Population and Society

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Module No. # 01

Lecture No. # 17

History of Growth

Well friends, we have had three lectures on world population growth. And, now we are going to start a series of lectures on population of India. There will be four lectures on population of India. But, I thought that this time before making my presentation, let me ask you that, if you are to discuss population of India from sociological perspective, then what kind of questions will interest you. Can you tell me a few questions on which I can dwell upon in the, in these four lectures on population of India.

First is, what are the social factors which affects the high population rate in India; there is some controversy related to the population growth and religion, fertility and religion. It is kind of a relationship, recent census, some you know controversies going on. And, can we look at the government policies and relate them to the socio economic background of people residing in different states and how is it affecting this population.

Ok. So, you have basically raised three different questions. One dealing with social aspects of population growth; another dealing with religious differences in growth rate or related issue; growth rate of population and related issues and third thing is there have been several formal policy statements. First by doctor Karan Singh in seventy six, followed by janta policy on population and then in 2000 we had national population policy.

So, yes, as a student of Sociology you would certainly be interested in population policy issues of India. And, we will discuss them. Any other thing related to the growth of population of India, can you suggest some questions related to growth of population of India. Because the issue is related to the policy, we will discuss in subsequent lectures when we talk about population policy in general and population policy in India, in particular.

So, one thing is in different states of India, there is different population growth. So, what are the reasons behind them? Why there is interstate differences in population growth in India. Especially when we talk about the BIMARU states, in reference to the BIMARU states. In some north eastern states as well, I think the state like Nagaland, I think the… what is the… how Sociology…

Then, what we will do? That, let us first look at what is the size of population of India; present size. Then, what has been the history of population growth; because once we know the history and we know the factors, sonal said something about policy and rony said something about social aspects. Once we know the social aspects of population growth and we know how society of India is changing, how its social organization, stratification system, plays in the growth rate of population of India. And, that includes your question of religion differences.

You are also right that the population of India is not growing at the same rate in different regions. And, as you have rightly identified already that, there are some BIMARU states. You know this BIMARU is an acronym, which originally stood for B for Bihar, B I for Bihar, MA for Madhya Pradesh, R for Rajasthan and U for U.P; so, Bihar, Madhya Pradesh, Rajasthan and UP.

Professor Ashish Bose, one of the leading demographers of India had given this acronym and this stood for these four states. Later on, professor Bose himself revised his definition of BIMARU and he included Orissa in BIMARU states. For a very interesting reason that Orissa was one state where fertility was declining or family planning performance was quite okay. Despite the fact that mortality, infant mortality, child mortality were also high. Usually, it is said that… and in the last lecture, you had asked this question; is there any connection between mortality and fertility. Yes. There is a connection and usually you find that in the process of demographic transition, it is first the mortality that declines in response to industrialization, economic development, urbanization, education, and etcetera. And then, fertility decline follows.

But in Orissa, something interesting happened that even at a relatively high rate of mortality, including infant and child mortality, paternal, maternal mortality, contraceptive practice was going up and birth rate was declining. And, so Ashish Bose said that Orissa is in a particular despotic situation. And, he included that also in BIMARU states.

You are also right that some… not only north east, several modern states of India had very high rate of growth and that had to do something with illegal migration from neighboring countries. We will talk about.

So, first let us look at what is the population, what is the size of population of India, what is its growth rate, what has been the history of growth rate of India's population. And then, we will talk about something about sex ratio. This is after growth rate of population. Sex ratio is the next topic in which everybody is interested; media, journalist, academicians, planners, women's groups of family groups. And then, we will come to differences in growth rates in different states of India and related issues.

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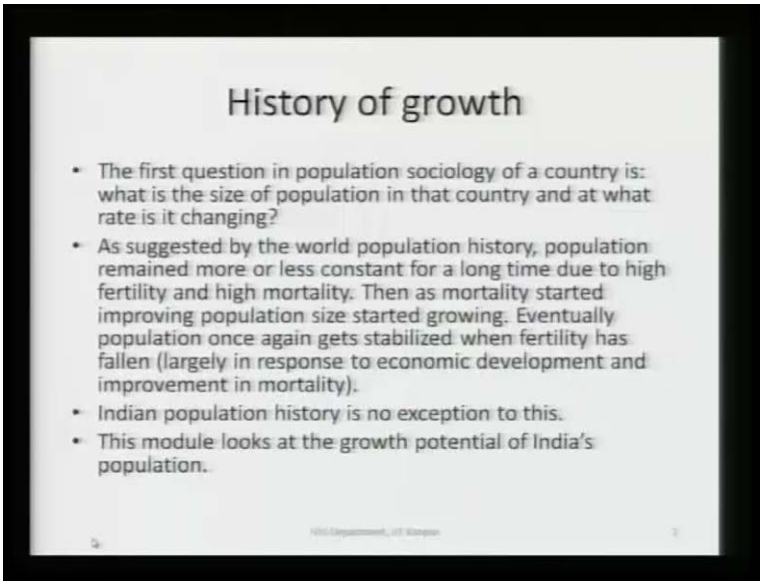

So, first talking about population of India, the first question in population Sociology of any country is what is the size of population in that country and what is the rate at which this is changing. As suggested by the world population history, population remained more or less constant for a long time due to high fertility and high mortality. As this happened to world population, same thing happened to India.

Last time talking about world population growth, I said that man may have appeared on this planet Earth about five lakh years ago. But, it took five lakh years for world population to attain

the first billion mark in 1820. And, in 1991 you have six billion and perhaps, now we are very close to seven billion.

So, this, you can say that world population remained stable for a very long period of time. And, the growth of population belongs only to nineteenth and twentieth century. I also said that in nineteenth century, it was only the developed country. Today's developed country that is classified by U N D P, there are some developed countries, and some less developed countries.

And, the growth occurred in the nineteenth century, first in the developed countries and that was at a very slow pace. In twentieth century, after Second World War, population became a problem for the world; because now less developed countries also started growing at a very fast rate. And, they were growing at an unprecedented rate. Like today developed countries, mostly we talk about the model of England or the French model of demographic transition.

These countries when they develop and they experience demographic transition, their rate of growth never exceeded some decimal points; in some country 8.5 percentage, in some country 8.7 percentage. But, in the less developed countries during the transition period, many populations started growing at rate above 3 percentages. India never reached that level. We will see what India's growth rate has been.

So, in this backdrop, in India too, like in any other civilization for a very long time growth rate was almost zero. So, population was stable or population was fluctuating; sometimes rising sometimes falling. And, that was because of high mortality. Fertility was high, though again there is a caveat here. High fertility does not mean maximum possible fertility. Maximum possible fertility according to John Bongaarts would be forty children; if a woman marries at fifteen and continues to produce children till 45, she will experience forty children. But, we do not have a history of woman having forty children anywhere. in hutterite population, where the maximum fertility was ever observed. It was 8.9. And, the maximum we know from surveys a woman has ever produced is fourteen or fifteen. Nobody has produced more than fifteen children.

In India, when we say high fertility, this high fertility does not mean forty children. High fertility in India simply means six children. So, before the transition began in India fertility was high, but,

not forty, it was only six point something. And, that was because in traditional or ancient society, certain socio cultural factors. we come to socio cultural.

