Water Economics and Governance
Prof. Manoj Kumar Tiwari
School of Water Resources
Indian Institute of Technology, Kharagpur

Lecture – 28
Conflicts in Water Pricing (Contd.)

Hello everyone, so we were discussing the conflicts in water pricing in previous session and we are going to continue our discussions on to the various other type of conflicts in water pricing. We did discuss about the conflicts whether to price with the average price system or the marginal cost system in the previous session and we will be basically discussing a few other conflicts primarily the affordability versus financial sustainability concept and efficiency versus fairness in the supply all these in the this particular session.

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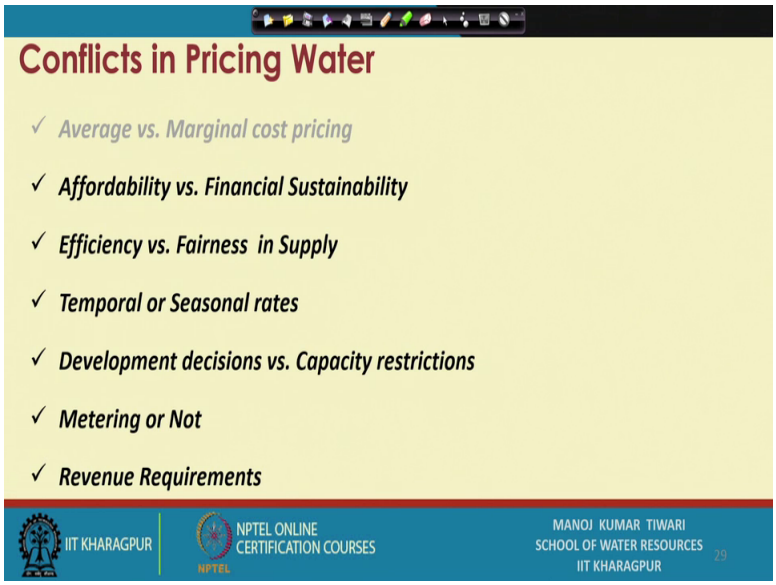

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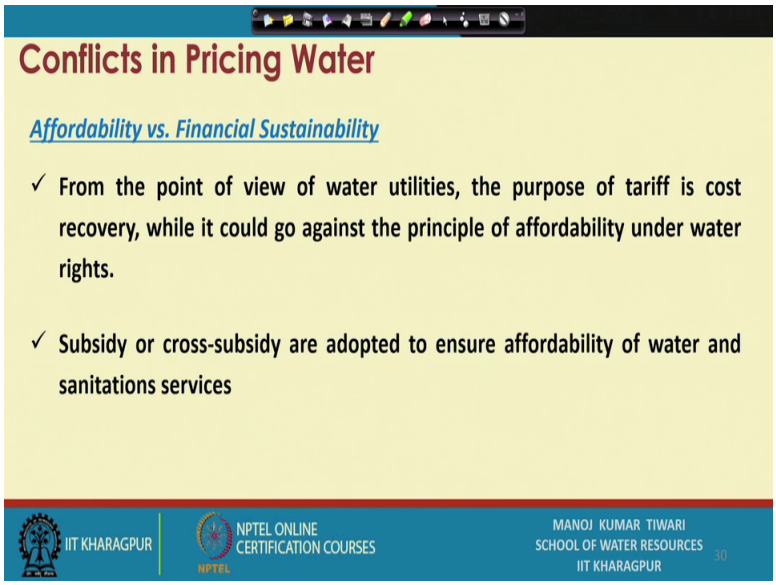

So, to start with the affordability versus financial sustainability conflict is again of needs a great degree of trade off. So, whether because the affordability ensures that water should be available at low prices and particularly to the low income group at very low prices, whereas your financial sustainability criteria suggests that water price should be recovered at near marginal cost. So, that it could basically the system could turn financially sustainable.

So, from the point of view of water utilities the purpose of tariffs is to cost recovery, while it could go against the basic principle of affordability under the water rights because water rights suggest that water should be affordable at maximum 3 percent of the household income. So, that is the price cap for water and of course, for low income groups where there is a monthly income is fairly less.

