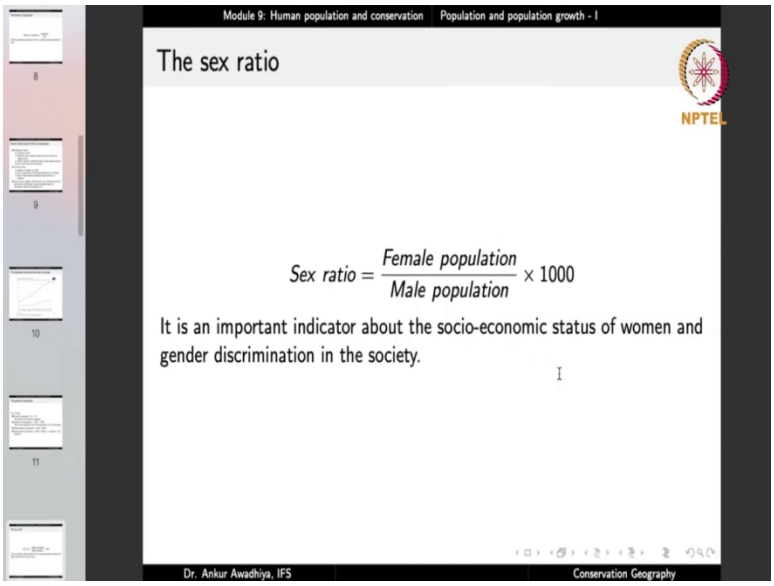

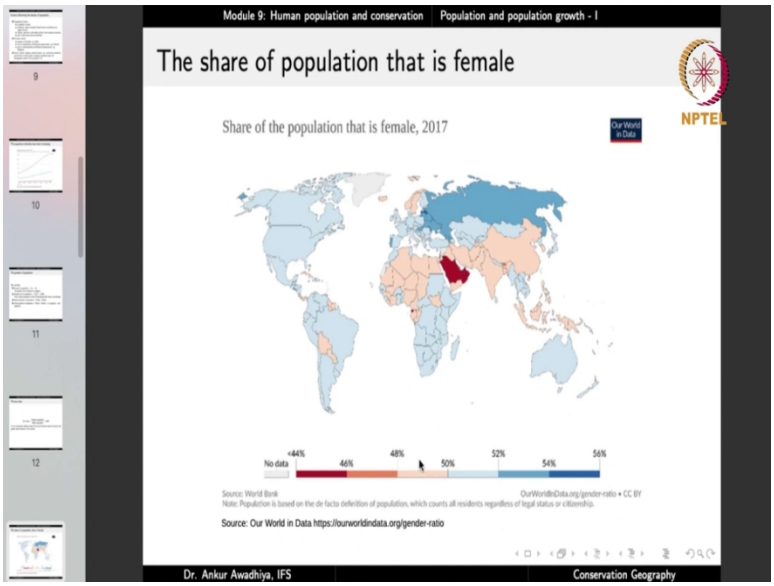

And in this context, we also should be mindful of the sex ratio of the population, the sex ratio is defined as the female population divided by the male population into 1000. That is, if we say that the sex ratio in say a particular state is 980, it would mean that, for every 1000 males, we have only 980 females.

On the other hand, if the sex ratio in a certain state is say 1030, then it would mean that for every 1000 males, we have 1030 females. So, the sex ratio tries to define what is the ratio of females to males in a particular population. And this is an important indicator about the socioeconomic status of women and the gender discrimination in the society.

And around the world, will find that the sex ratio varies a lot. Now, this map is showing the share of the population that is female, which is another way of telling the sex ratio. In certain areas we find that are less than 46 percent of the population is female. Whereas, in a large portion of the world, will find that the number is close to 50 percent which is what should be in certain cases, especially Eastern Europe.

We find that a large number of males have been moving out in search of better opportunities. And in those cases, the sex ratio increases to more than 1000 or we find that the share of the population that is female is much greater than 50 percent. So, by looking at the percentage of population that is female or by looking at the sex ratio, we can have certain ideas about the economic and the socio-economic development of the particular societies.

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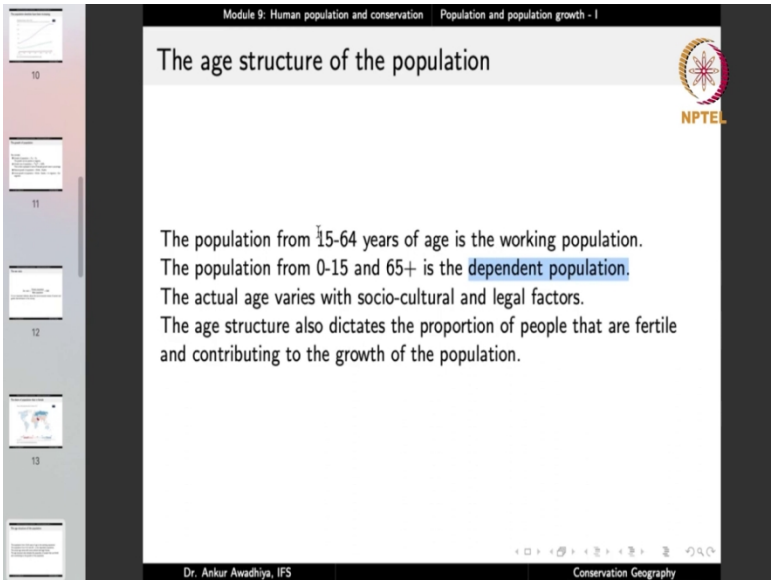

