Water Economics and Governance
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Lecture – 16
Valuing Water: Economic Value of Water

Hello everyone. So, this is the fourth week of the course and we will talk about the value of water today. So, in this lecture we are primarily we will be discussing about what is the value of water because we have been talking about so much about the availability, then sustainability aspect, policy aspect, water rights, but what exactly how we can assign a certain typical value to a water or what kind of values water integrate. So, basically we will be talking about mainly these aspects in this week and we will start with first that what is being valued in case of water.

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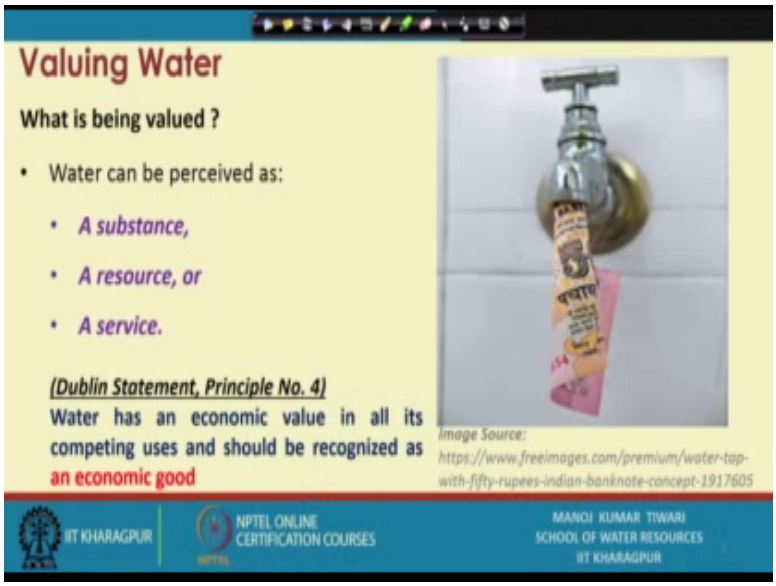

So, if you see the water, it can be perceived as either a substance or a resource or services. It can be basically perceived in all 3 forms. So, water as a material is actually a substance. Yeah there are water in your well, water in your river, water in your pond, water in a lake, water in sea, ocean; what wherever it is in it is condition. So, you can you can take water and chemically or physically, you can say that you have some substance at hand; you have some material at hand. So, water in that sense is actually a substance, a physical substance. However, it is the substance has a source and that way

because these sources of water are mostly natural, one cannot typically generate manmade water. Of course, they are a chemical reaction and all that, but eventually it comes from the nature.

So, water available in a nature is in the form of a resource, natural resource. So, we have our groundwater resources, aquifers and all that, we have surface water resources in the form of river, lakes, ponds. So, all this water present in these conditions or if you holistically see that you can say that you use, you can see water as a resource and that is why we call that water resources, water resources. So, all these discussion is considering water as a resource.

So, water can be taken as a substance, water can be taken as a resource; like substance example we discussed that when you are particularly dealing with water in it is isolated uses; for example, you are preparing a dal and you add water to that. So, you are not adding resource to that, what you are adding water as a material, water as a substance. So, that is what is you are putting in your food items that is what you are, when you are drinking water you are not drinking a resource you are drinking a substance.

So, water is basically can be considered as a substance, but when it is present in natural system, it is basically a resource; it is a form of resource then another aspect of water is in the form of service. So, water or the value of water can be taken means when we say that for what we are valuing water. So, we may not value water as a resource for that for the time being, we may not value water as a substance for the time being, we may actually give value to services also.

For example, water is their present in a let us say river or pond or lake and a company is putting water from a company or state or government whosever it is, a company or government is withdrawing that water or taking that water from it is original position, they are processing it, treating it, purifying it, putting it into the pipeline system, supplying that water to their households and all that. So, there is a lot of services involved.

So, the water that you get at your tap may not actually be like the cost of the water or the when you say the value of the water. So, value of water may not be that because that much because it is already available in resource from there it has come to their to your household level. But the value of water is because the processing through which it has

gone, the services that has been sort of that has been called with taking that water from one place to another place or on for processing water, treating water, purifying water. So, that service also could be chargeable.

So, when we say that value of water, it could be value of water as a material, value of water as a resource or value of water as services. Each of these components have their own values. However, this like valuing water, we have been seeing that it could be in a different form, but valuing water is not a very old age concept. People thought earlier that water is most; most people thought earlier that water is a natural resource and we are entitled to get this resource for no cost.