So, for example, if a household is having a monthly income let us say 3000 rupees, so they should not spend more than 90 rupees a month for their water charges. Now, at 90 rupees the water services may not be financially sustainable because if it is a family of 5 or 6 people, so their demand of water if you say even 100 liters per capita demand. So, 100 liters per capita per day demand is going to for 5 people family is going to make 500 liters per day and that way, 15 kilo liters a month.

So, 15 kilo liters water supplied at 90 rupees maximum charge may not be sustainable and 300 rupees, we are 3000 rupees we have considered for a family many families even

the monthly income is not too that much, so they cannot even spend that 90 rupees. So, that way there is a sort of question or a conflict appears that what needs to be done, whether we go for our the ideal marginal cost pricing, what we were discussing in the earlier session in order to ensure the recovery or financial sustainability of the system or to look for the affordability and go for a lower prices.

So, in such scenarios the subsidy or cross subsidies are adopted to ensure the affordability of the water and sanitation services while meeting the financial sustainability criteria's. So, if poor people cannot pay, so they need to be given subsidies and the subsidies could be in the form of either state subsidies or government subsidies or in the form of cross subsidies as well.

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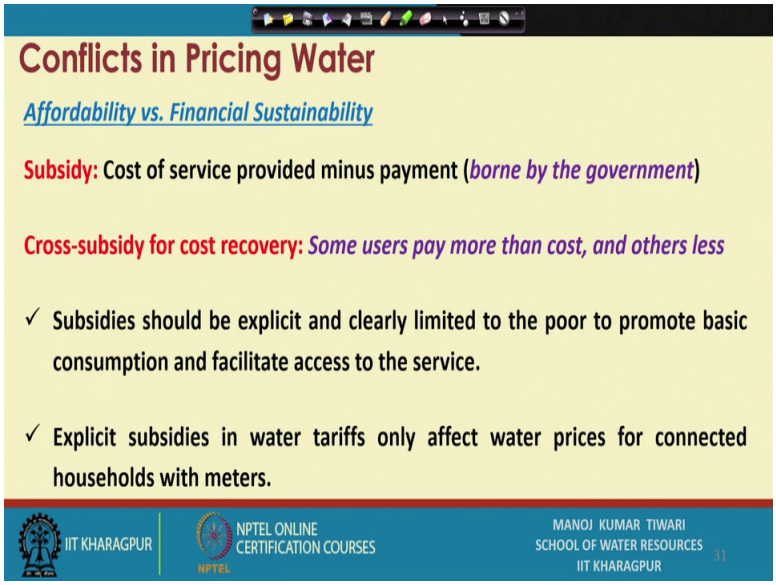

So, cross subsidy means basically where I where basically some user pay more than the cost, while other user pay less. So, a section of other users; a section of users from the richer communities pay more price and that additional revenue generated compensates for the lesser revenues collected from the poorer section or from the low income group, while that is the cross subsidy concept; while there is a concept of subsidy; basic subsidy which is basically typically borne by the government and the cost of services provided minus what is ever the payment is received that much funds is compensated by the state agency.

So, the state subsidy or the government subsidy is a very common in India or most of the water utilities or municipalities run on the government budget and it is the government who provides them the fund and users are not charged generally. So, then subsidies that way are spread across all income groups it is not only for the lower income group, but for the higher income group as well, because typically we do not have an income based tariff in India.

So, when we do not have an income base tariff, which in fact, becomes too complicated as well, because one needs to have a idea of household incomes, but if one is not having an income based tariff structure, it becomes very difficult to means in no way in fact, a subsidy can be targeted to the only low income group because we need an income data and we need to set a income base tariff structure in that case.

So, in India particularly the subsidies are spread for all sections of the society; of course, there are cross subsidies concept is also there, where generally the subsidies are not taken from the domestic sector, cross subsidies are at times are taken from the industrial sector.

So, the commercial use of waters are charged at a higher than marginal cost pricing and that additional charges are at times used to compensate for the losses or for the lesser revenues that is being collected from the domestic sector. Our subsidies ideally or theoretically because subsidy by nature is for the person with low income group, the one who can actually pay for their charges should not have subsidy.

So, subsidies should be explicit and clearly limited to the poor to promote the basic consumption and facilitate access to the basic water and sanitation services for poor and these explicit 6 subsidies in water tariffs only affect water prices for connected household with meters. So, that is another important point because when we give a subsidy in a tariff based system.