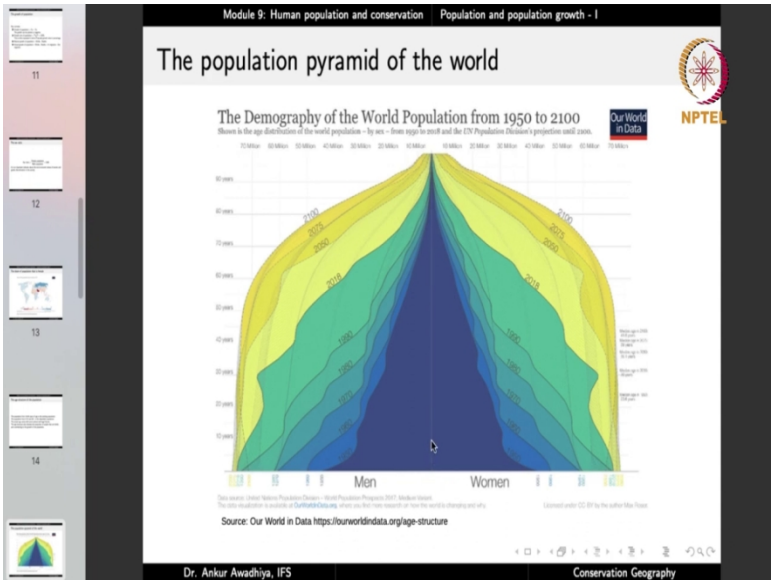

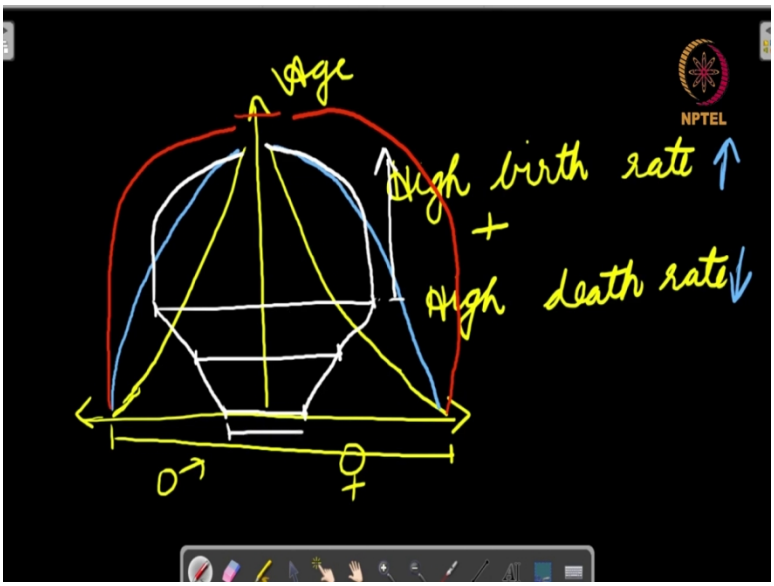

Another factor that governs the population structure is the age structure of the population. So, if you look at people, how many people are children, how many people are young adults, how many people are very old? That is an indication of the age structure of the population and it is important because the population from around 15 to 64 years of age is the working population.

Because people typically enter into the workforce, they are no longer children and at the same time they are not old enough to stop working. So, this is the working population. Now, the working population will be dependent on a number of factors for example, in certain countries, it is illegal to employ child labor or in certain countries education has given a very great amount of importance and so, people tend to remain in schools and universities still a very great amount of age. So, people will enter into the workforce and say their late 20s or early 30s that is also possible. But overall, if you look then all over the world roughly 15 to 65 years of age is the working age the population from 0 to 15 comprises of children and the population that is 65 plus is comprised of old people and this is the dependent population.

So, these fractions of the population are dependent on the working population, the working population will work it will bring home money it will bring home food and it will serve not only itself but also the children in the family and the old people in the family. The actual age varies with socio-cultural and legal factors.

And the age structure also dictates the proportion of people that are fertile and are contributing to the growth of the population. So, these people 15 to 64 years of age or roughly say 15 to 50 years

of age are the ones that are contributing to the population growth as well. And this brings us to the population pyramid of the world.

So, population pyramid is a chart that shows males and females on the x axis and on the y axis, it shows the different age groups and for each age group, we can figure out what is the number of females and what is the number of males in this particular population. And the most important factor in the case of population pyramid is the shape of the pyramid.