So, like if you so, that is why the due importance and due attentions was not given to the water as a economic resource, but if you recall our last week discussion on to the sustainability, we did there we did discuss the doubling statement where the principle number 4 of doubling statement which was one of the most talked about highlighted outcome of this doubling statement was that water has the economic value in all it is competing use and should be recognized as a economic good.

So, when sort of representative for over 100 countries and all that except this admit data this end comes in a statement that water is an good, water is an economic material, economic substance that time it becomes important to value the water and when we go on to valuing the water, we come across value for what value for it as a substance or value for it as a resource or value for it as a service. So, that is the first question that comes when we talk about the value in water.

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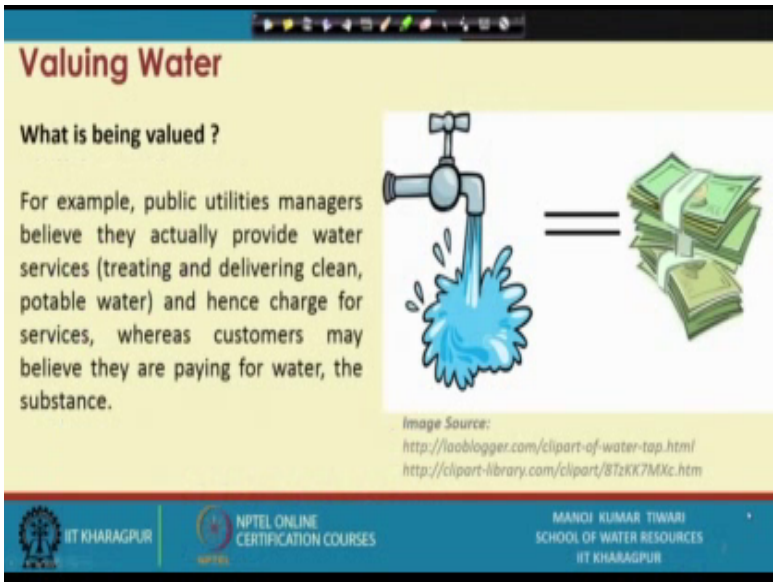

So, as you are discussing that, there are there are different aspects and many times the there are different perception also. So, for the same price or same cost, I may be paying considering that I am paying for water as a substance maybe because or well as whereas, that the service provider or the utility manager or the seller who is receiving that cost may think that he is getting the cost for his services and not for the water. You see, you see a very practical case over here these days that we buy water bottled water at stations and in the market and all different places, this very a coffin and all that. So, we when we buy these water bottles in here let us say in a train or somewhere because, we think that we have bought 1 liter of water and we have paid some 15, 20 bucks for that 1 liter of water.

So, we consider that we have bought a material; we have bought a substance for which we have paid. So, our perception is that we have bought water; we have bought certain volume certain amount of water, so we have paid for that water. But the manufacturer of that bottle, he must be getting water from some resource let us say he is pumping either from groundwater or he is he is basically getting from river or wherever it is. So, the manufacturer, who is let us say I am pumping I am putting such a factory and I am pumping groundwater. So, does the manufacturer paying anything to the aquifer system for obstructing water? Does he inserting some coin or rupees into the aquifer? No, he does not. He get that water for free.

So, for his prospective if you see, he is getting that water then he is putting it, he is basically putting installation of various equipments and all that and then manpower, then processing that water putting through a purification system of several stages eventually like going for reverse osmosis and then bottling it, putting like packing material and bottling stuff, then transporting it to the major distributor, then sub distributors, then it eventually goes to the outlet.

So, all these processes actually involves expenses at some stage. You install a machinery, there will be certain expenses; you process the water through RO, there is going to be some operational and maintenance expenses of the purification or treatment system then you pack it, pot early, there is going to be expenses in that. You transport that water so there is going to be the expenses in that. So, all these stuff actually involves expenses at various stage and these are all services. At no place the price is being paid for the water.

Water, the obtained from natural resource is actually for free. So, but the services incorporated in that is adding to the cost and eventually by the time it reaches the customer which it reaches to the you, you will be paying some 15, 20 bucks for that water, which at it is resource level is for free. So, the charge you have paid exactly may not be the for the may not exactly be for the sorry, the charge you have paid may not exactly be for the water as the material or water as a substance, but you have paid for these services; for taking that water purification, transportation, packaging, giving you, providing you that bottled water in a train berth.