So, the subsidies will be only applicable to the person or to the households which are connected with the water utility and probably if it is a like quantity based subsidy. So, when they are connected with a metered fashion with the water utility, when the households are metered and connected to a water utility, then only these subsidies are going to be of use.

The problem is that many poor households are either not connected to the utility or even if they are connected to the utility many do not have meters. So, those kind of subsidized like giving the subsidies to only the needy people, to only the low income group people become very difficult and the subsidies are not serving there in their intended purpose of the up liftment or providing the basic services to only the low income group of residents, who cannot afford to pay for their water services.

Rather it is going to everybody, which is unfair because eventually we pay the taxes means that the population which is paying the taxes which can actually avail and can afford the water services is giving the money to the government that money is again returning back in the form of subsidy and thus that subsidies again sort of being spread to those people itself. So, it is a like paying money more money to the government and then getting it back from the government in process of course, there are certain losses at several level due to the corruption or due to the other mismanagement of revenue and fund from the state bodies.

So, if let us say we are paying 1 rupee in the form of tax, that 1 for let us say water subsidy that 1 rupee by the time it reaches back to us in the form of government subsidy has lost most of it is value. So, those kind of issues are there with the subsidy.

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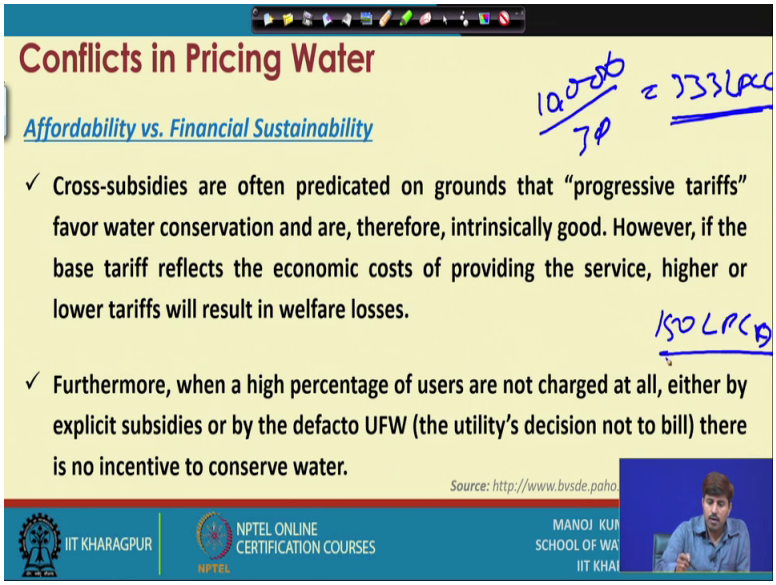

Now, the affordability versus financial sustainability if we see; so, the cross subsidies which are considered as the government why government should pay the subsidy and rather it should come from the other user, but the cross subsidies had it is own demerits.

The cross subsidies are often predicted on the grounds of progressive tariffs favored water conservation and are therefore, intrinsically good. However, if the base tariffs reflects the economic cost of providing the services, higher or lower tariffs will drizzle will are likely to result in welfare losses. So, if the base tariff itself is near the marginal cost, probably then there is no point of cross subsidy because if users are being charged on higher than the base tariffs, so then, it is loss on their social welfares.

Furthermore, when a high percentage of users are not charged at all, which is a common case in India, either by the explicit subsidies or by the defacto utilities decision not to bill or in terms of losses or theft or other unaccounted consumptions, so there is no incentive particular to conserve water because if a large society for example, in India we have a large section of people from low income group.

Now, if we try to sort of cross subsidize this, their water consumption charging from the more from the higher income group. So, the problem is because the need of subsidies at a much greater scale, there are people from the low income group are very high in number. So, the amount required would be very high, moreover when those sections get water at a subsidized rate or at a near free and they are not charged, then there is no incentive for conservation of water.

If those low income group people are not charged or are being provided water for free. So, then they do not, we will not think of conserving water. So, that way making the water in order to make the water affordable, making the water free is very dangerous because it will go against the basic policy of demand management for the sustainable environment because we need to manage our demands in order to achieve environmental sustainability.

