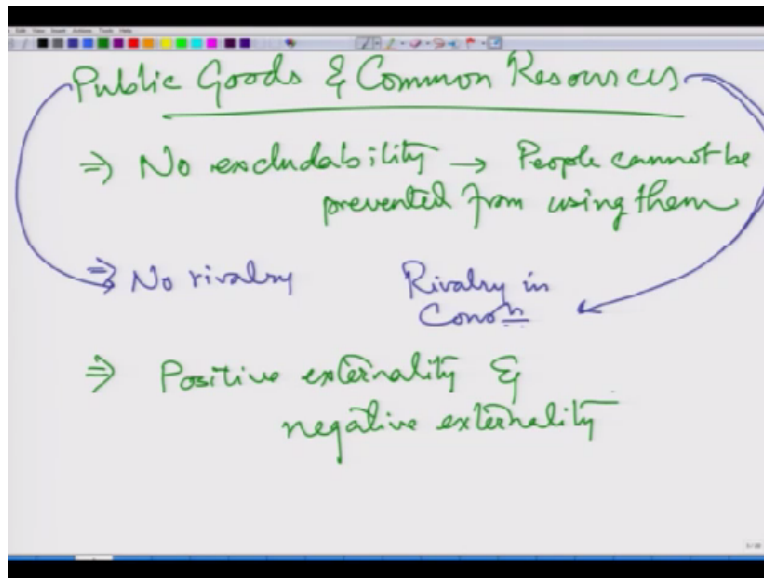**Economics of Health and Healthcare**
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Lecture – 41
Public Goods, Common Resources and Decision Making Based on Cost-Benefit Analysis

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So these common public goods and common resources, the first most important point is no excludability, right. For both of these or either these, I am not paying any user fee. So people cannot be prevented. People cannot be prevented from using it, using them. But at the same time for public good, it maybe there is no rivalry in consumption but for common resources, there is rivalry in consumption, right.

So for public good, rivalry in consumption and because there is no price attached to it, there can be an over usage, there can be an under usage, right and looking at this over usage, under usage, the benefits and then the costs of the government because under usage means wastage of resources, wastage of potential, so it has an opportunity cost or the government's budget share is not utilized, being utilized properly or government's budget.

So that means there is a cost because it is going unutilized. So if there is a question of efficiency

or inefficiency, we talk about them in 2 ways. One is positive externality and negative externality. Now what is positive externality?

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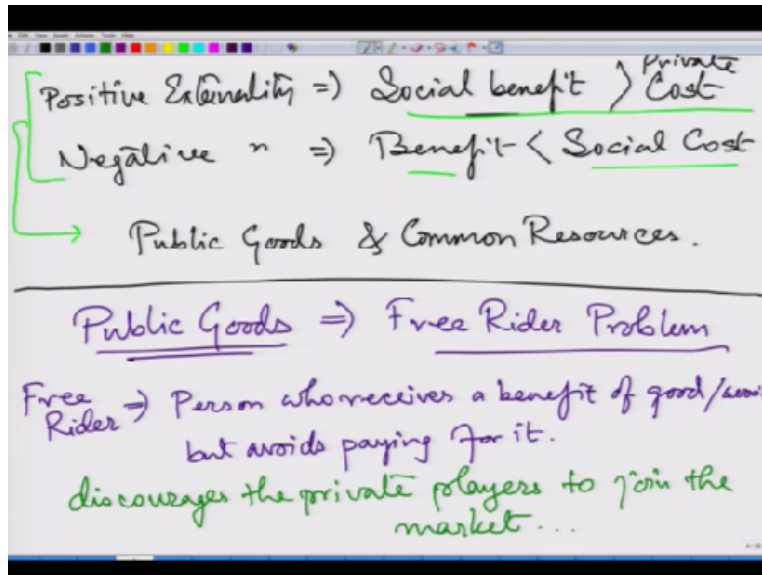
We will discuss in detail about positive externality but still what is positive externality? Positive externality is where my social benefit>the cost. Often private cost. Yes. What is negative externality? Where my social benefit or I will, here I will write my benefit<my social cost, yes. So this social benefit or social cost, it is not only including private benefit or private cost but some external benefit and external cost.