For example, if we look at a population pyramid, that looks like this. So, here you have age here you have the females and the males in number and the pyramid looks like this. Now, what is this represent? It shows that in this population, a very large number of children are being born. So, these many children are getting born.

And as they increase in age, the population sharply reduces in size showing that there is both high birth rate and high death rate in this particular society. Now, in this case, what will happen is that the population may either remain constant or the population may even start to increase a lot.

But, with the advent of medical facilities, what would happen is that we would be able to reduce the death rates, that is if these many children are born, then they will be able to survive to a much greater age. And so, the population pyramid curve will start to look like this. Now, in this case, the death rate is going down, but the birth rate remains high as before.

So, this would show that the population is increasing. But at much later stages, we would have a situation where the curve becomes something like this. Showing that any child that gets born in this society is able to live to a very ripe age and at a certain age people have to die so they die. So, in this case, we have a roughly constant population the population is neither increasing nor decreasing.

But we can also have a situation in which less number of children are getting born. And those that have been born before they were larger in numbers. But once we reach the maximum, now you have a curve like this. Now, such a curve shows that the people who are born they have been able to reach high large ages, but today the society is producing less number of children.

So, this would represent a society where the population sizes reducing with time a negative population growth rate. Now, if we have a look at the world population pyramid, in the 1950s, we had this pyramid with a large base showing that a large number of children were being born. And as we increased in age, the population size reduced or the proportion of the old age people was less showing that we had a high birth rate and high death rate.

But now the curve is shifting towards this shape. So, in this shape, what is happening is that the children that are born, they are able to live to a very large age to a very great age, and then it tapers to the top. So, now the population of the world is shifting to a constant growth rate period, earlier the population growth rate was very high. Now, the population growth rate has been reducing. And in a short while, we will reach a stage where the world population will become constant. And it is expected that the world population will be stabilized at around 11 to 12 billion people.

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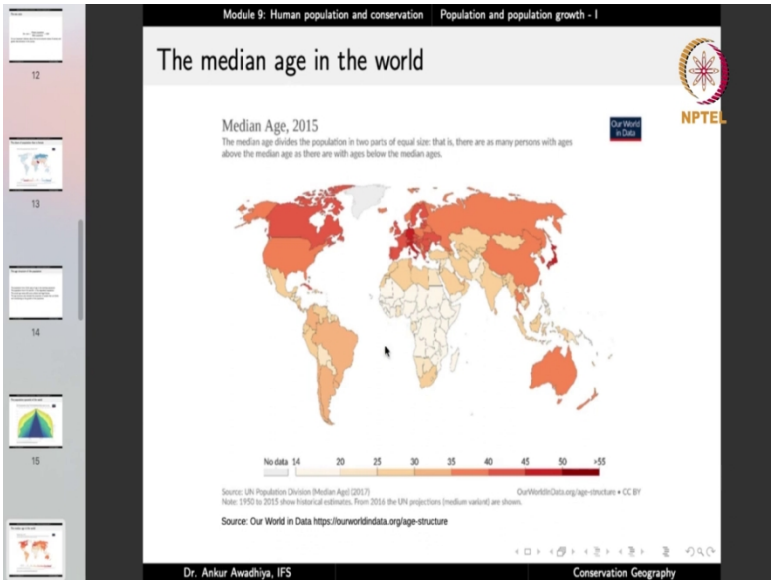

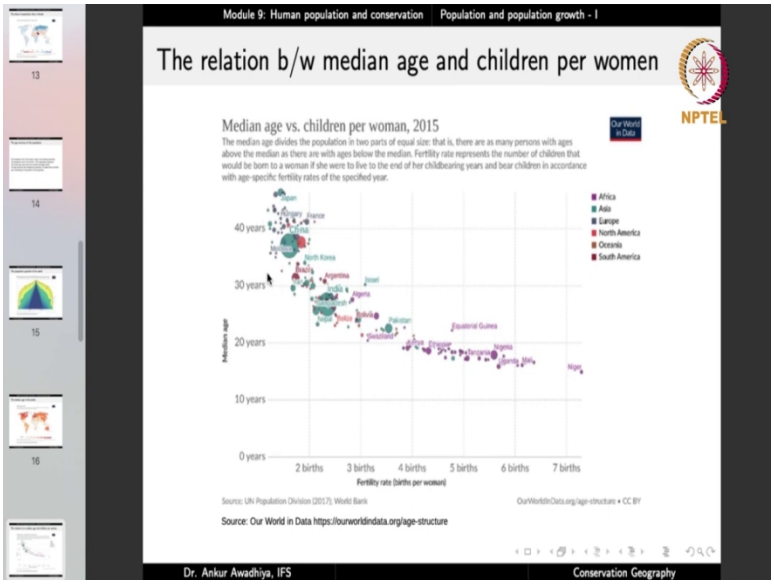

We can also look at the median age in the world. The median age divides the population in two parts of equal size. That is the there are as many people with ages above the median age as there are people with ages below the median age. And so if we look at the world population, then in certain areas like Japan, we have a high median age between 45 to 50 years.