Financially let us say, the higher income group is paying for you or government is paying for you, but what about the environmental sustainability? What about the concept of equity, concept of social sustainability? So, if there is no incentive for conserving water and if the society is not thinking about conserving water because of the free water or

very, very low prized water; so, then the idea itself of pricing goes onto the vein and water is as good as available free and then the motive to conserve water is gone off.

So, in such cases it becomes very important to at least put some tariffs on to the basic uses as well, like in example Delhi you have 20 liters or 20 kilo liters of water consumption for a family free for one month, the problem is that there is no restriction of connections. So, one large building can have let us say 4 or 5 connection.

So, if you are having 4 or 5 connections in a house, you are getting as good as let us say 80 or 100 kilo liters of water free for a month or for a family with size of let us say 2 person 2 or 3 people family size 20 kilo liter water is a very high and if that much water is available free, there is absolutely no motive of conserving water because why what would conserve water if a person of for a family of 2, if you see how much a 20 kilo liter water entitles them, so that means, 10 kilo liters per person in a month.

Now, 10 kilo liters means 10000 liters in a 30 days, so that means 333 LPCD, now this is a huge water because generally the our CPH manual and all that suggests for urban supply is even in the like in a city of Delhi it should be around 150 LPCD, the consumption, the demand.

So, it is more than double the actual demand, more than double the average demand which people are getting, so there is absolutely no motive for conserving water. So, that is about the though high class even for the no classes, so if they are even subsidized or getting that water for free or not paying the water, so that motivation for water conservation goes off.

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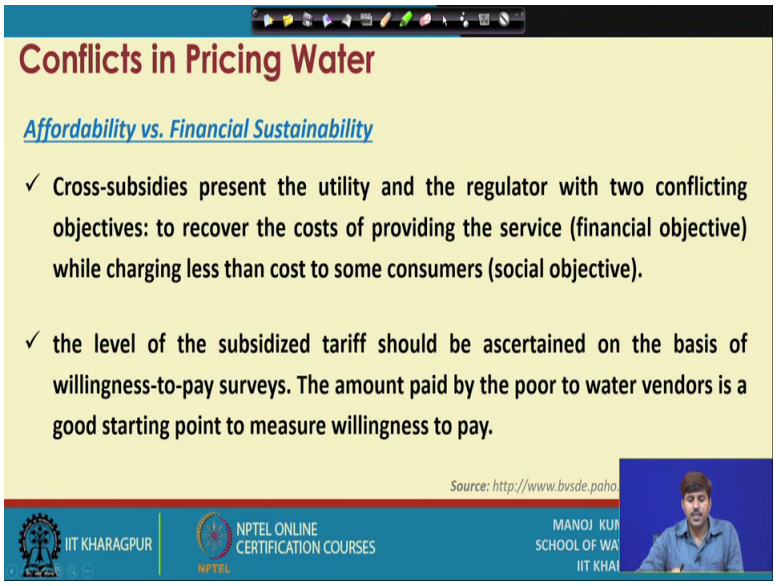

Now, the cross subsidies present the utility and the regulator with 2 conflicting objectives; to recover the cost of providing the services which is the financial objective of the utility, while charging less than the cost from some consumers which is the social objective. So, that way a subsidy either in the form of cross subsidy or even the government subsidy; the government subsidy though is against the principle of financial sustainability of this structure because eventually then state is paying for you and not the users.

In cross subsidy what happens that, although some users are paying more than the marginal cost, but the cost is being borne by the user itself, so the amount or the revenue is being generated from the user. So, that way it is in line to the principle of your financial sustainability as well, in line to the principle of financial objective and at the same time charging less from some other section or the poorer section meets your social objective. However, again the question comes that these cross subsidies should be taken in a such way that advantage should go only to the needy people.

The level of subsidized tariffs should be ascertained on the basis of willingness to pay survey. The amount paid by the poor to water vendors is a good starting point as like if 1 wants to measure the willingness of, willingness to pay from the lower section, so how much the household is paying to the vendors for getting their water. So, at least that kind of money they can give, when the water is supplied into their household. So, that could

be a kind of starting point that for the willingness to pay survey because it is very important you see that even these lower income group people go buy water from the vendors.