Now I am utilizing that, so I have a benefit but because I am utilizing that, somebody else can also have a benefit, right. So that together is social benefit. Even if they are not paying.

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So say for natural monopolies, even if the hospital is paying for this fire protection system, I am also getting a benefit. Even if the hospital is having, doing some waste management, so people around, staying around the hospital are being benefitted. So that is the social benefit or social cost can be if I have a negative impact on the society, smoking and anything. Apart from those who are basically producing or consuming.

So their own benefit, their own cost is the private benefit and private cost. So when my social benefit is more than my private cost or eventually social cost if you can take care of the external cost as well, then there is a positive externality. And when the benefit<the social cost, then there is a negative externality and both these can occur out of public goods as well as common resources.

We will learn how? Yes. The first problem what public goods face is free rider problem. Now what does this free rider means? Free rider that I ride a bike or a car everyday with somebody with my friend or somebody but I do not pay for the petrol or the diesel. I do not pay for the fuel. But I am getting a free transportation, yes. So that is the free rider problem, free rider. Now this free rider by the word or by the phrase it is easy to understand the concept.

But basically this free rider problem means because people do not pay but they also continue receiving the benefits. So it can be defined as person who receives, I mean, not this, a free rider

can be defined as person who receives a benefit of a good or service but avoids that means, it is intentional paying for it, yes. So intentionally I am avoiding to pay for that particular service I am getting. I am just trying to, okay, fine, I am just taking this benefit, okay let me enjoy, yes.

So that is the free rider problem. Say somebody has a health card, I am utilizing that for my health benefit and maybe the person has paid for that health card or he pays a subscription fee. So that is where a free rider problem can occur and if there is a free rider problem, it discourages the private players to join the market. Because then there will be people who are not paying but who are availing those services, right.

And that is a loss for the private companies. They are the profit making agencies. So they cannot entertain that, that the people they are not paying but availing the services but it is very difficult to get rid of. Because what happens is when in case say what, in public goods, a person is not supposed to pay, right. So why this free rider problem is coming. But then just take it simply that the government is paying, the person is not paying but there is a moral hazard.

They are trying to utilize that benefit. What we see that it is very easy to get a below poverty line card, right. I can influence some people; I get a below poverty line card. It is data, the survey in national family health survey, it is found that wealth index based on say 33 or 34 wealth assets, the assets, they have estimated the wealth index. It can be the fridge, tractor, television, phone, all this land.

So they have estimated an index and it has been found that even there is a considerable percentage of people who are coming from the highest wealth quintile, that the top 25, I mean 20%, quintile, 5 groups, top 20%, they also possess a considerable percentage. I do not really remember that, they also have a BPL card because there is another question that whether you have a BPL card or not.

So it is very easy to get a BPL card. When you have a BPL card, you can avail these health schemes, yes, which are supposed to be those, for those who are genuinely under the poverty line, below the poverty line. But who are getting that? Now it eventually increases the cost of the

government and that is where no private company is basically interested to give, to do a charity or to give this thing, healthcare to, provide the healthcare at a very low cost.

Because they fear that if they have kept the cost low for certain section of the population, it can be misutilized and which will eventually increase the cost of their operation. Because they have segregated the market based on a target population, yes. So for public goods, it is difficult to exclude and therefore, the free rider problem are supposed to appear and once there is a free rider problem, the private organizations are completely discouraged from supplying their goods or services in that particular market.

But where the government can find a remedy, it is only the government can find the remedy because if the private, if the government cannot reach to all the people, they expect the private system with quality health system, quality they will come up but with this free rider problem, they do not and then again it comes back to the government. They have to find a solution. That whether to keep that a public good or not. How do they decide?