So, you have paid 15, 20 bucks for that service and not for the water. But we perceive that we have bought a liter of bottle, we have bought a liter of water. So, we perceive that we have paid for the water. However, we have actually, from the source of service provider's point of view; we have paid for these services and not for the water. So, there could be the different perspective involved as well into this. So, that is sort of very important to understand what are we valuing water for.

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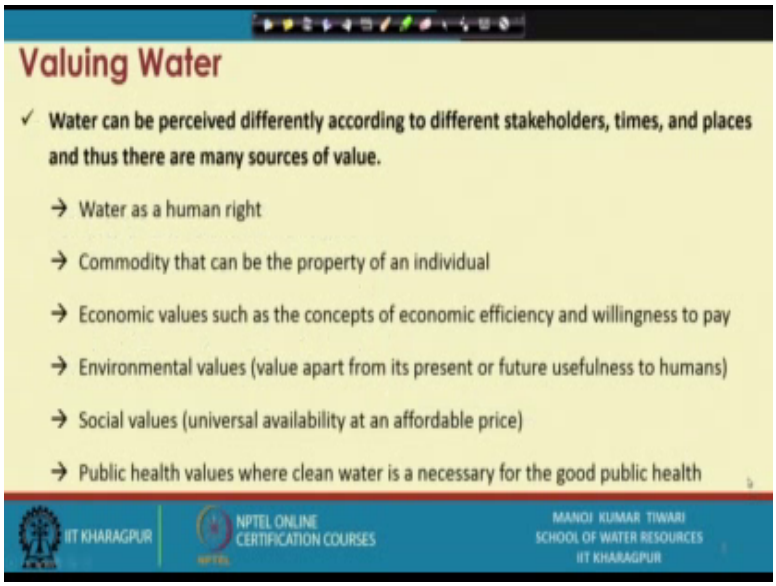

Now water can be perceived differently; according to it different stockholders, time places and thus has many sources of it is value ok.

So, there are multiple sources that add the value to the water. The water as a human right, that is sort of, give certain value to the water that yes, you are entitled to the getting this much amount of water. So, this is most essential, that is one value of the water, then the commodity that can be the property of an individual. I may own up sort of land with a pond and all that so that pond belongs to me. So, water in that entire pond belongs to me. People use to dig well in their reason and in their households and the well and the water within that well becomes their property. As per law, we will talk about that in later weeks.

But as per the law, the, if I own a land, I own the water resources been in that land as well. So, I am the owner of that water as well, that aquifer water, that groundwater as well. That is my property if I own that land. So, that is another value that is sort of given to the water as a commodity. Then there are an economic value which depends on the concepts of economic efficiency and willingness to pay how much one is willing to pay for that water, we will talk about this after this. Then there are environmental values. So, values apart from it is present or future usefulness to human, what is it is usefulness to the nature, to the ecosystem. So, what value the water lands to the ecosystem that adds

the environmental value? Then there are social value to the water which sort of talks about the universal availability of water at an affordable price for the society ok.

So, that adds a social value to the water. And then there is a public health value where clean water is necessary for the good public health or good health of the population. Now, all these are the different aspects of the water and different stakeholders give the due importance to may be different aspect. So, for a person, for a agriculturalists, for a farmer, his concern is the he should get adequate amount of water for irrigation. So, he does not bother much about the quality and all that, for a public health provider service provider would ensure that he gets the better quality of water because then the treatment, purification and risk of the disease outbreak reduces based on that.

So, his concerns would be that. Socialist will consider that there has to be equitable distribution and affordable prices and all that aspect. The environmentalist will perceive that what is the minimum ecological need of the water, that much is been given or not and what kind of intangible effects or benefits it is creating. So, those sorts of things will also be seen.