So, if they are giving 200 rupees a month for buying water to the vendors; why not, they can give the 200 rupees to the water utilities for supplying water into their households. The only point is that it has to be properly evaluated, estimated, surveyed and then a set up of a scheme should be put forward with this kind of services.

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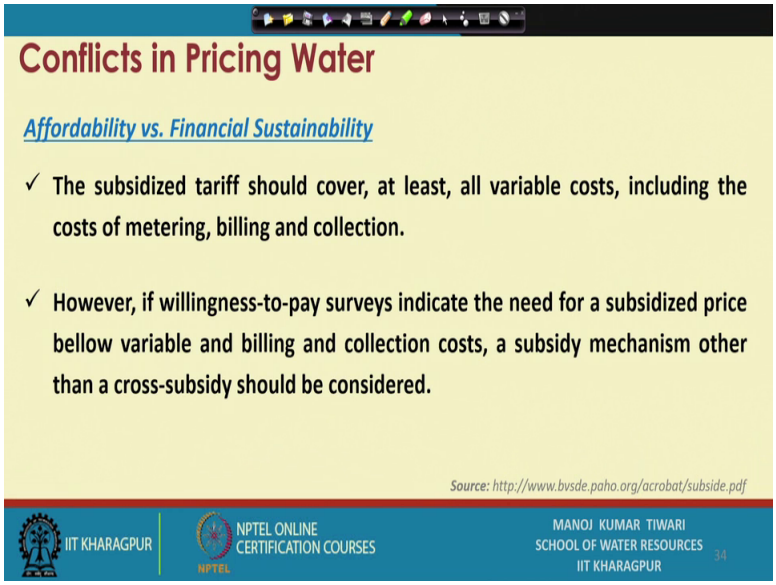

The subsidized tariff should cover at least all variable cost including cost of metering, billing and collection. So, at least that much cost should be considered even in the subsidized tariffs the variable cost. However, if willingness-to-pay survey indicates that need for a subsidized price is below this variable cost, below this basic variable cost, below the cost of billing and collection a subsidy mechanism other than a cross subsidy should be considered because then it is going to impart a huge load on to the other customers.

They will need to pay much more than their the marginal cost and the problem could be there, that if the higher income group society people are forced to pay too high a price for water, they can actually look for the alternate sources as well.

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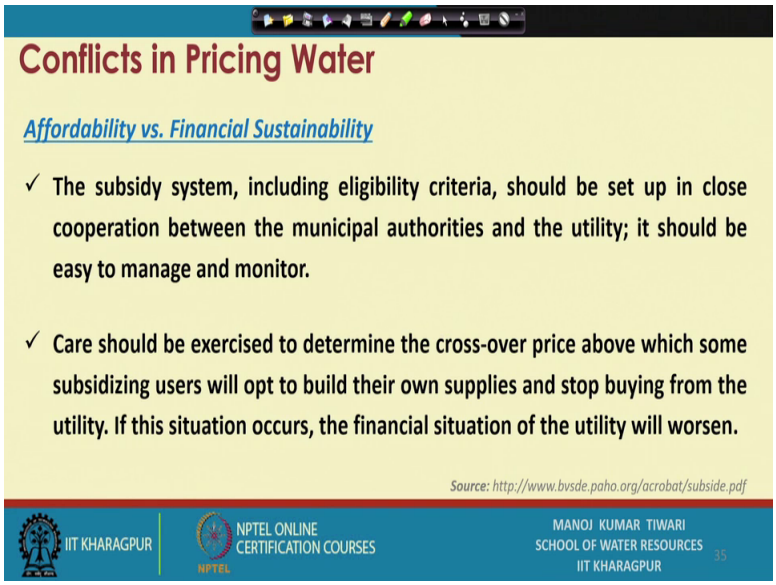

So, the subsidy system including the basic eligibility criteria should be set up close cooperation between the municipal authorities and utilities and should be easy to manage and monitor. The proper care is needed to be determining the cross subsidy prices because at very high cross subsidies there other users who are not subsidized and who are sort of forced to pray very high prices may actually look for alternate sources, can build their own supplies and stop buying water from the utility.