Some socio cultural factors kept check on reproduction that you are not allowed to produce baby outside backlog. Only married women have the right to produce child. At what age you marry, how much time you spend with your husband, after marriage how much time you spend at in-laws place, how much at your own place, parents place, then there were religious restrictions on sexual intercourse on several days.

In India, such days numbered more than hundred for religion. So, because of several factors, adolescent fertility, sterility, primary, secondary sterility and several other issues, our fertility never exceeded six. When mortality started improving, population size started growing. Eventually, population once again gets stabilized when fertility has fallen largely in response to economic development and improvement in mortality. This is what we expect.

Indian population history is no exception to this. And, this module looks at the growth potential of India's population. Now, when we want to know about population of India in the past, one thing that we do not have is reliable data. What was India's population during Akbar's time, we do not know. What was India's population during Buddha's time, we do not know.

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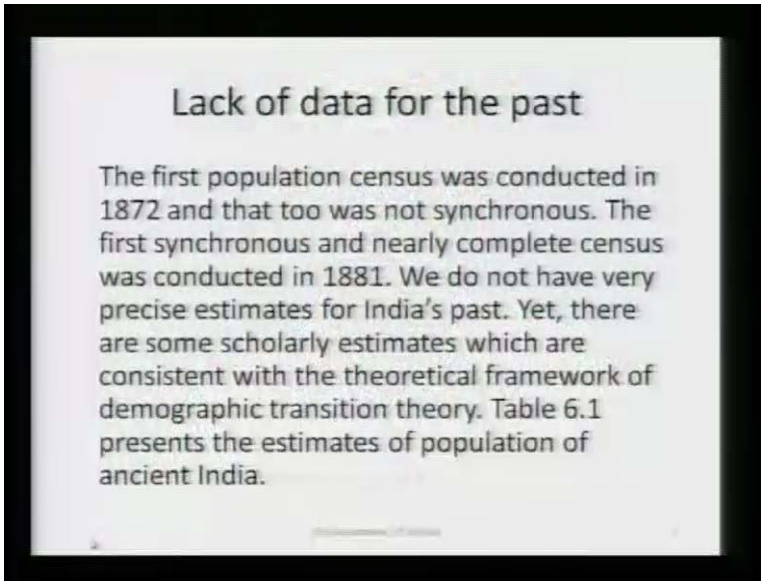

The first population census was conducted in 1872 and that too was not synchronous. It was not a very reliable census. It was not conducted on one date in all parts of the country. This was the first experience of conducting census and because of remoteness of different regions and lack of infrastructure, lack of man power, census were conducted on different dates in different parts of the country. And, first synchronous and nearly complete census was conducted in 1881.We do not have very precise estimates for India's past. Therefore, yet there are some scholarly estimates, which are consistent with the theoretical framework of demographic transition theory.

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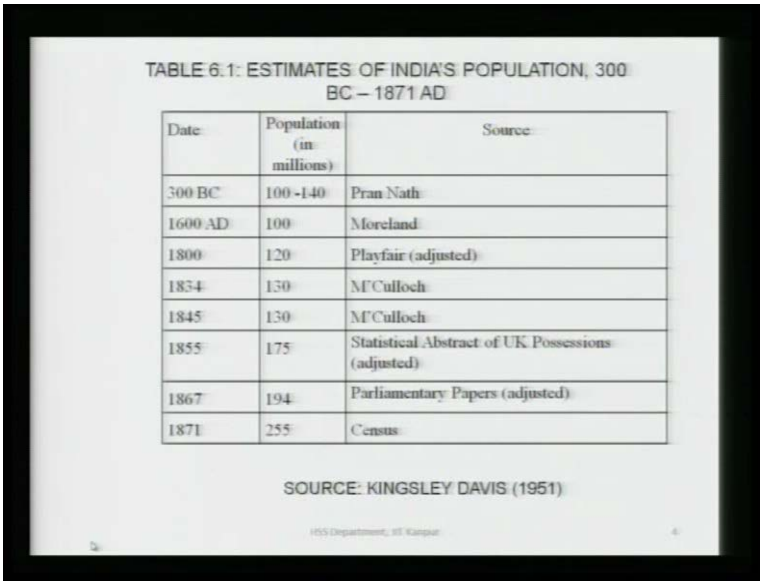

Here, I have a table which shows the estimates of population of ancient India. And, the source of the estimates is our basic book on population by Kingsley Davis. Not many students of Sociology know that Kingsley Davis has been one of the top ranking demographers of the world. You know, Kingsley Davis for his book on human society, which is taught in introductory course in Sociology at B. A. level.

But, Kingsley Davis to demographers is also known as the author of population of India and Pakistan. The first and the most important book on population of India and Pakistan was written by Kingsley Davis in 1951. And, Kingsley Davis has given the following estimates of India's population for the past 300 B C, 300 Before Christ.

Somebody, some Pran Nath demographer estimated that India's population must have been between 100 and 140 million. Then, in 1600 AD, more recent time, Moreland estimated that India's population must have been around 100. There must have been some errors in some estimation of population at all these dates. We do not know; 2 percent, 5 percent, ten percent.

But, one thing is clear that if around 300 B C, population of India is 100 to 140 million and 1600, it is hundred million. Then, there has been not much growth in India's population during this time. In 1802, we need, we had only 120 million. In 1834, another demographer has given an estimate of 130. In 1845, again 130; in 1855, 175; some statistical abstracts of UK possession have given an adjusted figure of 175 million. In 1867, we had 194 and 1871, when the first population census is conducted; it yields an estimate of 255.

So, if in India also man appeared in this part of the world, some 5 lakh years ago, then it took 5 lakh years for India's population to reach 255 million mark. And, that was in 1871. Actually, only yesterday I found one interesting paper and I thought that I will discuss this in the class. It would be, at least the idea would be interesting for you.

One demographer, P. Krishnan wrote an article in demography India in 1988, in which he tried to estimate population of India around 3000 B C using an interesting data. So, in our country there is no history of History writing. Indians were not interested in History. Indians were more interested in Philosophy. So, you have lots of writings on Buddha, on Krishna, on Ram. We have a long tradition of Ramayana and Mahabharata. But, Indian History, Indian writings are marked for two things. One that Indians are not so much interested in History as such. And, whatever History you find about India is all mixed up in mythology, religion, spiritual discussion. And, second thing is that there is no individual authorship.

So, Indian rishis or Indian writers, when they write something they do not say that I am saying. Or, there is no authorship or agency. They say that tradition says this or Vedas say this earlier our rishi said this. So, using Mahabharata, Krishnan suggests an estimate of India's population, where he said that in Mahabharata. And, there are estimates, some recent estimates that Mahabharath must have taken place around 300, around 3100 B C, around five thousand years ago, in 3100 B C Mahabharath took place in India.

And, at that time India was not present day political India. Today's Afghanistan and today's Burma were part of this greater India. About which something can be written like this. And, in Mahabharath you find that in all 18 Akshauhinis sena means army. Eighteen Akshauhini; this is Indian unit of size of army. Eighteen Akshauhini army participated; seven Akshauhini on the part of Pandavas and eleven Akshauhini on the part of Gauravas.

The Akshauhini is defined like this. In one Akshauhini army, you have 21,870 chariots, you have 21,870 elephants and 65, 610 horses. That means in each Akshauhini, you have 1, 09,350 soldiers.