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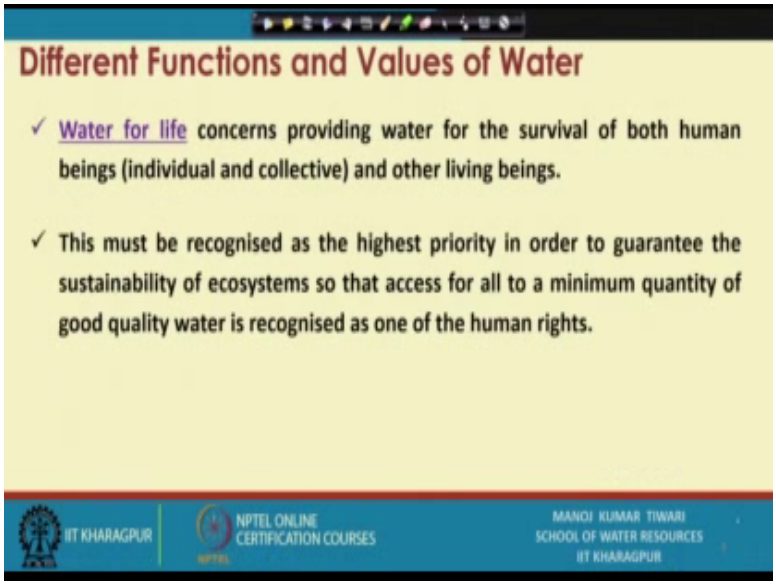

So that way, it would have a different value. Now the there are different functions and according different values of the water. So, there is water for life which concerns providing water for survival of both human being means individual as well as collectively the entire society or the community and other living beings.

So, this must be recognized as the highest priority. So, the highest value or highest provide a priority in valuing the water should be given for the water for life which is the most essential component for the survival of any sort of living organism, including human beings. So, it has to be given highest priority and that is why there has to be sort of guarantee of sustainable supply of or sustainability of ecosystem so that access for all, a minimum quantity of good quality water is recognized. So, that is the one of the prime value.

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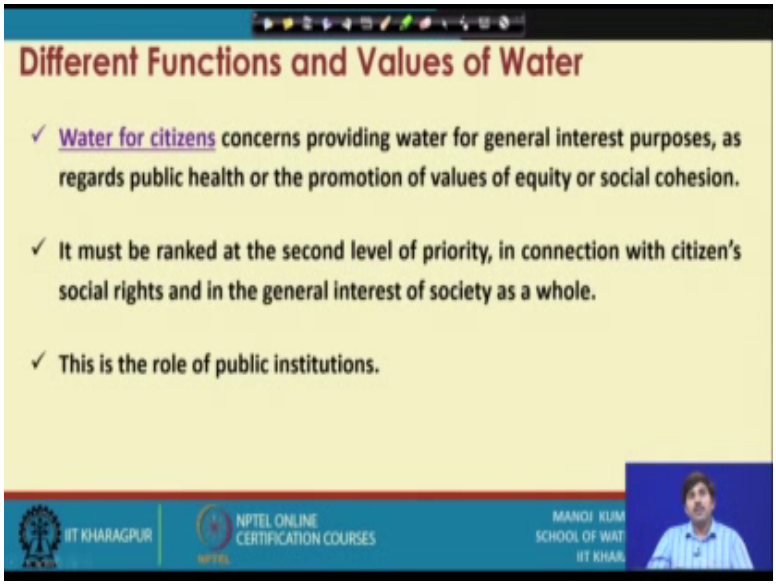

Then we have water for citizens, which concerns providing water for general interest purpose as regard to the public health or promotion of values of equity and social cohesion.

So, this aspect also needs to be considered and this gains the second level of priority after the value for life, which primarily includes let us say drinking cooking the survival facets. So, for those your value of like water for life gains the topmost priority and then the secondary uses regarding public health, promotion, equity, social cohesion and all these institutional demands and these things come under the water for citizen which is the second priority.

It sort of concerns the citizen's social right and there general interest of the society as a whole. And this is the role of public institutions or the government institution, regulatory

authorities to provide water for citizen as well apart from water for life which is covered under the right to water.

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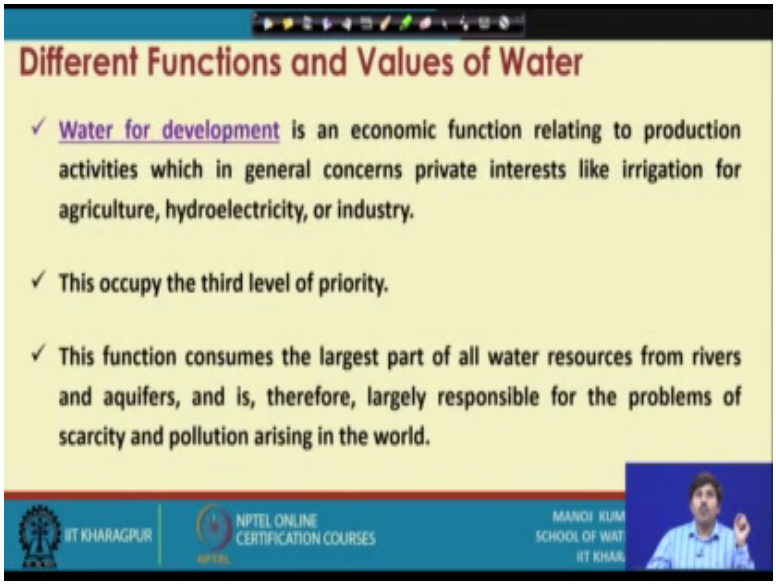