It shows that we have as many people above for 45 years of age, as we have people below 45 years of age. Whereas in other countries, such as most of the African countries, we have a median age between 14 to 20. Showing that we have as many people about this age of save 14 to 20. So, let us take say 15 years.

So, if you take the whole population of the country, there are as many people above 15 years of age, as there are below 15 years of age. Now, why would we have such a situation, such a situation would show that there are so many children that are being born, that the number of children below 15 years of age is equal to all the people that are above the age of 15 years.

Whereas in the case of societies like Japan that have say, a median age of 45 years, it shows that so few number of children are being born, that the children plus the young adults, all together are just able to meet the age of people that are or the number of people that are above 45 years of age.

So, it tells us whether the population in our country is a young population or an old population. So, we can take this as a metric about the youth of the population. If the median age is very less, it shows that a majority of the people in the country are children. If the median age increases, it shows that the population is older.

So, in a large fraction of countries like in our country, we have a median age between 25 to 30 years. And so we have a youthful population. It is not as old as the Japanese population or as old as European population, but it is not as young as the African population. Now, this is got a lot to do with the growth rate of the population and the number of children that are being born.

So, if we do a plot between the fertility rate or the number of children that are being born per woman, versus the median age on the y axis. So, we will find that in countries such as Nigeria, we have more than 7 children on an average that are being born per woman and in such countries the median age is very less it is less than 20 years.

In countries where the women are giving birth to very few numbers of babies, less than 2 babies, you will find that the median age is higher. So, the population is getting older. And here we have countries like Japan, we have countries like the European countries, we have countries like China. So, this is the relationship between the median age and the children per woman.

If children per women is large, showing that on an average woman are producing more number of children, then the median age of the population would go down, because we will have a large number of children in this particular society and the median age represents the middle portion of

the society. So, as many people are there below the median age as there are above the median age. So, if the number of children increases, the median age would reduce.

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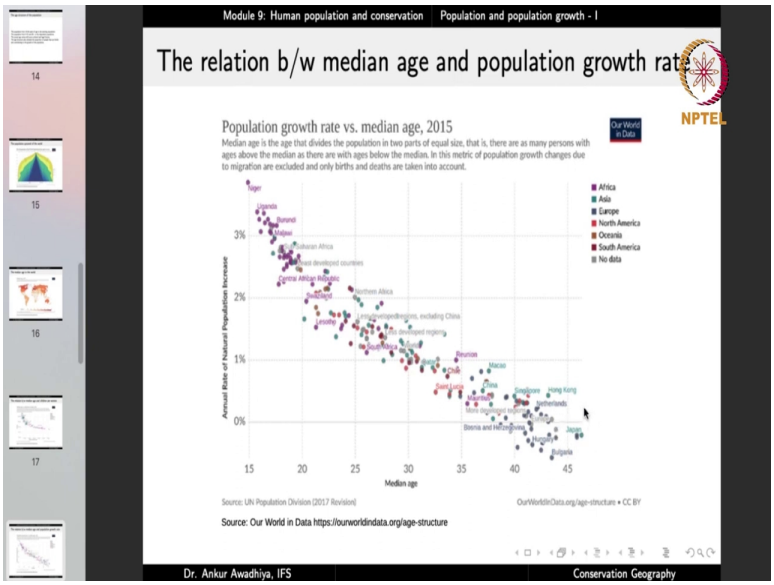

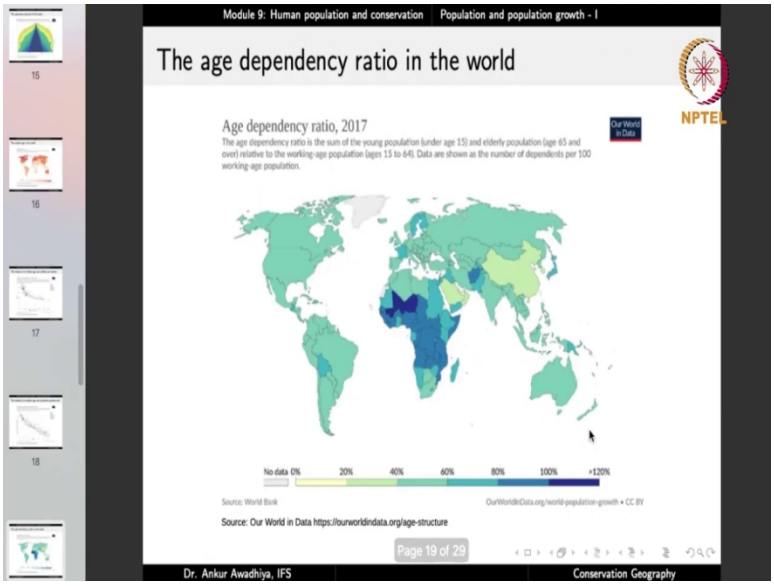

And this is also got ramifications about the population growth rate. So, if you plot the median age of the population versus the growth rate of population, here again, we will find that the annual rate of natural population increase is roughly 4 percent Nigeria now the national population increase shows only births and deaths.