Assuming that chariot, elephant, horse, soldier's ratio is 1135. Now, if eighteen Akshauhinis army participated in Mahabharath in 3,100 B C, then at that time, what was the size of army in India from both the sides; Kauravas and Pandavas? The size of army was 1, 09,350. This was the size of army, combining army of both Pandavas and Kauravas.

Now, there are some estimates by Paleo demographers; that in the past, the ratio of army to population must have been around 1 to 18. In the distant past, for every eighteen persons, you can assume that there was one person in army. So, using that estimate, so lots of assumptions, you have to make use of lots of assumptions, if you want to go back to ancient India.

So 18 into 1, 09,350; that means 1.97 million people took part. And, multiplying this by that ratio; let me repeat, one Akshauhini means 1, 09,350. And, there were eighteen Akshauhinis of army. So, that means the size of army was 1.97 million. Now, you can assume that the ratio of army to population was somewhere between 15 and 20. Let us not assume it be eighty 1 fifteen to twenty, anyway.

So, using that estimate of Pran Nath and broad range, we arrive at an estimate that population of India at that time, must have been between 29.6 and 39.4 million. So, population of India, I do not know how you will react to this article, but I found this idea very interesting that in Mahabharath, you know how many people participated in war; horses, soldiers, elephants, chariots. And then, assuming Pran Nath's estimate of soldier- population ratio; making it broad fifteen to twenty. We find that population of India in 3100 BC must have been around thirty, forty million, which makes sense; because in 300 BC, the population of India is estimated to be

100 to 240 million sixteen hundred. So, may be, so more towards hundred rather than hundred and forty.

If in 300 BC, population of India was 100 million, I can believe that population of India in 3000 BC must have been around thirty or forty million. So, here you have an interesting way of determining what could have been the size of India's population in 3100 B C. It may not be exactly 30 million or 40 million. It may be 28 million or may have been 42 million. It also depends on how geographical or political India is defined.

But, this is how population of India grew over the years. So, in a way, one can say that till 1871, the population of India has not grown much. Before coming to class, I also tried to calculate that, if during this time 3000 B C to 300 B C, population of India grew three times. Assuming a constant exponential rate of growth, we find that the rate of growth during this time must have been 0.00036 or 0.036 percent; very low rate of growth.

So, population of India during this time grew at 0.306 percent. Interestingly, in Indian religious and mythological literature, population growth is never seen to be in good light. Usually, large density of population or large size of population is associated with Kaliyuga. That the weight on this earth, when there is kaliyug and lots of people are produce, reproduction level is high. Density of population becomes too large and number of sinners or density of sinners goes beyond a limit, then our Earth goes to some God maybe Brahma or somebody and pray something should be done for her.

In Buddhist literature also growth of population, somewhere Lord Buddha says that if population continues to grow like this, then there will be continuous collection of houses from here, from the village, referring to some village from here to hell. Then, growth of population was never considered to be a good thing in India. And, that may be because Indian religions, all Indian religions, not one Buddhist, Jain, Hindu, all religious philosophies, stress brahmachariyam and control of desires. So, for them, growth of population is a bad omen, bad indicator. So, this is the situation till 1871. Let us see what happens after that.

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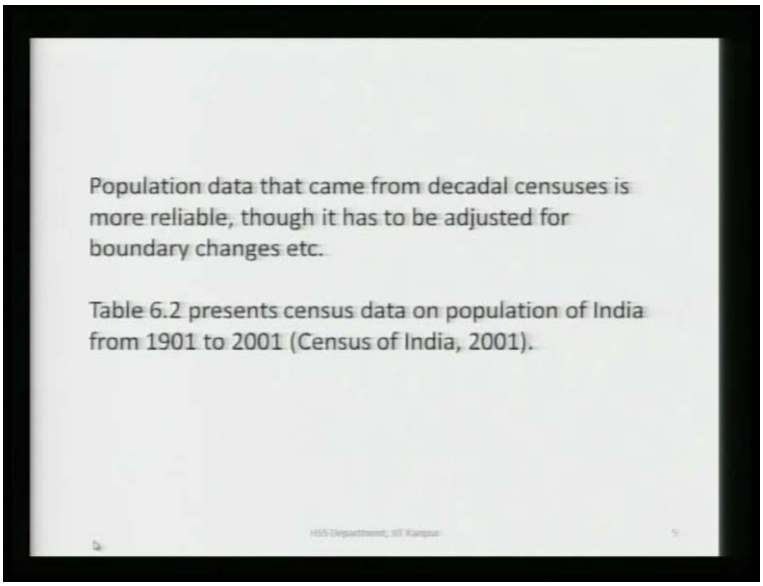

Population data that came from decadal censuses is more reliable of course. Though, it has to be adjusted for boundary changes, etcetera. And, now we have a table which shows population of India from 1901 to 2001; hundred years' time in previous century. And, this is the data on population of India.

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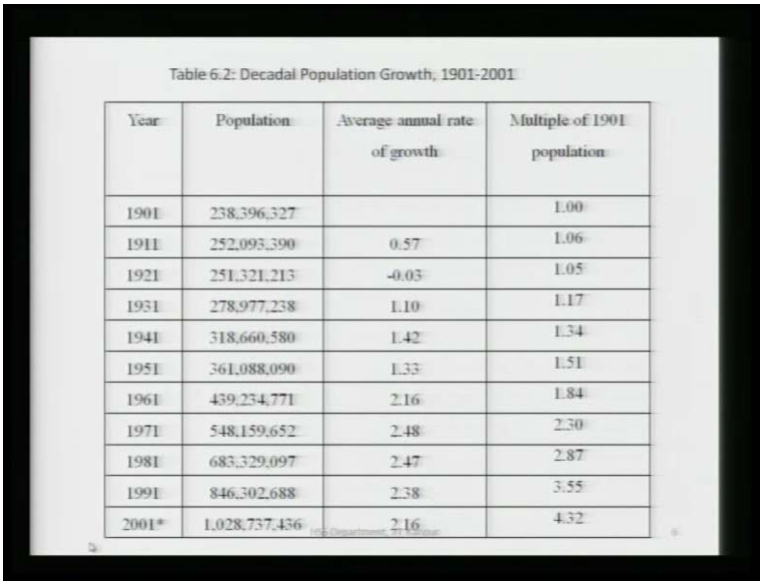

Table 6.2: Decadal Population Growth, 1901-2001

Year	Population	Average annual rate of growth	Multiple of 1901 population
1901	238,396,327		1.00
1911	252,093,390	0.57	1.06
1921	251,321,213	-0.03	1.05
1931	278,977,238	1.10	1.17
1941	318,660,580	1.42	1.34
1951	361,088,090	1.33	1.51
1961	439,234,771	2.16	1.84
1971	548,159,652	2.48	2.30
1981	683,329,097	2.47	2.87
1991	846,302,688	2.38	3.55
2001*	1,028,737,436	2.16	4.32

In 1901, census of India enumerated a population of 238 million. Then, it grew to 252. In the next census yielding a growth rate of 0.75 percent per year, average annual rate of growth was 0 .57 percent per year.

