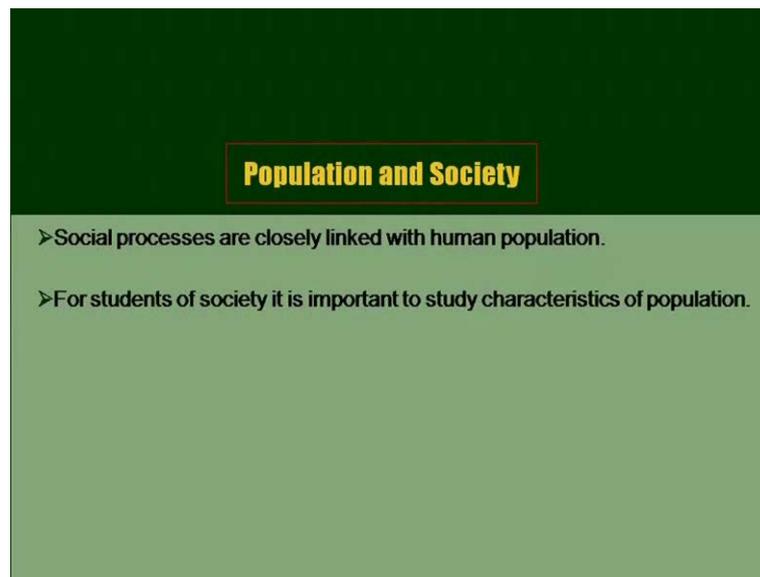


Population and Society
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Lecture No. # 01
Introduction

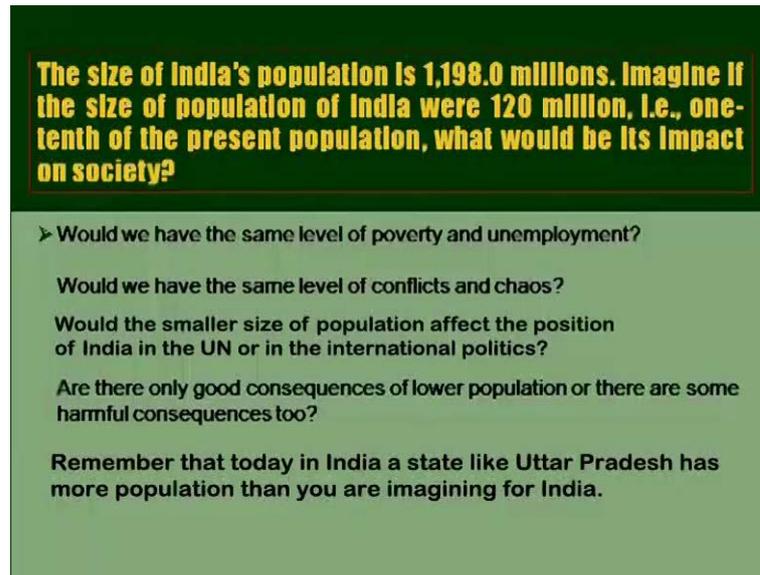
Friends, we are going to start a course on Population and Society. This is a course of sociology, and today in this introductory lecture, I am going to tell you about the content of the course. What will this course contain, and what are the basic concepts of population, what are the basic concepts of society are, and how we are going to establish the linkages between the two.

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When we talk about population and society, the basic point of this course is that social processes are closely linked with human population. Earlier in some other course, in sociology, you must have seen what population processes are, what social processes are. So, sometime in this course, I will also refresh your memory about social processes, but right now, it would suffice to say that social processes are closely linked with human population and therefore, for students of society, it is important to study characteristics of population. By population, I obviously mean human population here.

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The size of India's population is 1,198.0 millions. Imagine if the size of population of India were 120 million, i.e., one-tenth of the present population, what would be its impact on society?

➤ Would we have the same level of poverty and unemployment?

Would we have the same level of conflicts and chaos?

Would the smaller size of population affect the position of India in the UN or in the international politics?

Are there only good consequences of lower population or there are some harmful consequences too?

Remember that today in India a state like Uttar Pradesh has more population than you are imagining for India.

So, to begin, to give you an idea of what can sociologists do in the study of population, let me begin this course by asking a question, that the size of India's population today is 1198.0 millions. Now imagine, if the size of population of India were 120 million something of the size of India's population about hundred years ago, that is one tenth of the present population, what would be its impact on society? Do you think it would matter, if in place of India's size being 1198 million, it were only 120 million, would it matter, matter in what sense? Would we have the same level of poverty and unemployment?

Today we say that about 30 percent of India's population is living below the poverty line, and in newspapers, magazines, in TV discourses; you must have seen people talking about a connection between population size and level of poverty.

So, many people think that large size of India's population is a cause of poverty. So, does it mean that if in place of 1198 million, we were only 120 million, then the level of poverty in India would be much less. This is one question. Unemployment; there is lot of unemployment, unemployment in general, unemployment of youths, unemployment of women, unemployment of educated people, especially unemployment of educated women. Does population size affect unemployment in general or unemployment in a specific group of population such as educated women?

Another question, would we have the same level of conflicts and chaos? Today in society, we have lots of conflicts and chaos, nationality problem, terrorist problem, linguistic conflicts, communal riots, lawlessness; chaos means lawlessness. Many people think that one of the reasons behind all these is that we have population which we cannot manage. Perhaps, if we had a smaller population, situation would have been better.

Another question, would that affect the position of India in the international politics? It is a difficult question, like many people can answer first two questions by saying that, yes, if population were less, then the level of poverty would also be less. And there would be less conflicts and chaos, but do you think that if India's population was less, was only 120 million, then the political standing of India in United Nations, in the world as a whole, in various forums would be same or less or more. Very difficult to say, but it appears that if we had a smaller size of population, we would have lesser poverty, but our standing in the international sphere would also be lower.

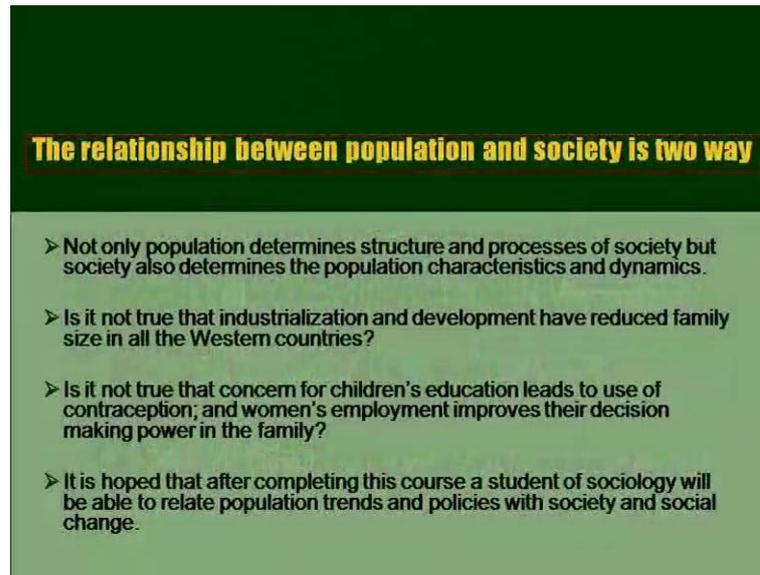
So, if there are advantages of having smaller population in terms of poverty and unemployment, there are disadvantages also. So, large size of India's population; we are next to China and there are projections that in about two decades time, India's population will be more than population of China and therefore, demographically speaking, we would be the largest country of the world, which also means more power.