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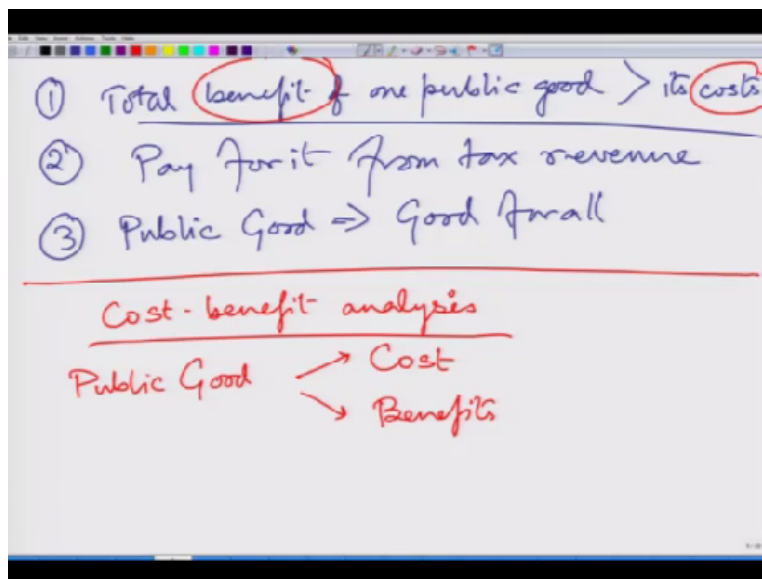
The first thing they do or they try to understand is 1, that whether the total benefit of one public good is greater than its costs, right. Therefore, if the total benefit is more than the cost, then there is a significant impact on the society. It is considerable. Then they will continue with the good, keeping them as non-excludable, that means a public good. And otherwise, if they find that the

benefit is actually lesser than the cost because eventually those who are utilizing them, they are not supposed to utilize them now.

If a 2 rupees' rice, kg rice are supposed to be distributed for those who are marginally poor and finally are being enjoyed or being shifted to the private market and then being enjoyed by those who do not really require them, then if the target was to decrease the malnutrition, yes the malnutrition does not come down. Because those who are getting that rice, they are not undernourished.

Those who are undernourished, finally they are not getting that rice or by that amount what they are supposed to get. That means they are remaining undernourished. So the benefit is not increasing. Where the government now with not much, without seeing any considerable or substantial improvement, the cost now the government pushes more and more, the cost increases and then the benefit, sorry, it declines.

So this can get reversed and the cost is more than the benefit and then they will decide, no, no, I am not going to give this benefit anymore if there is no any political agenda, I am not going to continue with this because it is no more a public good. And it is not serving as a public good anymore. Therefore, the first thing is that they need to understand that whether the total benefit is more than its costs.

The second thing is that pay for it from, with the taxes if it has to continue as a public good, pay for it from the tax revenue, yes. So the cost is actually made up in terms of the or through the tax revenues. And then the third is if it is a public good and genuinely serves the purpose then it is good for all. Everybody is better off, yes. So it is primarily government's decision that whether they will continue with this, with a particular program, with a particular scheme, can be it a scheme against under nutrition, can be a scheme against any.

It can be a scheme against social health insurance program, anything, or the maternity benefits, anything. So it has often being asked a question that whether a particular healthcare or okay, before that we try to understand that how the government does this cost benefit analysis because
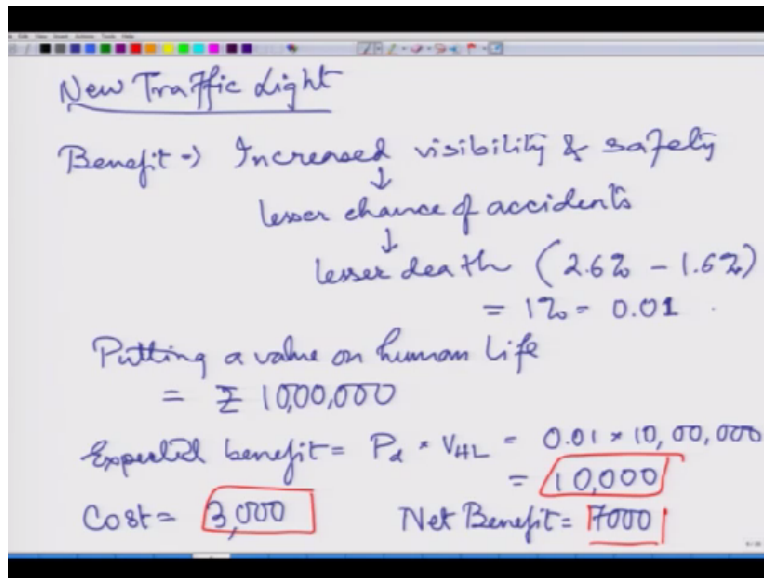
this is nothing but the cost benefit analysis, yes. They are trying to see the difference between the benefit and cost.