Then, you see that in 1921, ten years later, the size of India's population declines to 251 and rate of growth is negative. It is minus 0.03. A small negative rate of growth; why because in around 1918, India suffered from a big influenza epidemic several parts of India, particularly North India had influenza epidemic in which lakhs of people have believed to have died.

And, due to the influenza epidemic, our size of population declines to 251 in the next census. After that, population grows to 278, then 318 and then you find that there is a continuous rise in rate of growth of population. In 2001 census, last census of India, we enumerated 1.028 billion people.

Now, see that in 1820, the whole population of the entire world was 1 billion. And, today in 2001, India alone has more than 1 billion people and this is under estimation. According to census documents, there has, there has always been some under enumeration; luckily, Indian under enumeration is not as big as some of the developed countries.

But, every census has some under enumeration from say 0.5 to 2 percent. So, India's population in 2001 was more than 1.02 billion; by, at least 1 percent or may be by 2 percent. So, this was the size of India's population and the rate of growth is now 2.16 percent.

If you look at the rate, fig this column of rate of growth; you find another interesting thing that first we can believe that up to 1921, growth rate was erratic, then it is increasing one, then two.

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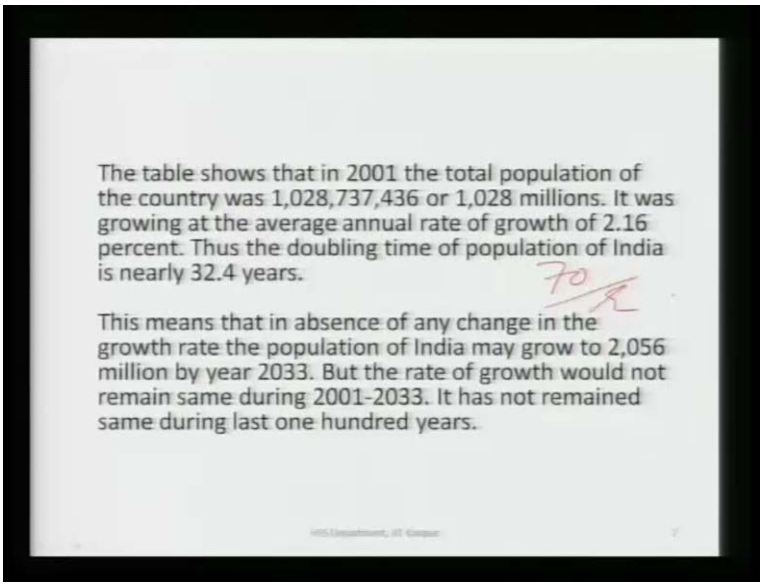

Then, the table show that in 2001 the total population of the country was 1, 028, 737,436 or a very large 1 point in short 1 point 0 2 billion or 1028 millions. It was growing at the average annual rate of growth of 2.16 percent. What is the doubling time? Doubling time approximately, seventy divided by r seventy divided by r. This is the doubling time. So, population which grows at 2.16 percent, doubles in seventy divided by 2.16 years or 32 years' time.

If the present rate continues, then the India's population will double in thirty two years' time; means 2001 plus 32. In 2033, India's population will be more than 2 billion. If this rate continues; this rate will not continue. We know we expect that, we expect the rate of growth of India's population will decline. But, if it continues, then in 2033, you have more than 2 billion population.

One thing is sure that by 2060, India would be demographically speaking the largest country of the world. Today we are second, but at least in one respect, we will become first. We will not become first in any other respect, but in population size, at least India would be the first country of the world and surpass china's population very soon. Where China, today China has more population than India, but the rate of growth of China has already gone down. Total fertility rate is approaching nearly one, while our total fertility rate is still around three. This means that in…

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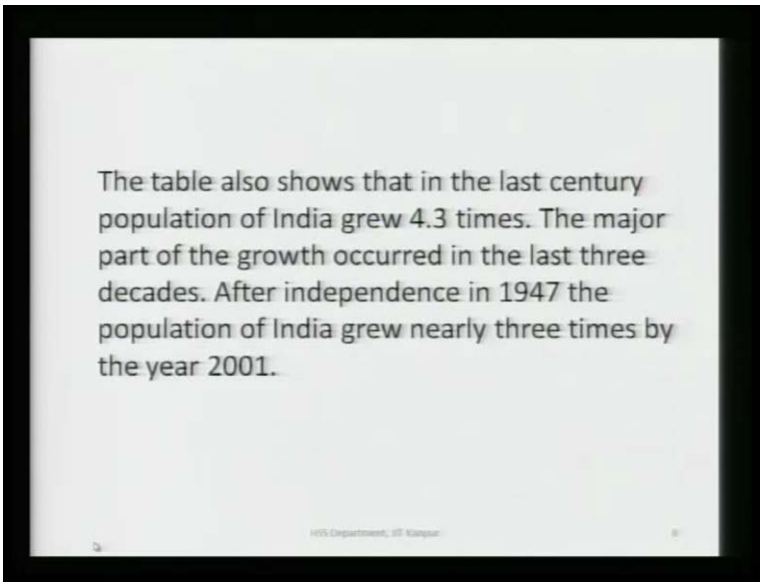

So, this is the… table also shows that in the last century, population of India grew 4.3 times. In hundred years' time, India's population grew 4.3 times from Mahabharath period, 3100 BC to 3100 B C. In nearly three thousand years, we grew only three times. But, here in hundred years' time we grew four times, more than four times. The major part of the growth occurred in the last three decades, last thirty years only.

After independence in 1947, the population of India grew nearly three times by the year 2001. In last fifty years, our population became roughly three times of what it was at the time of independence.

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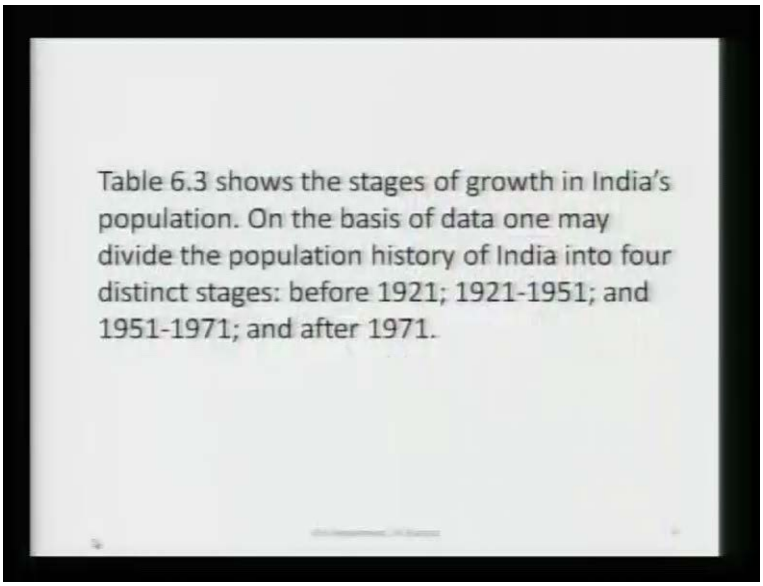

And, now the table also shows stages of growth in India's population. On the basis of data, one may divide the population history of India into four distinct stages; before 1921; when population was almost stationary, it will sometime increase; sometime decrease, then between 1921 and 1951; when, India's population grew at a rate around 1 percent per year; slightly more, but around 1 percent per year. And, 1951 to 1971 when population grew at more than 2 percent per year, after 1971 again population is growing at more than 2 percent, but the growth rate starts falling.