There is another question, are there only good consequences. This is a philosophical abstract question combining all types of empirical questions. Are there only good consequences of lower population or there are some harmful consequences too? Means; there are good consequences as well as bad consequences.

Now, remember that today, in India, a state like Utter Pradesh itself has more population than you are imagining for whole of India. And according to recent estimates, the population of Utter Pradesh is around 150 million; actually 30 million more than what I said that India's population would have been; 120 million.

So, when we talk of relationship between population and society, it is a two way relationship. It is not that population only affects social structure, social processes. Social structure and social processes also affect population.

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The relationship between population and society is two way

- Not only population determines structure and processes of society but society also determines the population characteristics and dynamics.
- Is it not true that industrialization and development have reduced family size in all the Western countries?
- Is it not true that concern for children's education leads to use of contraception; and women's employment improves their decision making power in the family?
- It is hoped that after completing this course a student of sociology will be able to relate population trends and policies with society and social change.

So, not only population determines a structure and processes of society, I suppose you are familiar with these terms; structure and processes, but society also determines the population characteristics and dynamics. Characteristics means a photographic picture of population at a given point of time and dynamics means changes in those characteristics.

Is it not true that industrialization and development have reduced family size in all the western countries? This shows that changes in society have pronounced affect on population characteristics. In western industrial societies, where development has taken place, where industrialization has taken place, where women have become more educated, their family size has greatly reduced; reduced to a level that average fertility in the developed countries is less than 2. In some countries 1.4, some countries 1.2, some countries 1.1.

And there is so much of anxiety and fear in the western world; what will happen to their population if demographic trends continue to be like this. And there is a whole debate on women's education and women's empowerment there. One very noted demographer Nathan key fits in Britain writes that there is an inverse relationship between women's empowerment and society's power to survive.

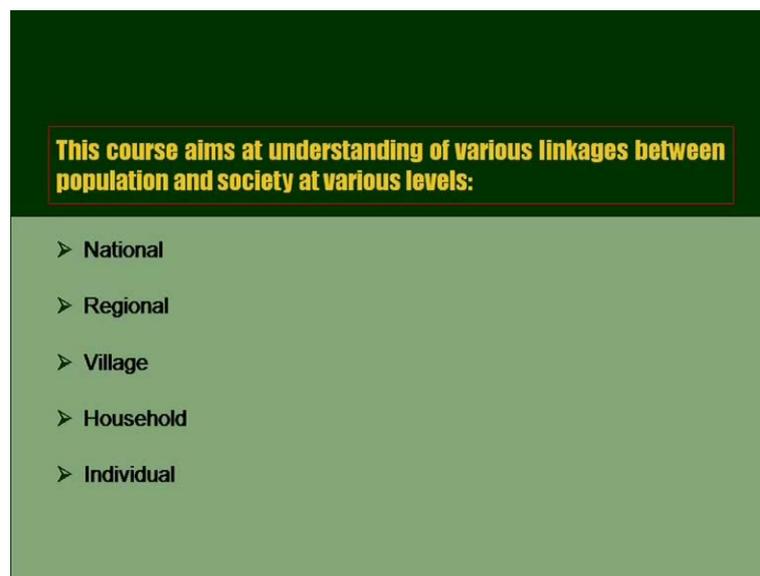
In a society in which women are more empowered, society loses capacity to survive and for the obvious reason that women too want a career and they do not want to waste; from

their perspective, waste their time on reproduction. So, changes in society affect population trends.

Is it not true that concern for children's education leads to use of contraception. This is happening in less developed countries also, in our own country also, and women's employment improves their decision making power in the family. And once their decision making power in the family improves, and then fertility declines. It is hoped that after completing this course, a student of sociology will be able to relate population trends and policies which society and social change.

So, initially I gave the example that, if population size is less, what will be its affect on say unemployment, poverty, etcetera, and now this is an example of how changes in social structure, industrialization, economic development have produced population changes.

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So, that is a two way relationship. This relationship is actually much more complex than we can think it to be because empirical relationships at various levels of analysis are not safe.

We demographers analyze relationship between population and society at the following levels; national level, this analysis can be done by correlating characteristics of society and development on the one hand and demographic characteristics of different nations.

So, like you can have data on per capita income for different countries, and you can also have data on number of children in each country and you can correlate. That will give you the analysis at national level.

Then, regional level. Within the nation, at regional level, relationships which are true at the national level are often not true at the regional level. Actually in demographic debate, for a long time, we use to say that economic development and industrialization are the cause of demographic transition, but in 60's and 70's in India, we found that in some regions like Kerala, is state of India, in Goa; in some regions where economic development had not occurred at that time, where industrialization had not occurred, those were the regions where demographic transition occurred first. So, the issue was why.

And it was said that Kerala model shows that it is social development and not economic development which affects fertility, but now things are changing. So, relationships at different levels can change.

The recent state which is still an enigma and discussion and debate is going on in the ministry of health and family welfare and at other higher levels to examine why is it that Himachal Pradesh now, Himachal Pradesh is a new state where total fertility rate has gone below two and Himachal Pradesh it is very different from Kerala in terms of density of population, per capita income, industrialization, education of women, percentage urban and average size of settlement, etcetera.

So, social reality is dynamic that we cannot have models which will always explain all kinds of social phenomena. Reality keeps on changing, then village level, household level, individual level; what may be true at the national level may not be true at the regional. What is true at regional level may not be true at the village level. And what is true at the village level may not be true at the household level. And what is true at the household level may not be true at the individual level. What is true at theoretical level may not be true at empirical or observed level. As this course unfolds, you will learn many things about this.

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Economists	interested in economic aspects of demographic phenomena. They may use cost-benefit approach to reproductive decision making or migration.
Psychologists	focus on individual differences.
Political scientists	explain everything in terms of power and forms of state.
Anthropologists	have been traditionally interested in culture of preliterate societies though these days they also study urban and industrial organizations and examine belief systems, symbolic communication, patterns of interaction and behaviour, and values.
Social historians	examine historical roots of population changes and rise and fall of death rate, migration and nuptiality (marriage).
Sociologists	claim that they study population variables in terms of social structure.