Then comes the water for development which occupies the third level of priority, which is sort of a economic function related to the production activities and generally concerns private interest like irrigation, agriculture, hydroelectricity or industrial demand of the water.

So, this function typically consumes the largest part of the water resources and therefore, they are the largely responsible for problem of scarcity and pollution arising in the world. This water for development, otherwise if you go for the basic human needs or even the secondary need of the water for the citizens, you are not going to create drastic demand or you are not going to put excessive pressure onto the water resources in terms of quality as well as waste water discharge quality.

However when you take water for development, then you are irrigating with a huge, irrigating with a huge amount of water and then again releasing the various secular chemicals for fertilizers, pesticides, into back into the nature, there is lot of industrial contaminants and all that going back into the nature.

So, these kinds of stuff are sort of there is mostly this developmental stuff including agriculture of course. So, this developmental stuff are the primary primarily responsible

for water scarcity, for water pollution, for water crisis into the various parts of the world. So, that is the another sort of function and value of the water and which should be given the third level of priority or least priority when you compare these 3, because others are the far more important applications.

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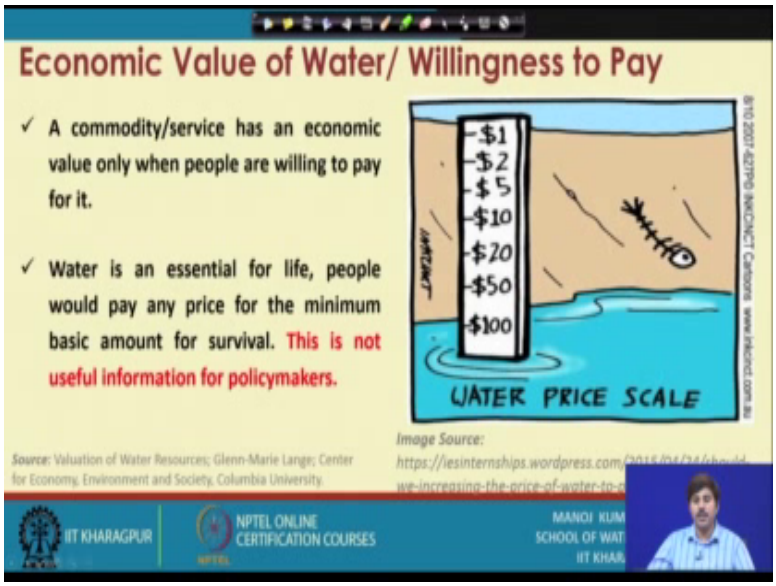

Now, if you see the economic value of water, which largely depends on the willingness to pay. So, a commodity or service, if you see water as either as a commodity or as a service, will have an economic value only when people are willing to pay for it, if I am willing to buy that bottled water in a train for 15, 20 rupees, then only it is sort of having that value. If people do not buy that it will not have that value because then these services and all that will not involve. It will be basically on it is natural. So, earlier when this bottled water system was not there, people used to drink water from the railway platform, taps and all that. So, that much of like services, needs, demands were not there.

So, the cost or the value of certain good or service depends largely on to the people's willingness to pay how much one is willing to pay for it. Now willing to pay again, particularly in terms of water if you see, as we have been discussing different functions of the water and according value. So, we the first function we say is that the water for life. So, water for life or the amount of water which is essential for life, people would happily pay any price for that minimum basic amount needed for survival.

Now you see that water, if you if you are dying out of thrust in a desert area, you do not see any water in and around and you know that you are about you will not be able to survive without water and that time if someone is saying that you give me your this golden finger ring or your golden chain or whatever you have to you give me this and then I will be able, then I will give you this bottle of water, I believe one will actually give the entire stuff. Howsoever they were expensive it may be, because it is question of survival.