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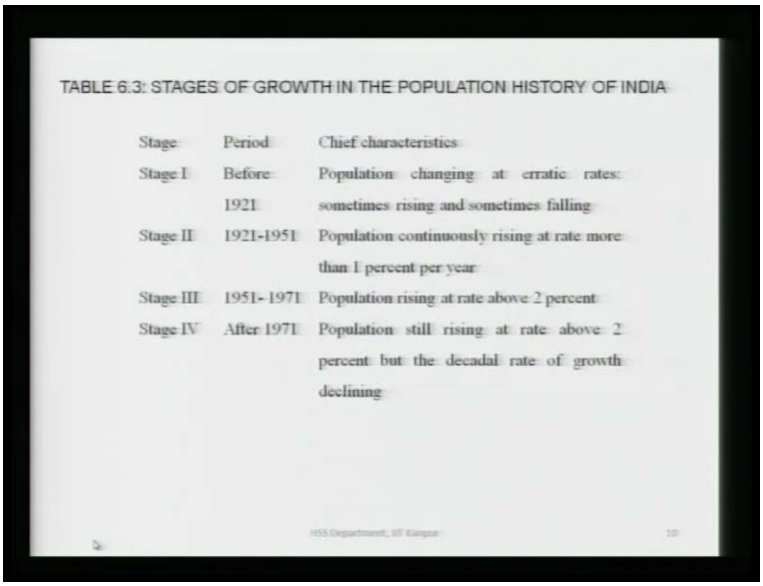

That is good news that growth rate starts falling, so these are the stages in which you can divide India's population history. Stage I: before 1921; population changing at erratic rates; sometime rising, sometime falling. 1921 to 1951, population continuously rises at rate more than 1 percent per year; 1951 to 1971, population rising at a rate above 2 percent. And, after 1971, population is rising at a rate of above two percentage. But, the decadal rate of growth is declining. In one of the lectures, I had mentioned about advantage of demographic window. I think in last lecture only. I said that India as such, the growth of population is bad, but if growth of population can be utilized properly, then it can be an advantageous thing for us.

Demographic dividend; in demographic language you say that, India has demographic dividend. And, the logic is that around 2020, ten years from now, there will be a big shortage of skilled man power in developed countries. We have, we have also estimated figures for that, that there will be a shortage of around fifty million. In all the industries, economically advanced or industrialized countries of the world.

In India, we will have a surplus of more than forty. If the surplus of more than forty can be given an adequate training, vocational training, and we can develop our skill, our human resource skills, then these forty can easily be accommodated in various countries of the world. Where due

to industrialization and demographic transition, there is a shortage of manpower. And, I am not joking actually.

This is what eleventh Five year plan of India says. Eleventh Five year plan of India even shows in which country there will be shortage of how much; in Russia, in China, in Japan, in U K, in U S A. In almost all European countries, there will be shortage. And, the major suppliers of human resources will be India and Pakistan.

So, we will have to compete with Pakistan. We do not have to compete with developed countries because they need us. We have to compete with Pakistan. If we can provide more quality man power than Pakistan, then we will be more in demand and the surplus population of India can go to India's advantage. This is what demographic dividend means. And, I also said that demographic dividend these has three regions.

One, fall in fertility; second, life expectancy at old ages not increasing at high rate and third that baby boom population is entering more than twenty now. So, this, after 1971, population growth rate start declining. So, that means that the base of India's age distribution has started shrinking. And, the baby boomers are now in age group twenty and above. And, this is what twenty five years demographic window means. So, we can take the advantage of demographic window.

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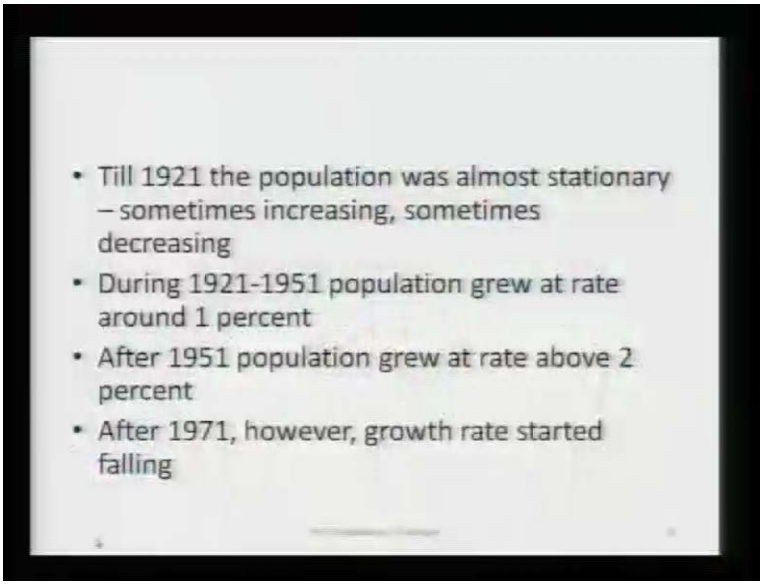

Till 1921, population was stationary. And, this is all that I have already said.

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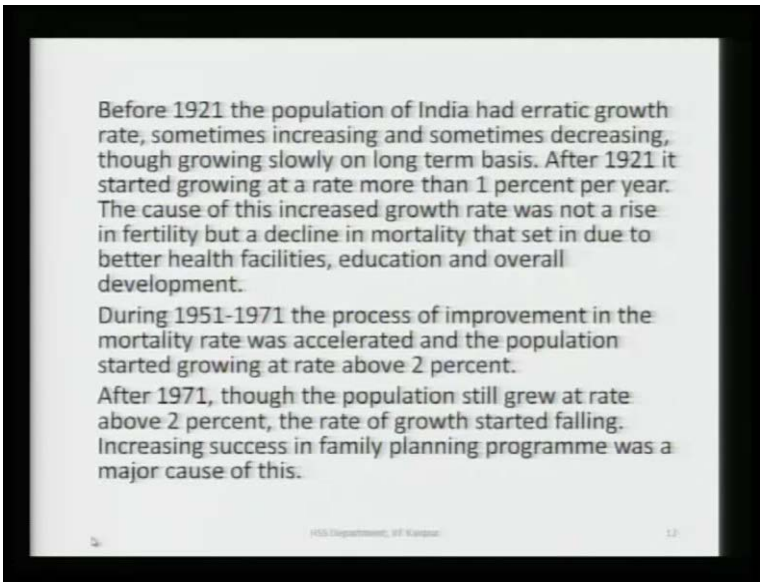

Now, before 1921, the population had erratic growth. Sometimes increasing; sometimes decreasing, though growing slowly. After 1921, it started growing at 1 percent. And, the reason was not that the birth rate increase; birth rate of India did not increase. Birth rate was around fifty and the total fertility rate was around six. It did not increase. It remained same. But, mortality declined and between 1921 and 1951, thanks to industrialization, urbanization, economic development, British policies, to develop India.