So, for example, let us say in a in a town if in order to make the water available to low income group at rate let us say around 50 rupees per month, some other households are being charged as high as 1000 rupees per month or so, so they might do a cost benefit analysis that I am paying 1000 rupees per month for this, why should I do that? Why not I do a boring and basically use the groundwater for my uses? And even if I let us say purify that water with RO and extract that pumping, so my energy caused, my pumping cost, my purification cost is all, in all the way is going to be probably less than that thousand. So, why I should go for that mine water from the utility.

So, in such scenarios, in such cases actually the higher income group people may look for alternate sources, may stop buying water from the utility and then the financial situation for the utility is going to be even worse, it is sustainability itself will be under question because the customers who can pay well have opted out of the utility and it

needs, it might be actually just focusing onto the persons who may not pay the basic minimum revenues as well. So, those kind of stuff should be taken care.

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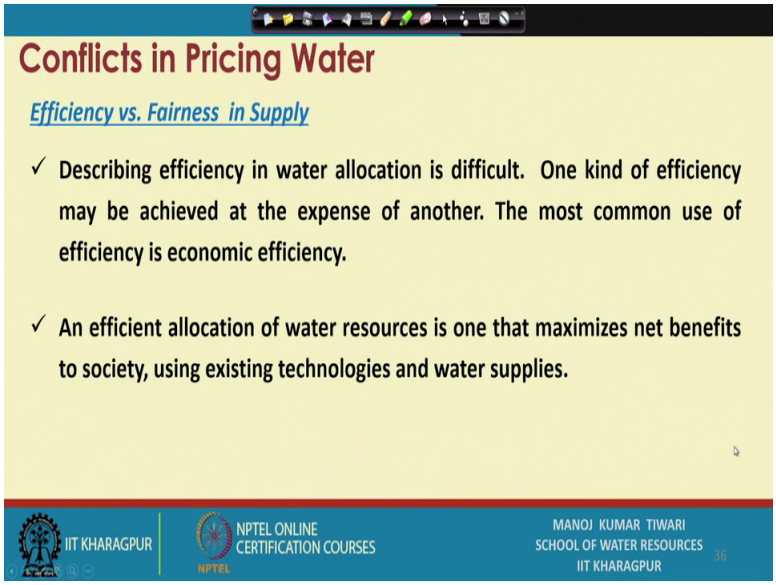

Apart from this, apart from your financial sustainability and these aspects there is a conflict which arises in terms of efficiency versus fairness in supply. Now, this is again very closely related to the affordability and financial sustainability concept because efficiency when we try to describe the efficiency in water allocation, the one kind of efficiency could be achieved the in terms of let us say the economic efficiency as well.

So, economic efficiency financial efficiency is also a kind of efficiency. So, when we talk about the efficiency we have to consider all and for this particular reason because the concept of social efficiency and economic efficiency is conflicting as we discussed in the when we are discussing the sustainability aspects. So, that is why, the sort of describing efficiency in terms of water allocation itself becomes very difficult and 1 kind of efficiency may better be achieved at the expense of other. So, there might be a trade of needing between these efficiencies.

So, an efficient allocation of water resources is the one that maximize the net benefit to the society using existing technologies and water supplies.

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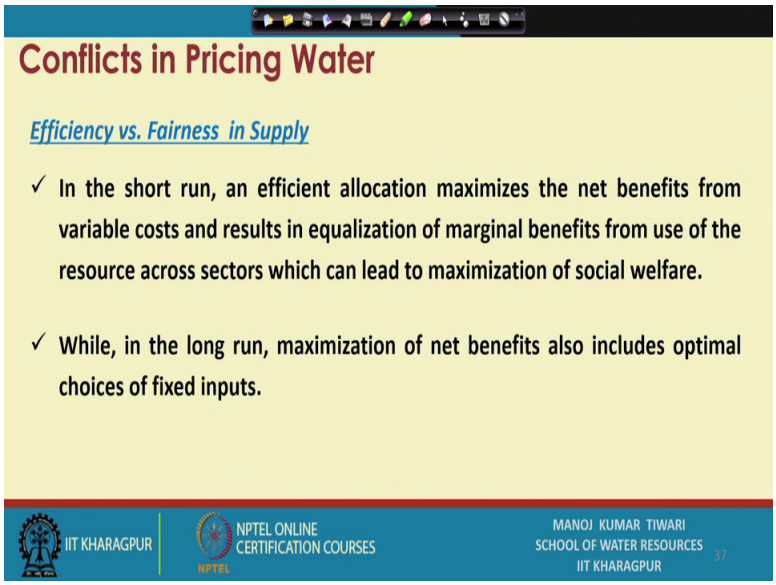

So, in short run an efficient allocation will maximize the net benefit from variable cost and result in the equalization of marginal benefits from use of the resources across which can lead to the maximization of social welfare.