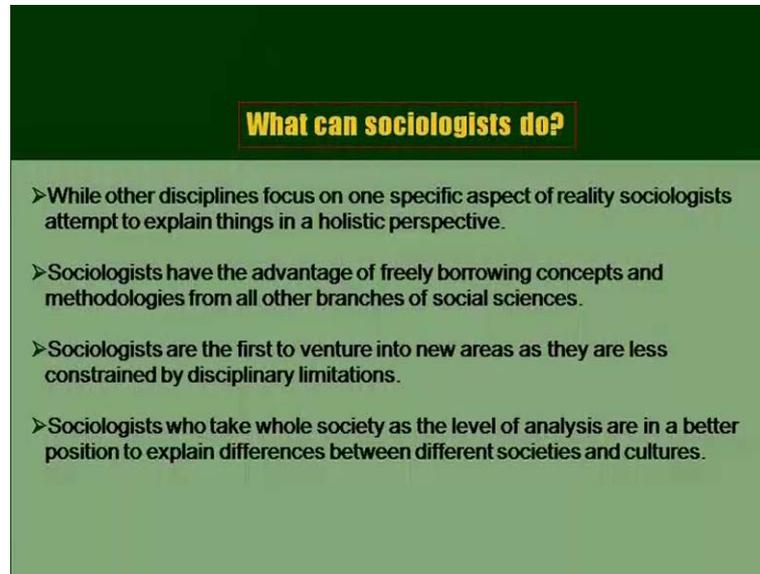
So, this slide shows what aspects of population interest different social scientist; sociologist are not the only social scientist who study population, economists have studied population, psychologists have studied population, political scientist have studied population, but their interest lies in something else. You know economists are more interested in economic aspects of demographic phenomena. They may use cost benefit approach to reproductive decision making or migration. psychologist focus more on individual difference.

Let me explain this by saying suppose we are studying migration. Psychologists are interested in why is it that in the same situation, in same environmental conditions, in same socioeconomic context, some people migrate some do not migrate, while sociologist may be interested in the issue; what are those environmental social condition, cultural factors which induce or prevent migration. That is the difference between psychology and sociology. Both the segments have their own merits and demerits.

Sociologists look at things at the structural level, psychologist at the individual level. Political scientists explain everything in terms of power and forms of state. Anthropologists have been traditionally interested in culture of preliterate societies, though these days they also study urban and industrial organization and examine belief system, symbolic communication, patterns of interaction and behavior and values. Social historians examine historical roots of population and rise and fall of death rate, migration

and, nuptiality. Sociologists claim that they study population variables in terms of social structure.

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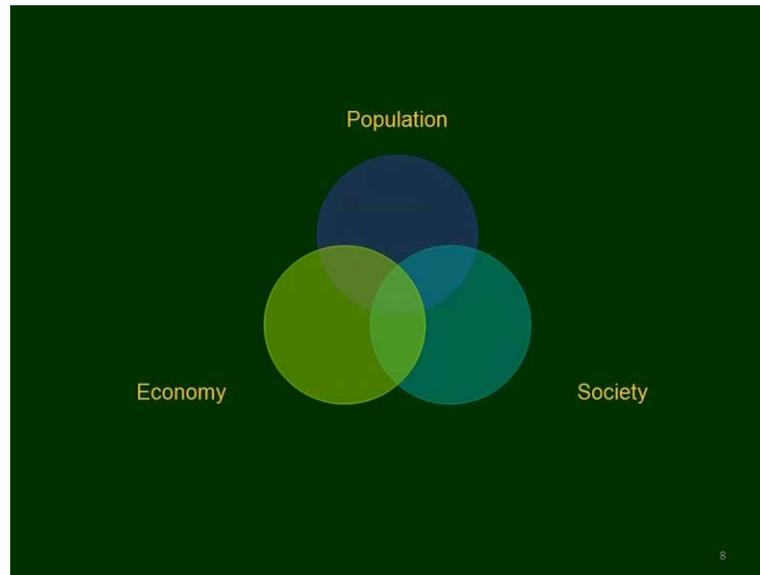
What can sociologists do?

- While other disciplines focus on one specific aspect of reality sociologists attempt to explain things in a holistic perspective.
- Sociologists have the advantage of freely borrowing concepts and methodologies from all other branches of social sciences.
- Sociologists are the first to venture into new areas as they are less constrained by disciplinary limitations.
- Sociologists who take whole society as the level of analysis are in a better position to explain differences between different societies and cultures.

So, what can sociologist do then? While other disciplines focus on one specific aspect of reality, sociologists attempt to explain things in a holistic perspective. Everything, all aspects combining at more abstract higher plane. Sociologists have the advantage of freely borrowing concepts and methodology from all other branches of social sciences. So, sociologists are free to do anything in methodological terms and in selection of problems. Anything, any problem that they will select will become a sociological problem and any methodology they will apply; quantitative, qualitative, simulation, modeling; that will become sociological method. Sociologists are the first to venture into new areas as they are less constant by disciplinary limitation.

So, whenever national level issues rise, it may be terrorism, it may be nasal problem, it may be any other problem women, domestic violence; all kinds of problem, sociologists are the first to venture into new area.

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Sociologists who take whole society as the level of analysis are in a better position to explain differences between different societies and cultures. But anyway in this course, we will have a holistic approach, and we will deal with the inter linkages between population, economy and society. Population, economy, society; these are broad terms disciplinary terms. In the course, we will see what aspects of population are to be linked with what aspects of economy or what aspects of society.

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Sociology	<ol style="list-style-type: none">1. Are there religious differentials in fertility in ? What are the causes behind them?2. How does social stratification affect health inequality and quality of life?3. What role did the industrial revolution play in promoting rural to urban migration?
Economics	<ol style="list-style-type: none">1. What are the short term and long term effects of population growth on productivity and national income2. What are costs and benefits of children in different types of societies3. Will the falling birth rate improve unemployment rate?4. How does one assess the impact of population growth in urban or rural areas?

So, to give you an example of some question specific question that sociologist and other social scientists can ask with regard to population, sociologist will ask are there religious differentials in fertility, what are the causes behind them. A religious difference in fertility means differences between Hindus and Muslims and Sikhs and Parsee. How does social stratification affect health inequality and quality of life? In our country there will everywhere why in our country everywhere, there is lot of health inequality.

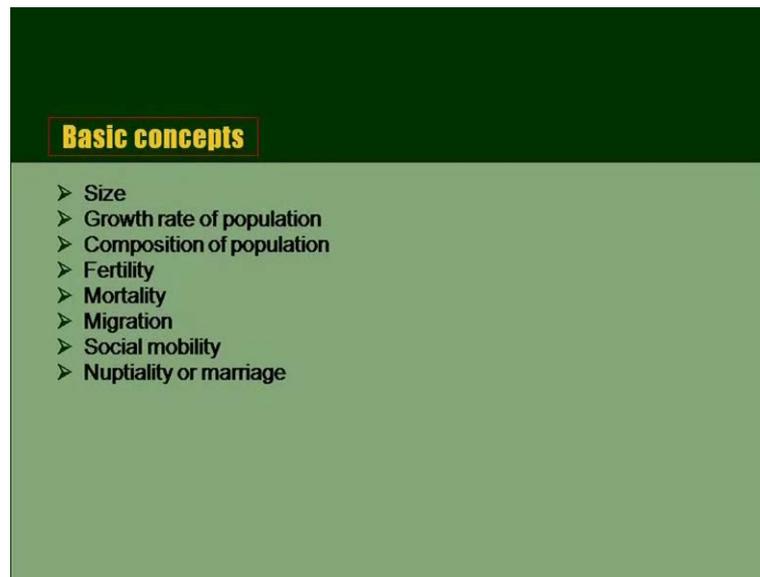
So, the issue is how does social stratification affect health inequality and quality of life. All these terms need operation analyses. What role did the industrial revolution play in promoting rural to urban migration? Economists have specific questions like what are the short terms and long terms effects of population growth on productivity and national income. Two; what are cost and benefits of children in different types of societies? Will the falling birth rate improve unemployment rate, how does one assess the impact of population growth in urban or rural area.