So, we are not counting immigration and immigration or in migration and out migration. If you only look that the births and deaths, the population growth rate in Nigeria is very high, because of which a large number of children are being born, because of which the median age is less. On the other hand, in countries like Japan, the annual rate of population growth is negative.

Because so few number of children are being born, that the median age has increased a lot. And this has got ramifications about the dependency ratio in the world. The age dependency ratio is the sum of the young population under age 15, and elderly population age 65 and over relative to the working age population, which is age 15 to 64.

So, basically the dependency ratio asked the question, what is the fraction of the dependents when compared to the working age population. Now, the dependency ratio is high in countries where you have a large number of children, like most countries in Africa, or Afghanistan, but it is also high in those countries, where you have a large fraction of population that is old countries like Japan, or certain European countries.

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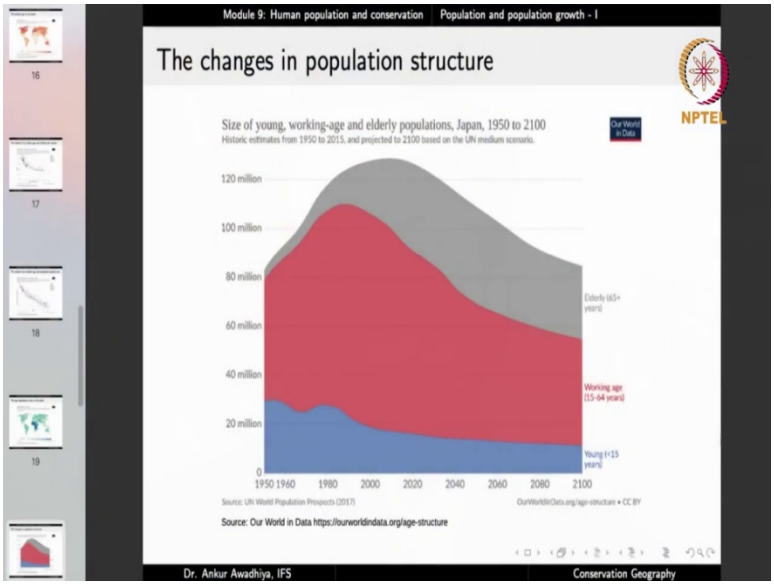

So, that is the age dependency ratio and the age dependency changes with time. So, if we take a particular country, say Japan. This chart shows how the age is structured in the Japanese population has been changing with time. In the 1950s, the major chunk of population was the working population.

So, the red shows the working age population. But we also had a large fraction that was the young population less than 15 years of age, and very few people were the elderly population that is 65 plus years. But then, as we progress through time, we see that the number of children has been going down.

Now, this curve is not showing the percentages, this is showing the actual numbers. So, while we had roughly 30 million children in Japan in the 1950s, today, the number is around 15 million. So, the number of children has roughly half the working age population was roughly 50 million. So, this is 80 minus 30.

So, we had a roughly 50 million working age population, but the working age population increased with time. So, in the 1980s, it was as high as around 90 million. So, we have 110 million, minus around 20 billion. So, it is roughly 90 million people who were in the working age group, it had roughly doubled.

But today if we see we have the working age population that is 55 minus 15, is around 40 million people are in the working age group. The elderly population was very minuscule in the 1950s. But it has been increasing with time. And today, it is roughly 30 million people. So, the population age characteristics change with time.

And with that, the dependency ratio also changes with time. Because if we look at the chart in the 1950s, the dependency ratio was pretty high because we have a major chunk that is children in the 1980s, the dependency ratio would have gone down because the working age population increased.

But the number of children reduced and the number of old people though it increased, but the increase was not that substantial. So, in the 1980s and the 90s, the dependency ratio was less, but today the dependency ratio has again increased because the working age population has gone down and the elderly population has gone up while the young population has gone down.

But the increase in the elderly population is too much to compensate the reduction in the young population. So, essentially, this tells us that the age structure in different populations can change with time, it does change with time and this also impacts the dependency ratio in those populations.

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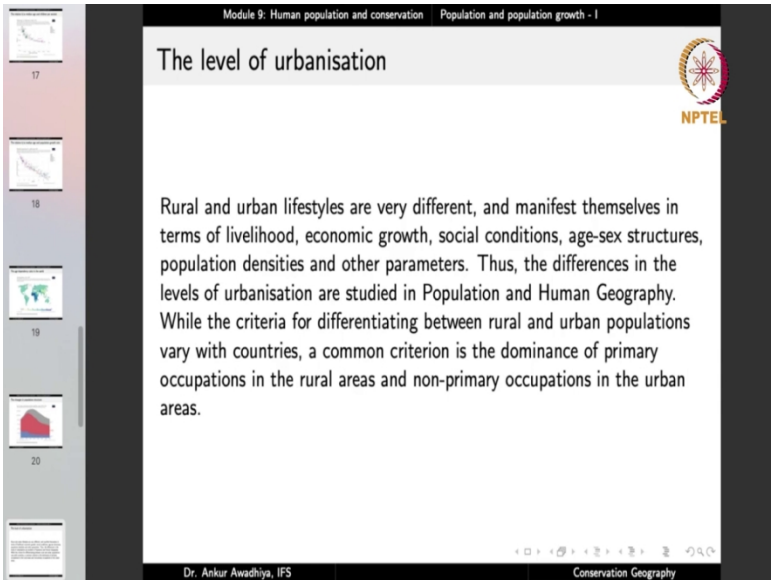