So, this needs to be taken care of that, when one is going for a efficient allocation he needs to maximize the benefit from the variable cost and then the marginal cost how equally can be divided is needs to be taken care for a sole intended to the maximization of the social benefit. While, in long run, the maximization of net benefit also include optimal choices of fixed input.

So what kind of input you are taking. So, for example, in let us say whether one is let us say, said to design a water utility. So, whether to take water from a river or whether to take water from the aquifer? Whether to go for subsurface or river water? So, what is the cost? What is going to be the social implications? What is going to be the future requirement? All these aspects need to be evaluated and then a net benefit may need to be optimized by the evaluating all the different alternate choices.

What if I go for surface water? What if I go for down water? Or what if I go for a combination of surface water and groundwater? And if one is willing to go for a combination of surface water and groundwater as they need to protect the groundwater requirements also or surface water requirements also. So, if they are willing to go for a combination, what is the optimum ratio or optimum quantity that can be extracted from

surface water and down water? So, all these choices, needs to be optimized in terms of financial inputs as well. So, which is going to incur cost, higher cost in long run and higher cost in immediate higher cost, so that needs to be seen.

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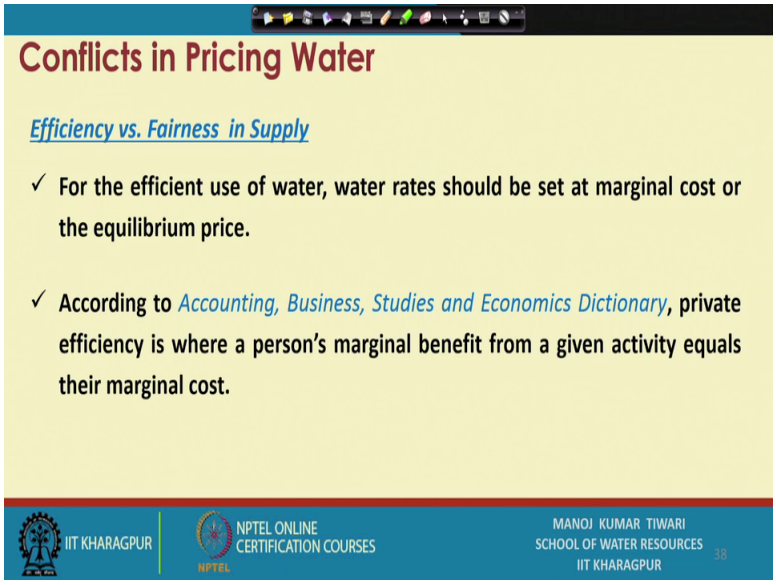

Then, for efficiency; for efficient use of water, water rates should be set near the marginal cost or the equilibrium price, this we have already discussed earlier and according to the accounting business studies and economic directory the private efficiency is where a person's marginal benefit from a given activity equals their marginal cost. So, for overall efficiency management or overall ensuring overall efficiency, a private efficiency would be where marginal private benefit is equal to the marginal private cost, so MB is equal to MC that way.

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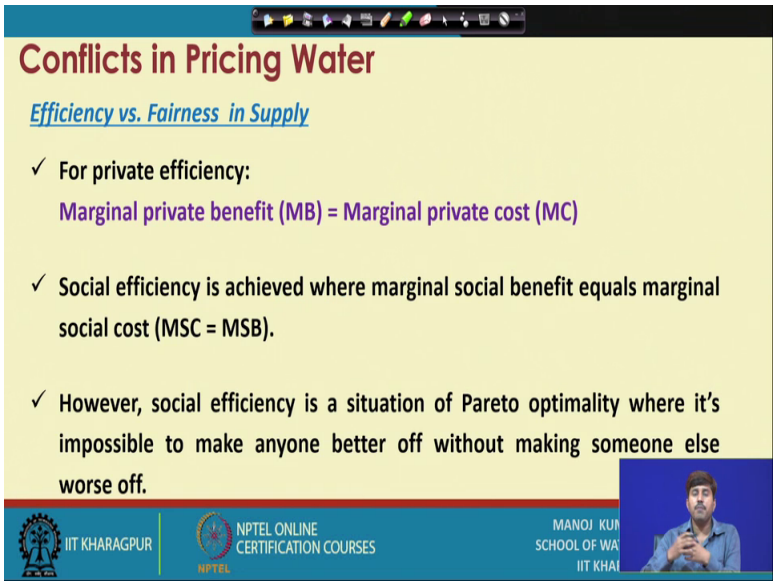