Psychologist would be interested in what are all the values of children, what is the relationship between locus of control and fertility preferences, what are social representations of health and illness among the tribal communities, and how does one measure stigma against HIV aids. Political scientists would be interested in how does empowerment of women help in reducing maternal mortality ratio; very important question for India.

India is one country where maternal mortality ratio means proportion of women dying due to factors related with child birth is one of the highest; higher than an African country. Several African countries which are poorer than India have much lower maternal mortality ratio. India has one of the highest maternal mortality ratio and they should worry.

Is there a relationship between political structures and demographic transition? Anthropologist would ask do cultural norms affect decision making regarding place of delivery, did the **kinship** structure among primitive tribes affect their desire to migrate.

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Now, coming to basic concepts of population, in population whenever we link social variables with population variables, we will be linking social variables to one of these things in population; size; size means number of persons, size of population of India, size of UP, here we are referring to number of people inhabiting that country or region or state or area. Growth rate of population; at what rate is population growing, means you must have heard that in India, initially about hundred years ago, population of India was sometime increasing, sometime decreasing, this growth rate of population was sometime negative, sometime positive.

Then India started growing at a rate around one percent, then after independence, India started growing at more than two percent and in the recent past population growth rate has fallen. Composition of population; composition of population means in the population, how many are men, how many are women, how many are old, how many are middle aged, children, infants, married, unmarried. Now 2011 census is going on. There is a big debate on whether caste should be included in population census or not, that if include caste in census, we will have data on caste composition of population also.

Right now, we do not have census data on caste composition, but if we can include caste in India as census, then we will have data on caste which will tell us what is the number of people belonging to general category, OBC category, SC, ST; we can also go deeper

into in which caste in which category, how many males, females, married, unmarried, unemployed, or employed people are.

Fertility means birth; children mortality, death, migration; movements from one place to another. Social mobility; social mobility is typically sociological concept which says that all societies are layered. They are divided into a number of groups or ranks or strata which can be ranked on the basis of power, prestige and wealth, and movement of people from one group to another or one class to another or one status to another is called social mobility.

Social mobility can be upward. Imagine that son of a **peon** become professor. So, there is upward mobility. Social mobility can be downward, if son of a professor becomes a rickshaw puller, then it is a downward social mobility. There can be horizontal mobility also, if say son of an engineer becomes a doctor, then there is a horizontal mobility because status wise both engineers and doctors belong more or less to the same class. Nuptiality or marriage; this is very important nuptiality or marriage. At what ages do women marry, what is the logic behind that is there any legal minimum or maximum age of marriage?

You must have heard that in India, legal minimum age of marriage is 18 that below the age of 18, parents are not suppose to marry their girl, but the fact is that fifty percent marriages in India take place below the age of 18, and sometimes even big politicians, bureaucrats, power ally arrange for their daughter's marriage at ages less than this because there is a conflict between tradition and law, and when there is a conflict between tradition and law, then quite often traditions prevail.

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Conventionally, population scientists make a difference between demography and population studies.

- Demography deals with the quantitative study of size and processes of population; population studies deals with complex and qualitative relationships between socio-economic environment and population.
- In practice there is no separation between the two.

Now, conventionally we make a difference between demography and population studies. Demography deals with the quantitative study of size and processes of population, and population study deals with complex and qualitative relationships between socio-economic environment and population. Actually in practice, there is no separation between the two, but normally those who do MSc in mathematics or PHd in mathematics, they go for demographic studies and those who do BA and MA in sociology, psychology, political science; they go for population study and they focus more on substantive issues rather than on simulation or model building.

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MAJOR ISSUES

- RELATIONSHIP BETWEEN
- SIZE
- GROWTH
- COMPOSITION
- DISTRIBUTION
- QUALITY OF POPULATION

Now, major issues then in population studies; by now it must have been clear is to study a relationship quantitatively or qualitatively between size, growth, composition, distribution and quality of population. We make a difference between composition and distribution. Usually composition of population with respect to age, sex, marital status is called composition and composition of population in terms of urban- rural characteristics or occupational characteristics is called distribution of population.

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Imagine that a population is growing exponentially at rate r , i.e.,

$$P_t = P_0 e^{rt}$$

$$t = \frac{1}{r} \log \frac{P_t}{P_0}$$

where P_t refers to population at time t , P_0 to initial population (at $t=0$), e to exponential function and r to rate of growth.
By taking natural logarithm on both the sides it can be shown that

Putting $P_t = 2 P_0$, one gets $t = .69/r$
For approximate values of it, doubling time t is often expressed as $70/r$ in which r is expressed in percentage form.
The following table gives the doubling time for different values of growth rate.

r (per year)	Doubling time in years
.1 percent	700
.5 percent	140
1 percent	70
2 percent	35
3 percent	23.3
4 percent	17.5
5 percent	14

Then let me show an interesting concept of population studies which can tell you about the consequences of growth rate of population. This is the concept of doubling time. Imagine that a population is growing exponentially at rate r , and we write an exponential equation $P_t = P_0 e^{rt}$, then we can deduce from that that t or time is $\frac{1}{r} \log \frac{P_t}{P_0}$. Here P_t refers to population at time t , P_0 to initial population at $t = 0$, e to exponential function and r to rate of growth.

By taking natural logarithm on both the sides, it can be shown that $P_t = 2 P_0$, one gets $t = 0.69/r$. If you write $P_t = 2 P_0$, then t becomes $\frac{1}{r} \log 2$ and $\log 2$ is 0.69. So, $t = 0.69/r$, roughly $0.70/r$. For approximate values of it, doubling time is often expressed as $70/r$, in which r is expressed in percentage forms.

The following table gives the doubling time for different values of growth rate means if r is the rate of growth, doubling time is time population will take to double. If a population is growing at rate 0.1 percent per year, then the doubling time would be 700 years. This

is the reason why human history is very old, although it can be debated how old, whether 5 million, 10 million, or 20 million, but it is a very long history and you will wonder that for a very long period of time till say 1500 AD means for millions of years, population of the world, population of India, population of different continents remained almost stable.