Our birth rate started declining. So, while our life expectancy in the beginning of the last century was around twenty. It started increasing; twenty five, thirty, thirty five, went up to say forty. And, that was the major cause of this rise of growth rate of India's population. This time, 1 percent per year; during 1951 to 1971, our life expectancy started increasing further. Birth rate remained same for quite some time. And, that is the reason why population… started growing at 2 percent.

After 1971, family planning program in India launched in 1951. India was world's first country to go for an official family planning program in 1951. But, it took quite some time to pay dividend. By 1971, you see that the couple protection rate has already shown the results of

family planning program and birth rate started declining. So, the growth rate, but growth rate remained more than two.

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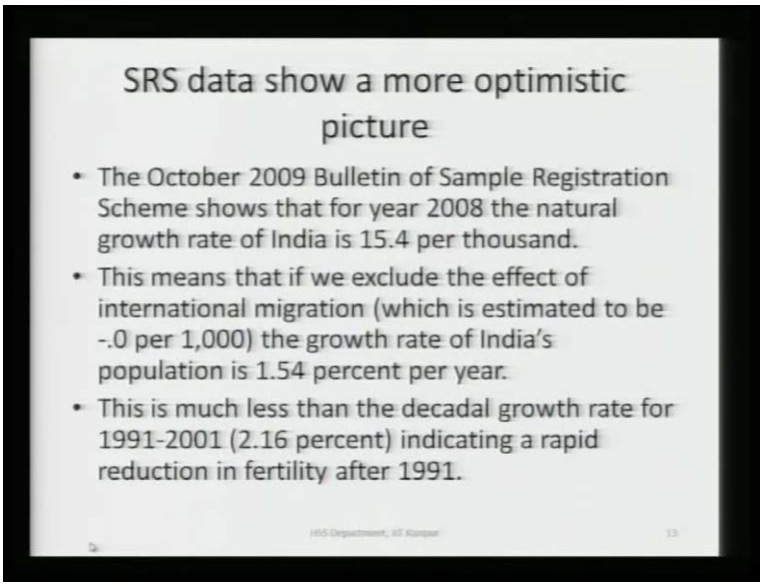

SRS data: this census data which I presented that shows the decadal picture between, say 1991 and 2001. But, the decadal growth rate of around 2 percent would not apply to the recent years. For recent years, Sample Registration scale will give us better results because from there you can know what is contemporary birth rate and what is contemporary death rate. And, if you subtract death rate from birth rate, you get the natural growth rate.

India, which is not so much affected by international migration, the other day we was discussing that developing country as a whole, have only 1 per thousand rate of emigration. India does not have a very high rate of international migration. So, India's growth rate is close to natural growth rate. And, that comes out to be… 2009 is the latest bulletin of SRS, which I saw on net. And, according to that in 2008, the difference between birth and death rates was 15.4 per thousand.

Birth and death rates are expressed in per thousand terms, but you can convert this into percentage form. So, India's growth rate of population today is 1.5 percent. It is not 2 percent. Census gives you a figure of 2 percent. But actually, today our growth rate has declined to something like 1.5 percent per year. This means that, if we exclude the effect of international

migration, the growth rate is 1.5 percent; which is much less than the decadal growth rate of 2.16 percent.

And, this also indicates that there has been a rapid reduction in fertility after 1991 because the 2.16 summarizes the experience of population growth for the decade 1991 to 2001. And, this 1.54 applies to year 2008.

So, one reason why there is so much of difference of 2.16 on the one hand and 1.5 on the other hand. That is because after 1991, there has been a substantiate reduction in fertility of India. Ok … you have some question.

Yes, it is like, you said that during the Mahabharath time, the growth of Indian population is bad for the country or bad for Earth. What you say. But, the norm has totally changed. In this present decade, as there is a very high increase in population growth in India, which we can see from the census data. So, India on the other hand is very, they are very traditional of having high son preferences in India and other customs and traditions, usually northern India. So, why they have stopped following this Mahabharata's thinking of this thing.

Ok. Actually, that is why I talked about birth rate and death rate separately. You must understand that rise in the growth rate of India's population is not because of increase in fertility. Fertility has been almost the same for thousands of years. During Mahabharath time, an average woman in India produces six children. And, at the time of independence also an average Indian woman produced six children.

The growth rate of India after 1921 is more because of decline in mortality. No, but the thinking the… what the society thinks… today is also that the, say today… have more children and all these thing. But, in Mahabharath time, it was not like that.

This is a wrong myth. I understand why you are saying so because economists of fertility say that, there is a theoretical positive relationship. And, empirical surveys have shown that among the rural, poor, there is a tendency to produce more children. Despite, the tendency to produce more children, our total fertility rate perhaps never exceeded six or seven.

So, when we say poor people want more children; this may be myth. And, even if poor people want more children, they do not want twenty children. These poor people also have today three, four, five, six. Maximum in north India in BIMARU states also, number of children. The total fertility rate is only around is four, between 4 and 4.5. It is not ten or twelve. Means, nobody is trying to produce more number of children deliberately, so that they can reap some fruit of large number of weak number of children.

What is happening is that there is resistance to family planning. Perhaps, there is resistance to family planning or to use contraceptive methods. But, there is, there is no conscious desire to produce more and more number of children. We did not find, barring a few cases of few areas of Karnataka. Indian demographers did not find that with economic development and modernizing, fertility increase. Anyway fertility remained same or it declined, but because of greater disproportionate change, the decline in the death rate, our birth rate started increasing. That is the main reason.

This may be myth that poor people want to produce more children. Poor people produce more children than rich people. That is true. But, they are not trying to maximize. Maximization using Bongaarts model would be forty. So, if it is advantageous to them, then if not forty, then they should at least produce twenty. But, no way, that the poor people of India are producing twenty children. They are only producing more children for more income, but, then there are more not's.

They are not producing more children for more income. You can say that they do not have sufficient motivation to restrict family size. That will be better to say. In place of saying that they are maximizing fertility, you can say they do not have sufficient motivation to go for contraceptive methods or limit family size.

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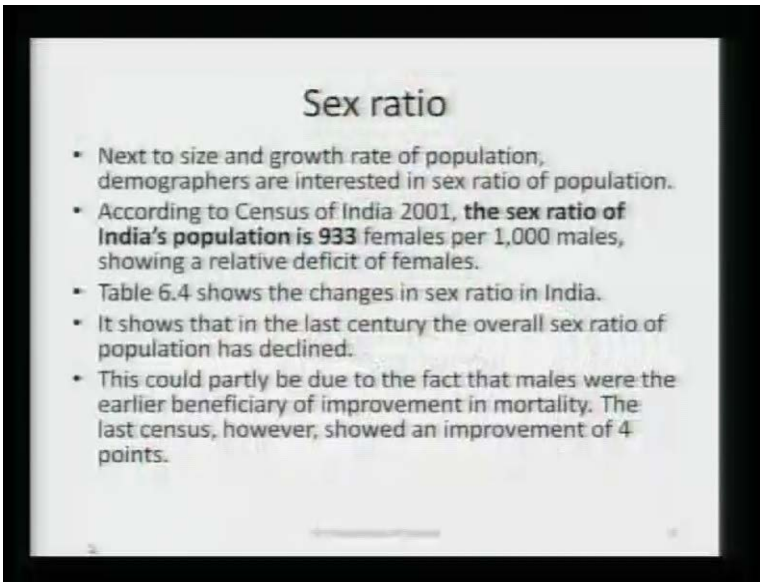

Now, the second issue in which you would be interested is the sex ratio population. The sex ratio is linked directly to gender biased. According to census of India 2001, the sex ratio of India's population is 933 females per 1000 males, showing a relative deficit of females.