And if the benefit is more than the cost, then there is a positive benefit. So the government does a cost benefit analysis. In health as we learnt that it is very difficult to quantify health or health outcomes easily or as a single outcome, it is a combination of multiple goods. So when we do a cost benefit analysis, it has often been challenging. So but the government decides based on the how good is the benefit as compared to the cost.

So if we need to keep that the difference between the benefit and cost positive and substantially high, then in what quantity, what commodity has to be supplied, in which areas have to be supplied, in what quantities have to be supplied, everything has to be worked out. But let us take a simple example to learn about how this cost benefit analysis works? Now so for a public good, we try to estimate both the costs, all costs, yes and kind of all benefits together.

All costs and all benefits and if it does not have any price signals to observe this problem but then we have to take some proxies for that if there is no price signal. So and often this cost benefit analysis while we are doing this cost benefit analysis, we kind of take help of approximate estimations and while doing that approximate estimations say, let us take a very simple example that what is the benefit of a new traffic signal, a traffic light.

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New Traffic Light

Benefit →) Increased visibility & safety
↓
lesser chance of accidents
↓
lesser death $(2.6\% - 1.6\%)$
$= 1\% = 0.01$

Putting a value on human life
$= ₹ 10,00,000$

Expected benefit $= P_d \times V_{HL} = 0.01 \times 10,00,000$
$= \boxed{10,000}$

Cost $= \boxed{3,000}$ Net Benefit $= \boxed{7000}$

Yes, it can be a traffic light, it can be a say immunization program, it can be anything. So a new traffic light because that traffic light in that particular junction, not having a traffic light, there is an accident in that particular locality. So the government decides okay what will I gain if I have a traffic light? So the benefit is increased visibility and safety, right. Once I increase the visibility and safety, there is a lesser chance of accidents, lesser death.

Now this road accident is a serious public health concern. Lesser deaths and we estimate that the, then the proportion of death or the percentage of death because of accident in that particular locality comes down say from 2.6% to or say 1.6%. So how much? 1%, right. So 0.01, right. So by 0.01 you need the number of deaths come down, very good. Now this cannot be the, cost benefit analysis often estimated in terms of the same unit and basically it is a monetary estimation.

So both the cost and benefit should be monetarily estimated. So once we are trying to estimate benefit, we have to give it a monetary value. Now this is in percentage form that how many deaths, in 100 deaths, how many we are saving, right, that is 1, 0.01 out of 1. Now to estimate the human life, we have to attach a human value for that life. For 1 life if I save, how much value I can like add to.

So how much value in monetary terms I can save. So when I am putting a value on human life, I

think of several aspects. One is their own productivity, number 1. Number 2 is the compensation needs to be given. Number 3 is the several opportunity costs, may be the cost of the vehicle, the giving other social security schemes to the family providing other social security schemes and the monetary compensation and everything together is the cost of the human life and that can be the benefit of the human life, right.

Because their productivities are direct benefit and the opportunity costs are also the benefits for gone, right. So that is the total benefit. So if I can put it, say I have kept it like 100,000 rupees or say it should be more in fact, yes. Say 10,00,000 rupees, yes, 10,00,000 rupees. So if the value of a human life is total 10,00,000 rupees and the probability of saving a life is 1% or 0.01; therefore, the expected benefit is probability of death*the value of human life, yes.

Say value of human life which is 0.01*, yes. This is nothing but 1, this divided by 100. So I can keep as 1, 2, 3, 4; 10,000, right. 100 of 10,00,000 is 10,000. So 10,000 rupees is the expected benefit of having a traffic light, putting a traffic light but the cost of putting a traffic light if it is only say 3000 rupees, there is a benefit, net benefit of 7000 rupees which is nothing.

But the difference between 10,000 and 3000, that is my net benefit and then the government continues as a, giving, putting traffic lights in those, that particular stretch as the public health intervention and a public good, they continue it with as a public good and then they approve putting this traffic lights. Thank you.