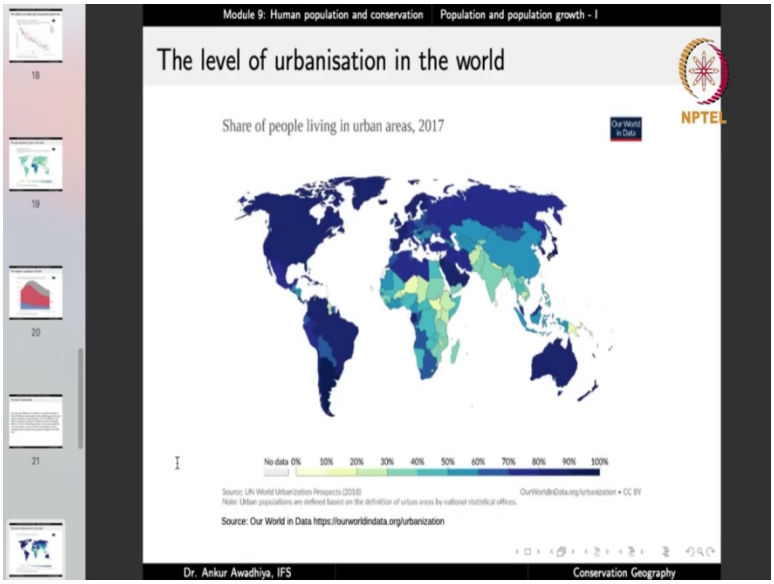

Another population characteristic is the level of urbanization or the number of people that are living in cities versus the number of people who are living in villages. Now, this is important because rural and urban lifestyles are very different. They manifest themselves in terms of livelihood, economic growth, social conditions, age sex structures, population densities and other parameters.

So, basically depending on where people live, a large number of population parameters can also change. Typically, today, we observe that in the urban areas, both the parents are working

parents in the rural areas, still we have certain villages where only the male goes out to work and the female takes care of the household.

Now, this has important ramifications on the structure of the society. Similarly, typically, the literacy rate in the urban areas is much greater than the literacy rate in the rural areas. Now, with that, the level of socio-economic development would also change. Similarly, the employment opportunities that are available to people is very different in the urban versus rural landscapes.

Thus the differences in the levels of urbanization are studied in population and human geography, because they have a large ramification on the human populations. While the criteria for differentiating between rural and urban populations vary with countries, a common criterion is the dominance of primary occupations.

Primary occupations include things like agriculture and mining. So, in the rural areas, the primary occupations dominate in the urban areas, the secondary, tertiary and quaternary sectors of the economy dominate. The secondary sector of the economy refers to industries, manufacturing units.

So, manufacturing units are typically found in the urban areas and less in the rural areas. Then we have the tertiary sector, which refers to the service industry and we have the quaternary and quinary sectors which are more specialized things like administrative jobs, things like research.

So, in the rural settings, we typically find a majority of occupations that our primary occupations, mostly agriculture, and in the urban settings, we find a dominance of secondary, tertiary quaternary and other sectors. So, this is how we can differentiate between urban and rural areas.

So, a common criterion is the dominance of primary occupations in the rural areas and non-primary occupations in the urban areas. And if we look at the level of urbanization in the world, today, we have a large fraction of people that are living in urban areas, most of North America and South America, all of Australia, most of Europe, many parts of Asia.

Some parts of Africa, you find that the share of people living in urban areas is greater than 50 percent. Whereas in certain countries, the share of population that are the share of people that are living in urban areas is still less than 50 percent. So, we can see that they are the rural dominated areas.

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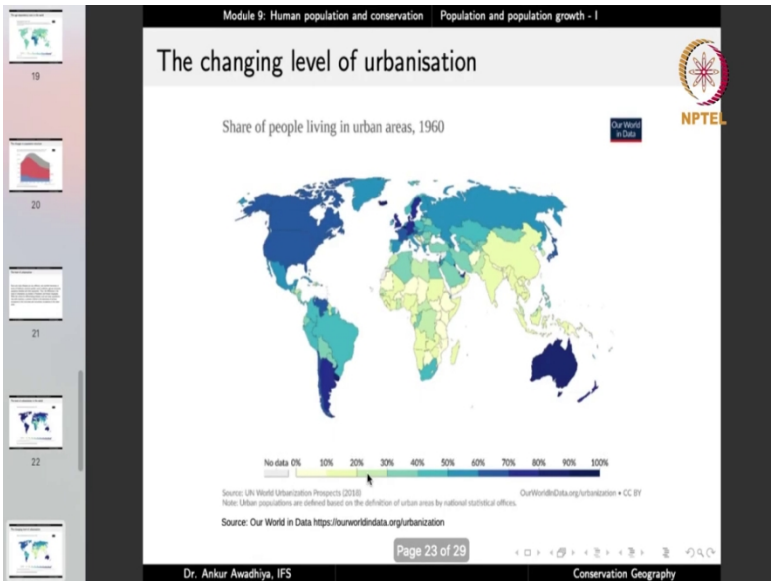