I will show you a table. This shows the changes in sex ratio in India. It showed that in the last century, the overall sex ratio of the population has declined; defined female by male. In some countries, sex ratio is defined as males per thousand females. But, in India, it is defined as females per thousand males. This could partly be due to the fact that males were the early beneficiaries of improvement in mortality.

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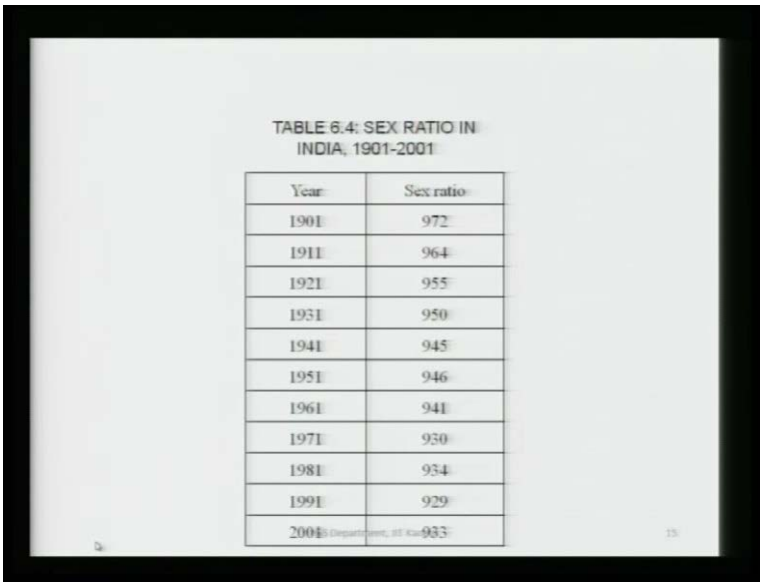

Let us see what the figures are. In 1901, the sex ratio of India was 972. Then, it declined to 964, then 955, 950, 945. Slight improvement in 1951 census; which may not be reliable because this time India's population is heavily affected by wars and partition of the country, displacement of population; then, it declines to 941, then 930. There is some improvement; in1981, 934. Then, further decline to 929, then in 2001, there is some improvement.

Improvement of 4 and population of the sex ratio of India's population rises to 933. But, which is much below. The sex ratio of India's population in 1901 is 972. Despite four points improvement in 2001, we have only 933.

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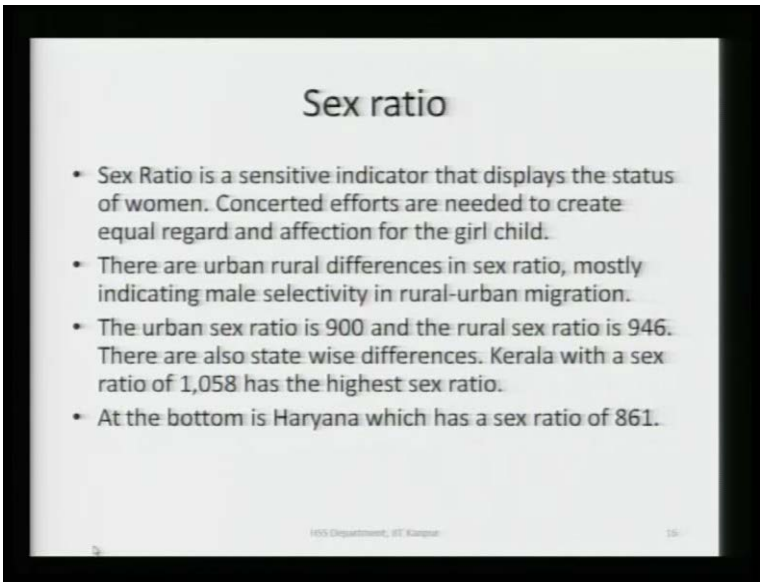

Sex ratio is a sensitive indicator that displays the status of women. And, concerted efforts are needed to create equal regard and affection for the girl child. There are urban-rural differences in sex ratio, mostly because the rural to urban migration. Urban sex ratio is 900 and the rural sex ratio is 946.

There are also state wise differences. Now, you see gradually so called… of regional variations in population, dynamics. We will talk about those things gradually. So, there are regional differences, state wise differences in sex, in everything, birth rate-death rate sex ratio. Kerala has the highest sex ratio of 1058. And, at the bottom Haryana, which has a sex ratio of 861.

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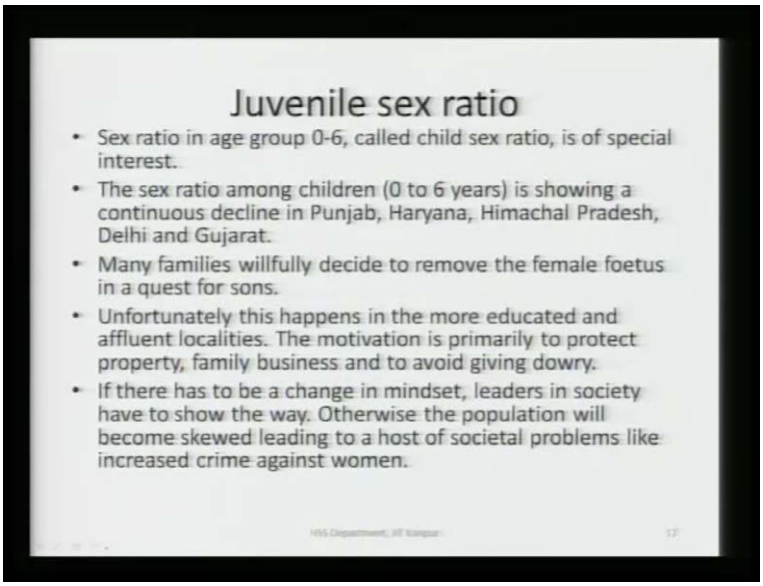

Actually, much more point of attention was juvenile sex ratio last, in last census not sex ratio. Sex ratio improved, but juvenile sex ratio which is defined as sex ratio in the age group 0 to 6 years, which is also called child sex ratio; that is of a special interest. I will tell you the reason. The sex ratio 0 to 6 is showing a continuous decline.

Even in those states, where overall sex ratio improved. Between 91 and 2000, over all sex ratio improved. But, even in those states, where over all sex ratio improve, sex ratio 0 to 6 years declined. And, this was particularly marked in Punjab, Haryana, Himachal Pradesh, Delhi and Gujarat.

Many families willfully decide to remove the female foetus in a quest for sons. That is a major cause of this. Sex ratio at birth, juvenile sex ratio will depend on fertility level, mortality differences, migration, but it depends more on female feticide these days. Female infanticide has almost become nonexistent. We cannot say that it is completely absent. In some parts of rural area in Bihar, Tamil Nadu and Rajasthan, there have been evidences on female infanticide. But, that is something which is not so common these days.