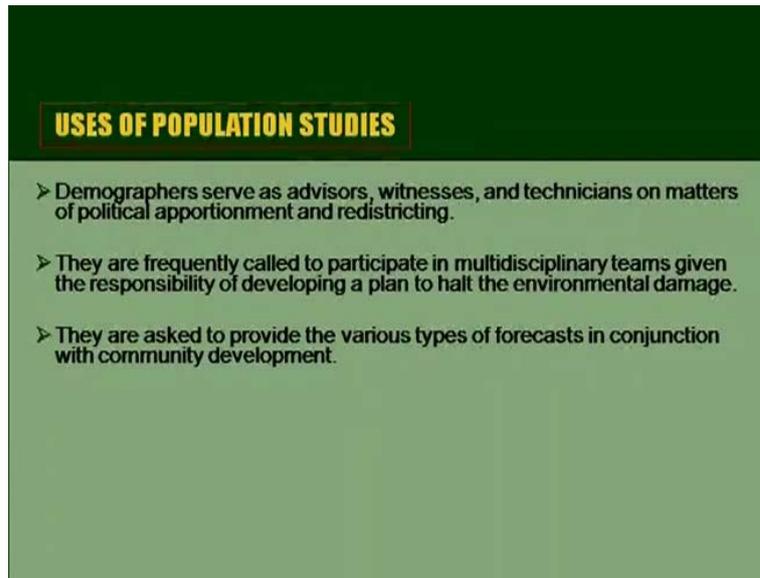
And the reason was that the growth rate of population was very little 0.000 something. You can calculate it. How low rate of growth of population would have been because it took millions of years if I remember correctly, it was in year 1820 AD that for the first time world's population reach first billion mark.

So, it took 15 to 20 million years to reach the first billion mark in 1820 and today in 2010, we have already cross six billion. See the rate of growth of population. So, relationship between rate of growth of population and doubling time is like this; if population grows at 0.1 percent, it takes 700 years to double. If population grows at 0.5, then 70 divided by 0.5; it takes 140 years. If population is growing at 1 percent, then 70 by 1; it takes 70 years to double. If population is growing at 2 percent which is India's growth rate roughly, it is now slightly less than that, but if growth rate is 2, then it takes 35 years.

So, that means, in 35 years, we are going to double; that means, if today India's population is 1.2 billion and the rate of growth continues to be like this, then in another 35 years, we will be double the present size. We will be more than two billion. In 1820, the population of the whole world was one billion. Today India alone is more than one billion and in next 20 years, population of India is going to be more than two millions if this rate of growth continues. So, this doubling time gives us an idea.

Now later on we will see that rural areas are almost growing at two percent while urban areas are growing at four percent which also mean that the population of urban areas will double in 15 years time. Already there is so much of infrastructure problems, problem of quality of life in urban area, transportation problems, slum problem, illiteracy problem, health problems, imagine that if urban population of India continues to double in 15 16 years' time, what would be the future.

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Uses of population studies. So, these are the things which we are going to cover in this course. In this introductory lecture, let me also tell a little bit about uses of population studies. Demographers serve as advisors, witnesses and technicians on matters of political apportionment and redistricting; means creating new regions, states, divisions, etcetera. They are frequently called to participate in multidisciplinary teams given the responsibility of developing a plan to halt the environmental damage.

So, one role demographers play is in planning for divisions of the country, states, regions, districts, formation of new districts, new states; considering all aspects of socioeconomic and demographic processes, and they are frequently called to participate in multidisciplinary teams for the responsibility of developing plans. If you look closely at your five year plans, the last was eleventh five year plan; you find that the eleventh five year plan is all about projections.

What will be our needs, and how we are going to meet those needs, and how much expenditure would be required in agriculture, in poverty removal, in urban development, in education, in health and family welfare, in fighting HIV aids, in agriculture technological development.

So, demographers are going to play a very vital role in planning for the future and they are asked to provide the various types of forecast in conjunction with community

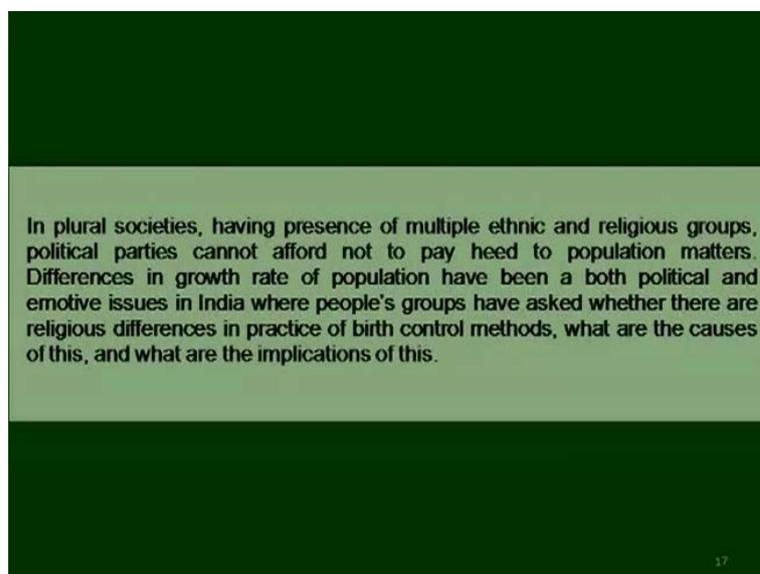
development and as forecasters, they are also required to provide projections to civil engineers, to planners, administrators at various levels.

In plural societies like ours, I think demographers or population scientist have very specific roles. In plural societies, plural means societies in which diverse kind of cultures and groups can be found. India is one country where you find all world religions, a large number of languages, all kinds of ideas, religions, all kinds of **sacs** political ideologies, and it is not a new thing. I was reading somewhere that in Goutham Buddha's time, there were sixty two religious thoughts prevalent in India. India has always being country like this. It has always been a plural country.

I think the world community has much to learn from India; how does a country like India; a plural society has managed it is a religious affairs for thousands of years. Goutham Buddha said somewhere he himself wrote that there are sixty two religious thoughts, sixty two ideology, sixty two philosophies prevailing in our country and my philosophy is this and obviously, you will say my philosophy is superior to other philosophy.

When I read that statement in Buddha, I was more impressed by the fact that at that time, there was sixty two religious philosophies prevailing in India and somehow we managed. Since plural society like ours, having presence of multiple ethnic and religious groups, political parties cannot affords not to pay heed to population matter.

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Actually this asking for caste **sensors** is itself a question of this type that we want to know how many people belong to which caste and we want to know what is the share of different caste groups; general category, OBC, SC, ST and others. In class 1 services, class 2 services, class 3 services; what is the proportion of Hindus and Muslims an upper caste and lower caste and indifferent among different religions again you have caste.

Among Muslims also, you have upper caste and lower caste; **assorts** and **aloft** and **say xire's pathans and Karachi**. So, if we can have data on caste in Indian censuses, we would know that already educations among Muslims is low and we do not have to go for statistics; I always ask in my question this question in my class in the beginning.