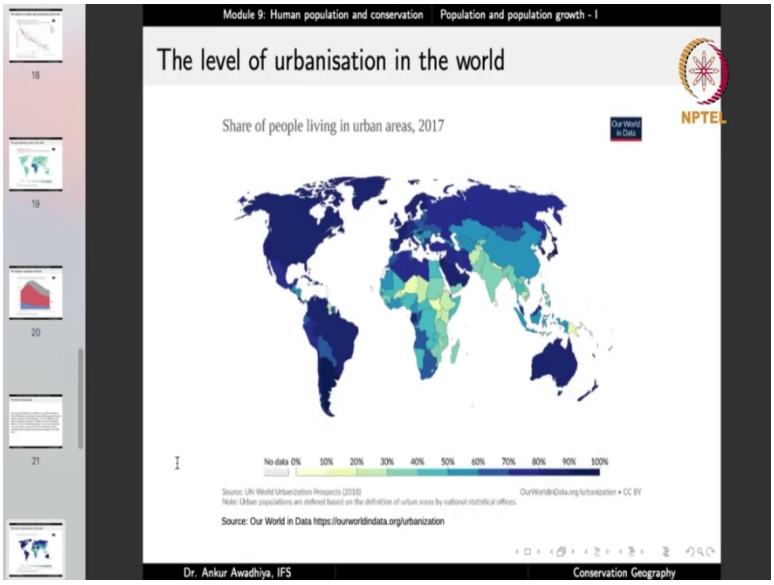

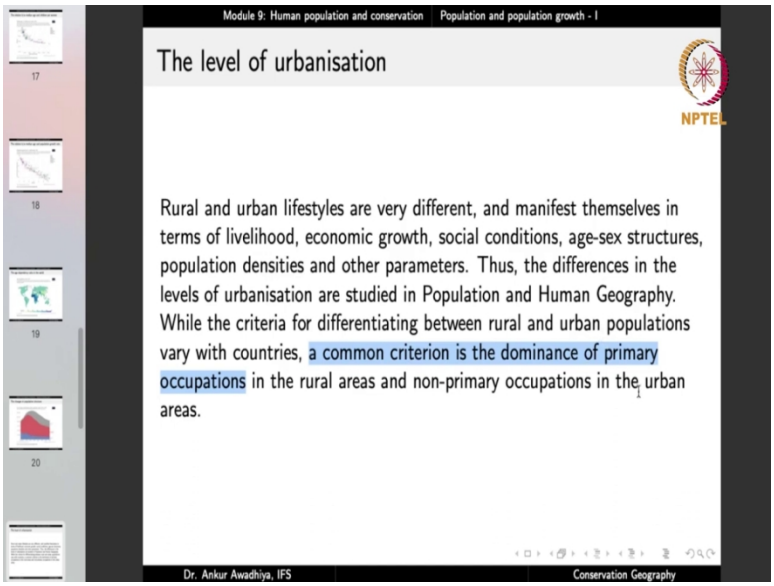

But this has been changing with time. So, today this is the situation in the 1960s this was the situation. So, we can see that the level of urbanization has increased with time. Now, more and more people live in urban areas as compared to the 1960s which also tells us that this parameter or this field in human geography has been experiencing in changes with time.

Now, when we talk about human geography it will ask the question which areas are observing urbanization of the population, why do we have urbanization of population in these areas and so on. Another important population parameter is literacy or the number of people who can read and write.

Now, literacy is an indicator of the socio-economic development standard of living availability of educational facilities, government priorities and other such factors. So, it is an indicator of socio-economic development areas that have a higher socio-economic development typically have more literate populations.

This is both a cause and effect because if you have people that are literate, that are more dead or more welded, then typically they have much better employment opportunities. And so, in these areas it is typical or easy to have more industries, because you have a working workforce that is already available.

And once you have more jobs, the level of socio economic development increases. Now, when the level of socio-economic development increases, parents tend to put even more emphasis that their children should study. And so, this brings in a virtuous cycle. Once you make a society literate, the level of socio economic development would increase, which would make it even more literate and so on.

It is also an indicator of the standard of living because areas that have better socio-economic development also tend to have a better standard of living availability of educational facilities, you cannot have literacy if you do not have schools or other modes of imparting literacy. So, it is also an indicator of the availability of educational facilities. It is an indicator of government priorities, what does the government want and other such factors and the levels of literacy are also studied in population and human geography. Literacy is both a cause and consequence of the level of economic development of a society or a country.