But, in place of female infanticide, you have female feticide. Recently IIT Kanpur did a survey of women in some villages of Kanpur district, close to Kanpur city. And, it was found that not a

small number, at least twenty percent women had gone for sex determination test. And, what was surprising that, in all those cases in which they were told that, they are going to produce a female baby, all of them aborted. All of them.

This is the reason for the fall of juvenile sex ratio. When they are told that they are going to produce a male baby, then very few of them go for feticide. And, unfortunately this happens in more educated and affluent locality. Our researches show that the sex determination and female feticide is positively associated with social class and caste. More prevalent in upper caste, more prevalent in affluent families, those who have bigger size of land holding. And, the motivation may be to protect property, family business and to avoid giving dowry.

If there has to be a change in the mindset, leaders in society have to show the way. Otherwise, the population will become skewed leading to a host of societal problems like increased crime against women. So, the shortage of women is not going to help women. Even, women will face more of harassment, crime. Already in Haryana and Punjab, these things, these cases are coming to districts with extreme highest sex ratios.

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TABLE 6.5: DISTRICTS WITH EXTREME CHILD SEX RATIOS

District with highest sex ratios	Sex ratio	District with lowest sex ratios	Sex ratio
(Arunachal Pradesh)	1035	Fatehgarh Sahib (Punjab)	766
Pulwama (Jammu & Kashmir)	1033	Kurukshetra (Haryana)	771
Kupwara (Jammu & Kashmir)	1021	Patiala (Punjab)	777
Dantewada (Chhattisgarh)	1014	Ambala (Haryana)	782
(Arunachal Pradesh)	1010	Mansa (Punjab)	782

This is the picture of regional variations. See, on one side we have Arunachal Pradesh, you have Jammu and Kashmir. These are some districts. I am sorry. I forgot to write the name of the

district here. But, in Arunachal Pradesh you have juvenile sex ratio 1035; in Pulwama, Jammu and Kashmir 1033; Kupwara, Jammu and Kashmir 1021. Very good sex ratio. In Arunachal Pradesh and Jammu and Kashmir and in Chhattisgarh you have good sex ratio. And, on the other hand in Punjab, Haryana in Fatehgarh sahib district of Punjab, you have the worst sex ratio in India. In 0 to 6 years, you have 766 females per 1000 males; in Kurukshetra in Haryana, 771; Patiala in Punjab, 777; Ambala 782; Mansa in Punjab, 782.

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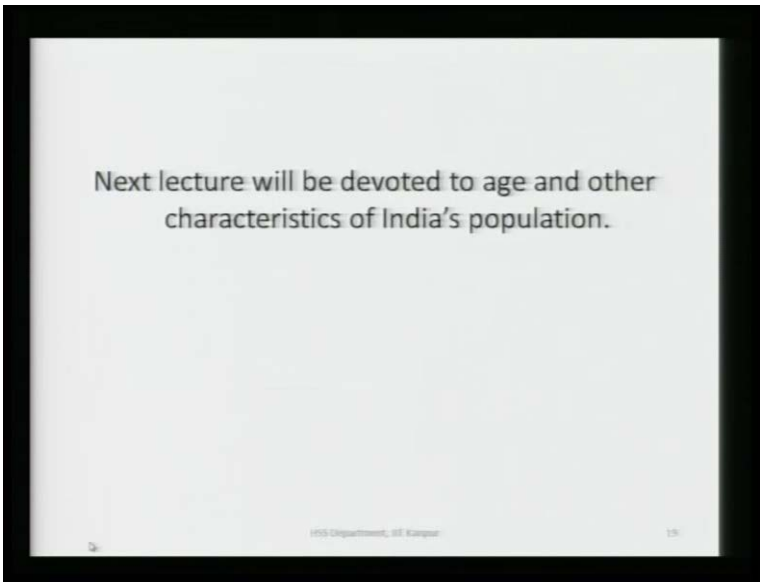

Next lecture will be devoted to age and other characteristics of India's population. I also have some figures which I can discuss with you. This is from eleventh Five year plan. And then, if you have any question you can ask that. Regarding juvenile sex ratio, it is not true that juvenile sex ratio is associated with poverty and illiteracy. Our Kanpur institute also showed that it is a phenomenon connected with upper caste and upper classes. In India as a whole, also it is more connected with upper caste, upper class, high education group. Eleventh Five year plan gives us figures for juvenile sex ratio for different religions of the country.

Different regions, different religions, different communities, educated, uneducated and you find that something you must never have thought of. What do you think that in which religion may be more feticide, female feticide? Hindu, Muslim, Christian, Sikhs, Parsees, who are more violent? Who are more violent? And, the figure shows that the sex ratio is highest for the category of

others, 976. If others are to be excluded, then you have highest sex ratio for Muslims. No, sorry, Christians. Christians: 964, Christians. maybe of Kerala effect.

In Kerala you have more Christians, north east you have, you have seen Arunachal Pradesh. Kerala, Jammu and Kashmir, these are the areas where sex ratio is better. Female by male sex ratio is better. So, Christians who are highly educated more in Kerala and in north east they have better sex ratio; 964, very good.

And, the worst sex ratio is to be found among Sikhs. Sikhs have a sex ratio of 786. Next to Sikhs, it is Jains. Among whom, child sex ratio is 870. I, sometimes wonder that on the one hand Jain religion as such, talks of non-violence. I have read that Gandhi… learnt the philosophy of nonviolence because of Jain influence, Jain and … influence on him. But, Jain who are otherwise believer of non-violence, they have the lowest sex ratio. May be they do not have the female infanticide….

That is because they are most educated; they have very high level of education. And, they are mostly in trading, in trading community and they have the biggest property. Perhaps, among all the religious communities in India, Parsees and Jains, they have very high level of affluence. May be in order to keep their property within their family, they are resorting to this female infanticide of female feticide, not infanticide.

This shows that it is not actually religion; it is more of socio economic conditions which are determining people's consciousness today. I think I can stop here. You can again ask one or two questions on growth of India's population, if anything comes to your mind.

Sir, regarding this mortality in Orissa, why there is the mortality is high, but the fertility. But, there is some… it has been included in the BIMARU state, but there is some controversy about it. Is it the influence of Christianity among the tribals of Orissa?

One theory about this is that mortality high because of poverty. Orissa at one time, when Bihar or some states, Madhya Pradesh, they were not divided; Orissa had one of the worst levels of poverty. Even now, in several districts of Orissa, particularly tribal dominated districts, level of poverty is very high. Infrastructure is very poor. They are remote, uneducated. And, they are because lack of health, infrastructure, lack of education, mortality level is high.

Fertility level is relatively less or family planning practices are high. That is more because of government policies and encouragement for sterilization, incentive for sterilization. And, poor people, who are tribal people of remote areas, can be lured more easily than urban educated people or those in towns. Or, is it the transformation of the tribes of Orissa tribes into Christianity. There is a huge Christian tribe in India.

I do not know. But, this is an interesting hypothesis. May be at some places where this is to be seen. I have not seen any study of this. But, it is an interesting hypothesis that may be when tribals become Christians, then in certain respects they become more rational and they go for limiting family size. But, because of lack of infrastructure and poverty, they still suffer from high mortality. It is an interesting hypothesis and one can look into this. Thank You.