Normally our class size is hundred in level 2 courses, and I ask how many Muslim students are here and we find none or one or two, and I ask why is it that in a class of hundred students, we have only two Muslims. Is it that Muslims are not capable of understanding technology? I asked how many girls are there and usually there are only four or five girls. Are girls biologically incapable of understanding technology? The answer is that right from the beginning in our plural so called plural society; there are cultural constants on the mobility of minority region, girls and many other classes.

So, if we have data, if we have demographic data need, census data on this thing, we can know what is happening to mobility in different classes, groups and caste. Differences in growth rate of population; this is the matter of concern, at great consenter I remember in **hinutwa** type magazines and journals, you often find statements to the effect that Muslims are continue to act smart on population, they want to become a majority in this country and so on.

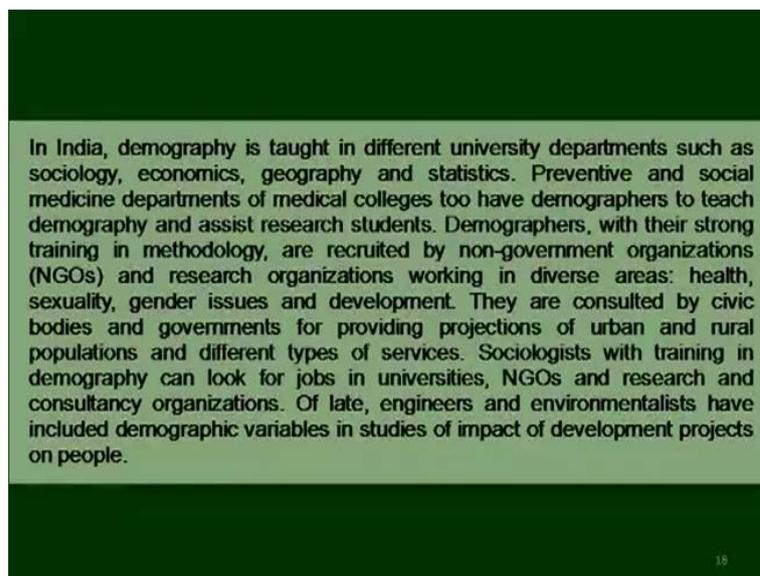
But if you have hard facts, the demographers can say that no, the growth rate of Hindus and Muslims are not different. And demographers on the basis of hard facts, can tell that if you look at growth rates of Muslims in different states of India, than in if they have high growth rate in UP; Hindus have also high growth rate in UP, but in Kerala, Muslims too have less than 2.5 children per family.

So, it is more an issue of socio-economic background rather than religion. Differences in growth rate of population have been both political and motive issues in India, where people groups are asked whether there have religious differences in practice of birth control matters, what the causes of these are, and what are the implications of these.

So, while hindutwa type people are afraid of growth of Muslim population, demographer tell that first of all they have very small differences, and if you apply statistical model, regression model, etcetera; you find that whatever differences are, they are largely due to socio economic differences, and gradually with social mobility of minority, women, disadvantages accents has the socio-economic difference between different groups will wither away, differences in demographic trends will also go away.

Where is population; population is not taught at many places. We have very few universities where population is taught at BA and MA level. There are some specific institutions devoted to population studies, but now things are changing. now demography is taught in different university department.

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So, there is at least one paper in several departments, in most universities now, in sociology, economics, geography and statics. Preventive and social medicine departments of medical colleges too have demographers to teach demography and assist research students. Demographers, with their strong training in methodology are recruited by non-government organizations and research organizations working in diverse area; health, sexuality, gender issues and development.

They are consulted by civic bodies and governments for providing projections for urban and rural populations and different types of services. Sociologist, with training in

demography will look for jobs in universities, NGOs and research and consultancy organizations.

Of late, engineers and environmentalists have included demographic variables in their studies of impact of development projects on people. It is not that I want to sell my subject, but this is a fact that demographic and population studies is becoming an important subject and is being included as a serious matter of the study in different departments in university.

But if this course is to be taught in sociology, then sociology students; obviously, will ask me did some sociologist talk about population ever or it was only some demographers or population scientist. I would say that yes, and I am giving you list of some persons who have talked about population matters; Emile Durkheim; not many people would know that Emile Durkheim. Everybody in sociology knows about Emile Durkheim, and Emile Durkheim had a theory of population.

In his introductory lectures, we do not have mistakes. So, I will not elaborate on these things, but basically Emile Durkheim, wanted to say that as population density grows moral density grows at a faster rate that leads to chaos, anarchy, anomie, and division of labor that comes to our rescue and with division of labor, we can accommodate more population.

Sorokin talked about there is some spelling mistakes here in name of Sorokin; Peter Sorokin talked about population and his strategic relationship between population growth and human behavior, wars, illiteracy, suicides, crime; so many aspects of human behavior. Kingsley Davis talked about population, Malthus, Karl Marx; everybody has heard the name of Karl Marx; (()) and in sociology and in general, now in post modern writing era, writings on population and by sociology.

Among the sociologists who have written on population, we have Emile Durkheim, (()); this is just to give an example. There are sometimes students of sociology think that population study; population study is not a part of sociology.

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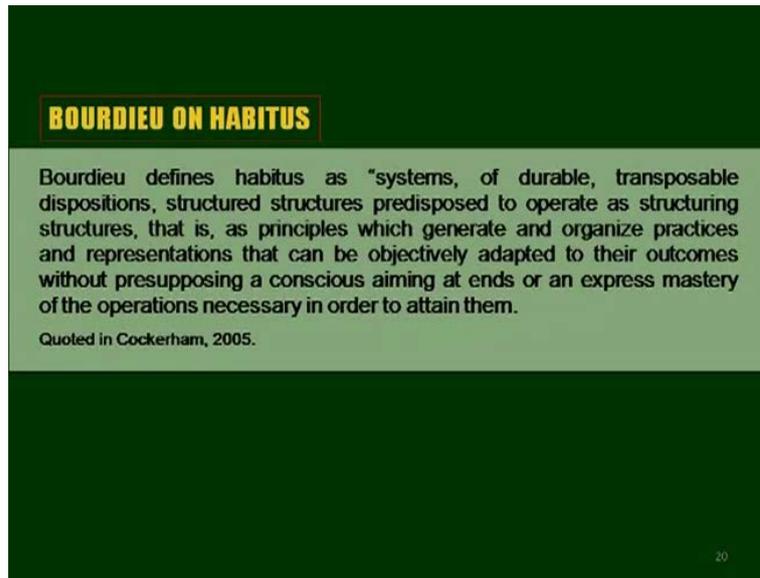
So, I am saying that sociologist or those whom we call sociologist have considered population issues quite seriously.

Emile Durkheim; he talked about relationship between density of population and social structure; you see that when population rises the physical density means number of persons per unit area is increases, and moral density which we define in terms of number of interactions between people; that increases at a much higher rate and that leads to chaos and anomy.

Ultimately, it is through division of labor that society attempts to take care of population growth and new cycle of population growth is start. Sorokin deals with relationship between population growth and human behavior in general. When I first time read Sorokin, I was myself surprised. You imagine an any topic in sociology, and Sorokin has attempted to relate that to population trends; be it crime, homicides, suicides, education, health, illness, economic development, productivity, effectiveness, efficiency; anything.