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And currently, if you look at the literacy rate, then there are a large fraction of areas where the literacy rate is very high. So, most of North America a medium chunk of South America, all of Australia, all of Europe, a major chunk of Asia in some parts in Africa have a high literacy whereas, there are certain portions where you have low literacy.

Now, typically you can also observe that the areas that have low literacy are also those areas where the level of socio-economic development is less, where the population growth rates are high, where the median population age is less and so on. So, it has a large amount of ramifications on a large number of population parameters of a country or a society. So, it is a very important factor to be studied.

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Next we have economic development. So, this is another population parameter often measured in terms of GDP per capita. That is the gross domestic produce per capita. It means that if we add up all the produce that a society is making, put a price tag on it. So, we put a dollar value or a rupee value to that and divide that by the total population of the country or the society.

In that case, we get the GDP per capita that is for every individual, what is the amount of produce that the society is producing or consuming because production is typically equal to consumption? So, more GDP per capita would often represent that the society is making large

quantities of goods, consuming large quantities of goods, or it is producing and consuming those goods that are of a higher value.

So, typically more sophisticated items. Now, if you look at the GDP per capita, we observe that there are certain areas where the GDP per capita is very high areas like North America, so US and Canada have a very high GDP per capita, mostly because of the industries that are there. Europe has a high GDP per capita mostly because of the industries.

Australia has a high GDP per capita, mostly because of industries, plus also mining. And then we have Saudi Arabia that has a high GDP per capita, mostly because of oil production. Whereas, there are certain countries like most of Africa and many parts of Asia, that have a low GDP per capita primarily because of two reasons.

One, the societies are not producing large quantities of goods that have a high value and two, because the societies have a very large population, which because it is in the denominator of GDP per capita, it reduces the GDP per capita. Now, why is this so, because these societies are primarily agriculture dominated societies, they are more reliant on the primary sectors of the economy.

And so, in the absence of industrialization, in the absence of technological growth, they produce things with primitive technologies. So, the productivity is less so, the production is less at the same time, the economy is producing those goods that do not have a high value. So, they are not producing very sophisticated technologically advanced items. And so, the GDP overall is less and the GDP per capita is made even lesser because of a high population.

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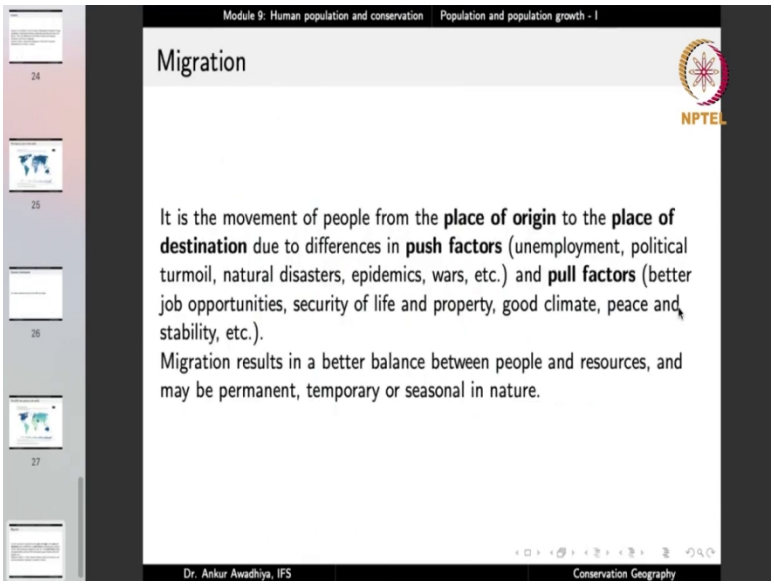

And yet another factor that governs the population and population growth is migration, movement of people from place of origin to place of destination. So, in the place of origin, the population will go down in the place of destination with the population will go up. And people move because of differences in push factors.

So, push factors are those factors that push people away. So, these are the negative factors. They make life difficult things like unemployment, political turmoil, natural disasters, epidemics, wars and so on. So, they push the people away and they move to the place of destination because of their pull factors, that is better job opportunities, security of life and property, good climate, peace and stability.

So, the push factors push people away from the place of origin and the pull factors attract people to the places of destination and migration plays a very important role in the case of population characteristics, it results in a better balance between people and resources. So, if there are more resources, we will typically get more number of people in those areas.

If resources are less, then that would result in unemployment, that will result in less GDP per capita and people will move out. So, it creates a better balance and this migration may be permanent, it may be temporary or it may be seasonal in nature, permanent when people shift to the place of destination, and they stay there for life, they become citizens of those areas or it may

be temporary, in which case people may go to an area that has better opportunities primarily when they are in the working age group.

And once they are old, they will come back or it may even be seasonal in nature, seasonal when in the case of sectors like agriculture, so when it is the agricultural season, then a lot of people get employment in the agricultural sector. But the sector being seasonal in nature, when it is not a time to saw crops or to reap crops.

In those times, people tend to move away into industrial areas to get jobs. And once you again have the agricultural season, these people will come back. So, migration also plays a very important role in the population, its growth and its characteristics. So, that is all for today. Thank you for your attention. Jai Hind!