Now, that is for a private or for any sort of typical efficiency, if we talk about the social efficiency, so then, instead of private benefit we need to consider these social benefits. So, for utility will not be interested in a private benefit, utility will be rather interested in a social benefit. So, for a water utility it is more important to see that at what cases, with what inputs, with what choices or with what kind of setups, the marginal social benefits are more or less equal to the marginal social cost.

So, therefore, the social efficiency will be optimized in such a fashion. However, if you see the social efficiency is a situation of Pareto optimality. So, what it means that, the theory suggests that you cannot make anyone better off without making someone else worse off. So, in order to improve on some aspect you will have to sacrifice on to some other aspect.

So, that theory is applicable in water sector also and if one needs to basically go for optimization of the financial resources, he may actually be compromising on to the scale of social benefits or if one is going to maximize the social benefits, he may actually be compromising on to the scale of financial losses or financial issues. So, this kind of trade off between the between the different efficiencies needs to be considered.

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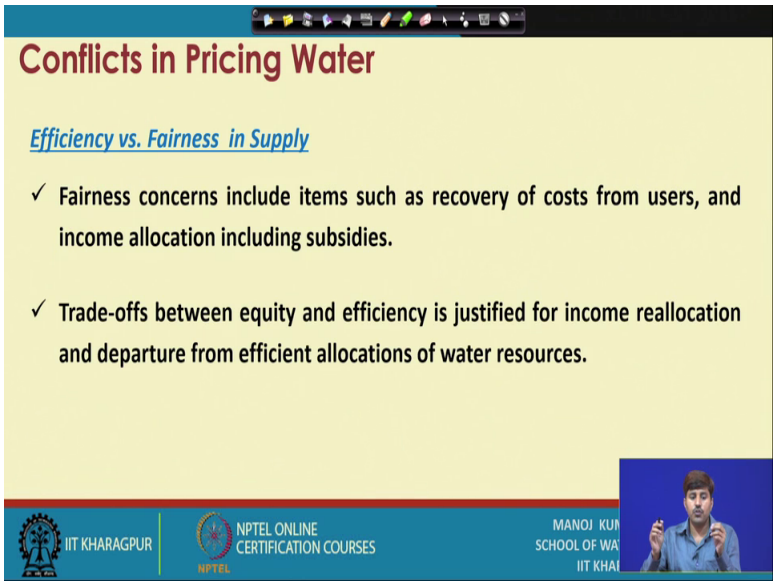

Then, the fairness concerns; fairness of supply which again will be talking about the equitable distribution and affordable distribution, that is what fairness means, that you supply water with a fairness in the all different section of the society. So, the residents from low income group should also be get access to the sufficient and safe water as the residents from high income groups are getting.

However, the fairness in terms of the cost also that water should be affordable for low income group as well. So, fairness concerns includes items such as the recovery of cost from users, then income a location including subsidies, but we are discussing just earlier. So, all this we will include the fairness in supply and at times we may need to make tradeoffs between equity and efficiency, which is justified for income relocation and departure from the efficient allocation of water resources.

So, the tradeoff between let us say environmental sustainability means we may need to withdraw more water at times trade off with the financial sustainability that we may need to have compromise with differential recovery in terms of making the water affordable. So, these sort of tradeoffs will be required, when pricings when we basically we are dealing with the pricing structure as well.

So, these conflicts needs to be very well understood and to be thought about to a great detail that what implications are going to be on of the policy that is being made for

pricing water. So, we will end this session here and in next session we will be talking about a few more conflicts in the water pricing.

Thank you.