Kinsley Davis; Kinsley Davis is another sociologist who has written your human society. He has written extensively on population and has given a new theory of population. Malthus; ofcourse.

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BOURDIEU ON HABITUS

Bourdieu defines habitus as “systems, of durable, transposable dispositions, structured structures predisposed to operate as structuring structures, that is, as principles which generate and organize practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of the operations necessary in order to attain them.

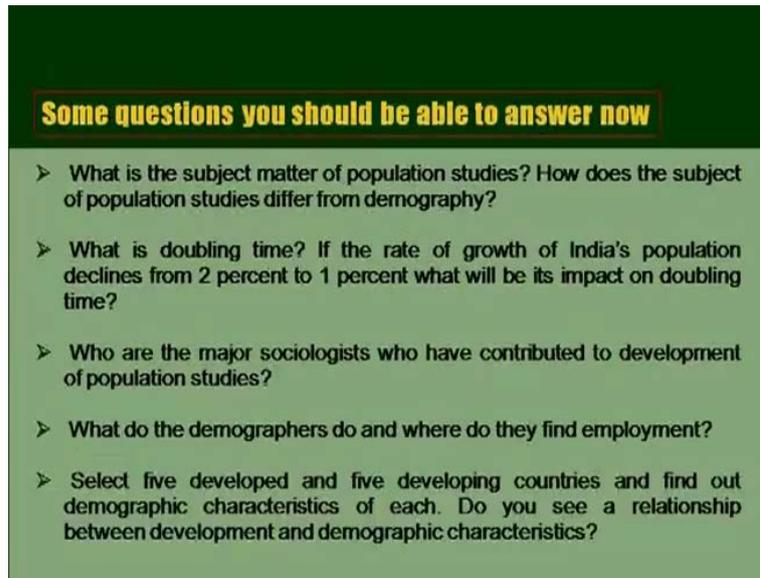
Quoted in Cockerham, 2005.

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Karl Marks; everybody knows who Karl Marks was. Bourdieu; Bourdieu has written original papers on demographic times and post modernist have also taken population. Sometimes an article was published in population and development review on post modern theories of population.

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Some questions you should be able to answer now

- What is the subject matter of population studies? How does the subject of population studies differ from demography?
- What is doubling time? If the rate of growth of India's population declines from 2 percent to 1 percent what will be its impact on doubling time?
- Who are the major sociologists who have contributed to development of population studies?
- What do the demographers do and where do they find employment?
- Select five developed and five developing countries and find out demographic characteristics of each. Do you see a relationship between development and demographic characteristics?

Some questions you should be able to answer now like this; subject matter population is studies, doubling time, its impact, who are the major sociologists who have contributed to development of population studies, what did the demographers do and where do they find employment, you can select five developed and five developing countries, find out demographic characters of each from internet material, from UNDP report, from United Nations report, demographic year books, and you can attempt to explore a relationship between development and demographic characteristics. So, this is what we will do in this course.

I will be happy if you ask one or two questions.

I have some three-four questions. The first thing is, yes in the initial phases of your lecture, you just talked about the relationship in different levels; relationship between the society and population at different levels. So, the relationship in national level may not be true in the regional level and the relationship in the regional level may not be true in the village level. So, how to build a model of developments incorporating the relationship in population society which will be applicable for all the levels?

Actually it is a difficult question to answer. May be in your language, in language of sociology, I can say that a sociologist today would like to study relationships in a given contexts. Days are over, days are positivists are over, when we believe that there are theoretical relationships which are valid universally at all level and in all contexts, but

today we find that relationships have to be defined contextually, culturally, regionally, nationally and separately at households at individual layer.

To giving an interesting an example which readily comes to in mind, even theoretical and empirical relationships can be different. If you look at relationships between income and children, the theory economic theory will say, neo classical or classical whatever; economic theory will say that rich people as they want to have more of all kinds of consumer goods and capital goods, they would also like to have more of children.

Poor people who cannot afford more of consumer goods or capital goods, they also cannot afford to have more children; that means, theoretically speaking, relationship between income and children should be positive, but what we find empirically.

It just reverses.

It the reason of negative relationship; that rich people have smaller number of children than poorer and that is because; to explain this anomaly, we have to introduce a new concept of quality of children that the rich people want a small number of children, but children of superior quality.

So, relationship it is a well established in today in sociology, that relationships have to be defined contextually. What is to... a relationship that you find valid in UP, may not be valid in Kerala, may not be valid for Somalia, and may not be valid for Kenya. So, there is absolutely nothing wrong at if at different level and that is why in statistical analysis, there is a technique of multilevel analysis. Now a days, we talk of multilevel analysis because relationships have to be defined separately at different levels.

The second question is the different disciplines, they deal with the different issues that relating to population, but population study has itself become a discipline now, and it is taught in different universities and different institutions have also come up. So, what will be the approach the method adopted by the population study itself, will it be different from other disciplines or it would be combined method or something like that.

It is a very interesting question. I would say that initially in India, when population study started, it attracted more of mathematician and statistician. The reason was that is in

1950s, we did not have hard facts and we did not have good census data, national sample survey data, and other types of data that we have today, NFHS data, that data.

So, the major issue of population at that time was what to know: what is the size of India's population, what is the growth rate, what is the birth rate, what is the death rate, and therefore, to have knowledge about these things from unavailable data or incomplete data or unreliable data or partial data, they were expected to provide as good estimates of these things as possible.

So you will find that in India, the first generations of population scientists are mathematicians or statisticians, but today's situation is different. Today you have so much of data, that data is not a problem. That data is not a problem; you do not require any mathematical modeling today to estimate fertility of UP because already so many data sources are giving you the estimates of fertility of UP.

Today you have to ask interesting, substantive questions and you have to respond... the academic community has to provide answers to questions raised by parliamentarians, raised by common people, civil society, newspaper journalists, and to answer these questions, now we require sociology.

So, you find that today, the leading figures in population studies are no longer statisticians or mathematicians, but those who have a social science background. So, there is a paradigm shift from mathematics to social sciences.

And another question is on the doubling impact, that if the rate of growth remains the same, then we can project the doubling impact, but generally we see that the rate of growth is not the same throughout the particular period of time in 100 years or 200 years. So, the projection may not be true sometimes.

Good, good, good, very good. We see that we will deal with these issues at this course of course; this doubling time is important only for shorter forecasts. If you know that Indian population is going on 7.7 percent per year, then what will be its population say or in how much time India's population will double; 70 by 1.7 you can say roughly in 40 years time you will double, but this is a fact that the underlying dynamics is not the same. Fertility is constantly declining, mortality is declining, if both had declined at the same place,

then growth rate remain same. So, doubling time formula applies and in the past this happened.

But in the future, when perhaps mortality will not decline further, but fertility will decline more; that means, the growth rate of India's population will reduce, then on the basis of doubling time, you cannot make projections, but you can say that doubling time of India's population is increasing. In place of saying that growth rate is decreasing, you can say that doubling time is increasing which is good news.

One last question, is apart from telling the hard fact, so, what will be the other policy and practical implications of having demographic data like caste data or data regarding the different sections of society.

This when I mentioned about caste in censuses; obviously, I had in mind only policy planning, but you can also think of other uses of this data may be caste association, NGOs, and they can also make use of this data.

Thank you sir

You can also use these data for studying, what is happening to caste in India; the affiliation of caste has been changing. At one time castes were nothing, but a small local endogamous group. At some point of time when British started enumerating caste, it became [FL], then from [FL] it again became caste, but there is a fusion of caste and there is Sanskritization.

So, and then this modal commission has basically divided into four castes now. What is your caste; it is not normal anymore, its general category or schedule caste. You are not a Mathur, you are a Kayastha, you are not even a Kayastha, and you are a general category. So, things keep on changing and accordingly consciousness of people also changes and NGO's cultural social activists can also make use of this.

That means it will help us to define and refine the caste.

Redefine caste. Thank you sir.

Sir, I am having two questions. I am confused somewhere some where you have talked that children's education need to use of contraception. What kind of education you are

talking about? It is general education or particularly related to sex education and another thing; being India such a vast country and we are having such a vast and second ranking population size, but we are still lacking in this sex education and we are not able to promote this education in basic education with basic education.

What kind of obstacles and what kind of problems we are facing for it and other thing is like you have given the scenario of Himachal Pradesh where you have talked about population size. The population size has been reduced according to news data, but on the other hand, if we are think see upon this education thing, education is also with the literacy level is also increased in Himachal Pradesh. Is the education and population something related? If it is so, then why not in Kerala; where the literacy level is already number one in India, then why not there this variable is in relation in relation gap. These are my questions.

You see, with regard to your first question, relationship between education and fertility; by education I only mean the formal education. You will be surprised to know that in India, where fertility still high; roughly say four children. And right from 1951, government of India has been making all efforts expanding crores of rupees in family planning, trying to promote contracepcy so that fertility can come down.

Still at least four states of north India; UP, Bihar, Rajasthan and Madhya Pradesh, fertility is very high. Recently, I was looking at NFHS data and I was myself surprised to see that if you examine population trends according to education of women, then the moment a woman passes high school; irrespective of UP or Kerala or Himachal or Jammu and Kashmir or Sikkim. The moment a women is high school passed, number of children immediately dropped to less than two.

I do not know what is the connection to... the moment of women is high school passed; she is not producing more than two children. In very formal sense, you remember that in 1976, when doctor Karan Singh announce his first population policy, he said that our population crisis can be solved if we can educate woman up to middle class; may be middle of that time is equivalent to high school of this time.

Today if you can educate women and already our educational planning is saying that we have already achieved more than hundred percent school enrollment rates at primary school level. At primary level, almost all children in all parts of the country are going to

school. The next target is to achieve hundred percent enrollment at secondary level; post primary second. The moment our women are secondary passed, our demographic transaction would definitely occur.

And the history of other countries also shows that in all these countries where woman have become educated, fertility has come down. It may not be such a thing that only education directly affects fertility. There are moderate variables, mediating variables, there are other issues cultural, economic, industrialization, urbanization, westernization; all those issues are there we will examine them, but nobody can deny the importance of reaching education for promoting demographic transition.

It came as a surprise to me when I was analyzing the data. The moment a woman is high school pass, number of children is drops to two or less than two.

But somewhere you talked about that today the rural population...

Even in rural areas, surprisingly even in rural areas, the moment a woman is high school passed, number of children is two. Now regarding sex education, this is a moral issue because our country is a religious country and you see we will in some religions on very small issues, there are religious doctrines, orders injunctions there are hindutwa forces, there are fatayas by... there will recently there was a fataya that Muslim women should not go for work.

In this country, where such religious activities are involved, when we talk of sex education, then immediately people, parents, civil societies, religious groups; they oppose. They say that no, we do not want sex education because they think that by having sex education, their children will become sexually more polluted. This is what they think.

But from academicians' perspective, or from (()) perspective, those you advocate sex education, they say that children already have knowledge of sex. That knowledge is faulty. So, we are not giving the knowledge of something about which they have absolutely no idea. There is no child in the country, which does not have any idea about sex, but their ideas are wrong and because of those wrong ideas, they become vulnerable to various kinds of problem including HIV aids.

If they are educated, if they have sex education, then they can be saved from becoming vulnerable to these kinds of problem. This is academicians' perspective or NGO's perspective and service have shown even regarding sexual practices among adolescence, there have been hard facts which we have shown that in urban areas and in intermediate colleges and degrees course, as high as thirty percent students have had sexual encounters.

So, what is good? Having sexual encounter without right sexual knowledge, making them vulnerable to spread of HIV aids and making the whole society vulnerable to HIV aids or giving them correct sexual education? We believe that by having sex education, it is not that sex practices will increase, but vulnerabilities can be taken care of. So, but there is a debate.

You are talking about the effect of position in India as we have you know more population and in international politics, we will be much more important, but if you look at the case of Canada, country like Canada which are less in population, but still they are very significant or you look at US for that instance, they have less population, but they are significant, you look at Russia and so do you belief that population is the main reason why India is you know is becoming more powerful, but what I have feel is that it is not the population, it is the technological advancement, it is more of the rival to software industry, the bread the super beans of India, their education and so many other factors which are contributing.

You are right. You know why US or Canada or Russia are more powerful than India or Japan. That has something to do with history. To answer that question, we have to read history. That what I am saying that despite or colonial disadvantages, when India becomes demographically the first country of the world, it will be difficult for the world community not to make India member of general assembly, it will be ignored, it will be difficult to ignore a country which is the most populous country of the world despite other disadvantage. (()) This does not mean that if we develop economically, we have software, we have IITs and IIMs; that will also be good, that will also improve our power in the world context, but...

(()) Because you are using the maximum resources you have to cut the resources. So, in a way, our development can suffer also like the way they are doing it now, like when you

talk about sustainable development all those things, there has the people who are exploiting or harassing the major resources, but now they are asking countries like China and India which are into their developmental state to stop that. So, so, we...

Other factors remaining same, this is a very good fresh form economics. Other factors remaining same, it will be difficult to ignore the most populous country of the world.

I am not saying that India should not develop economically, and India is developing in all fronts. We have more IITs, more IIMs, more software, more urban infrastructure; we are we are having all those things, but with all those things, the fact that India is going to be the most populous country of the world is also important in deciding India's power in the international field. (())

It is one of the factors.

But this in every angle in mental simulation, this can be a single factor also. Imagine that there is a country with lowest per capita income, lowest urbanization, lowest industrialization, lowest literacy, but highest population of the world; it will be difficult to ignore that country. Very difficult, there will be movements within the developed countries also of intellectuals, objectives, socialist; to provide more air to that country which is the most populous country of the world and having lowest per capita income and more droughts and earthquakes and all. Thank you.

Thank you, sir.