So, once it comes to this survival that you will not be able to survive without water, what you will do with all those stuff, ornaments and these things. So, one can actually, one kind donate or one can give the it their golden ornaments for example; one can give any value or these things for just a bottle of water when it comes to the question of survival. So, that is priceless. That part of water which is essential for life, essential for the survival, does you one cannot fetch any price to that, that part is priceless.

So, this information is not useful for policymakers because you see that one can give let us say if you feel that one will be able to give 10000 rupees also for a bottle of water when it comes to the survival; what policy maker are going to do with that information. They cannot put water prices 10000 rupees per litre, because it is not just only for that purpose.

So, that is not very useful, rather what is useful that when this basic survival needs are fulfilled then.

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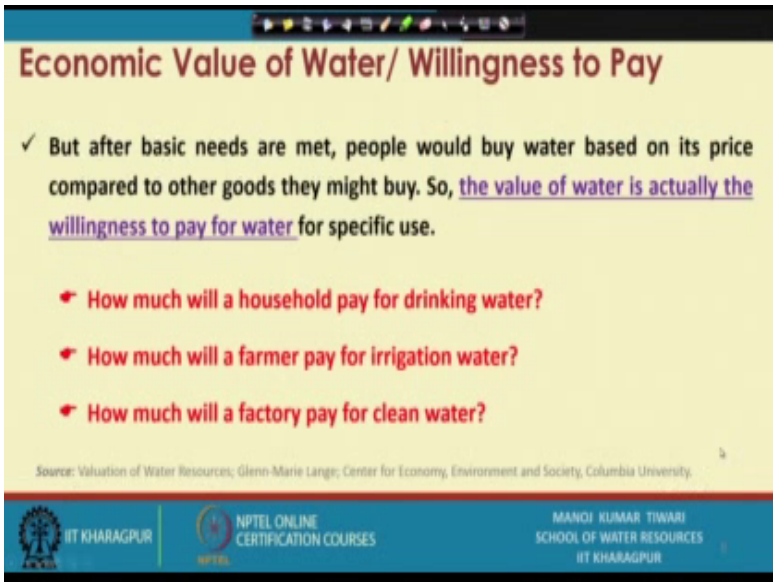

When these basic needs are met, then people would pay for water or buy water based on its price compared to the other goods and services they might buy or they might consider buying. So, that value of water is actually the willingness to pay for water for a specific use. Now the use here becomes very important. The use here becomes very important because you will be ready to pay different prices for different water. So, one will be sort of like how much a household would pay for drinking water.

So for example, if you see the many of these cities around in the coastal regions in India get saline water. The household supplies with the saline water. And that water may not deem fit for drinking purpose. So, many people buy water drinking water cans for some 20 litre for 20 rupees those sort of for household applications for maybe drinking purposes or even for cooking purpose at times ok.

So, they pay 1 rupees per litre which makes 1000 rupees per kilo litre. When you are not having access to those type of system, people pay a 15 rupees per litre for a drinking water or 10 rupees per 500 ml for a drinking water bottle which is 10000 rupees let us say, you are buying 15. So, that is 15000 rupees per kilo liter. Then when you that 20 litre bottle in 20 rupees that makes some 1000 rupees per kilo litre for drinking purpose or for cooking purpose when people buy water, but irrigation purpose no, but no one is going to buy those water land irrigate their gardens and integrate their fields with that water.

So, a farmer would pay far less would be, willing to pay far less price for irrigation water because the demand is huge. A farmer cannot spend some 100000 rupees for irrigating a field. If you pay 100000, let us say that high price of the water. So, their demands are different, their uses are different and their willingness to pay is different based on how much income or how much profit they expect from their production and this kind of thing they will buy that.

Even at a household level, if you see the household requirement for cleaning or for these things. So, we get the people in those coastal area get the pipe or pipe water supply also for which they may be paying some 20 rupees, 30 rupees per kilo litre as opposed to 1000 rupees per kilo litre for the bottled water, they bring in for drinking purpose, but for bathing, for washing clothes, for cleaning purpose, they use that water. They use that 20, 30 rupees per kilo litre piped water.

So, that case they are willing to pay that much for this. So, that prices are charged accordingly. A farmer may have a different willingness to pay for irrigation water; a factory may have different willingness to pay for industrial use water, because they are going to make profit out of it. So, industries are happily like in India you see, Surat and places there are water is being charged at a 50, 60 rupees per kilo litter from industries where no household will be, but like happy to pay this much of water for their domestic uses. Because industries are making profit out of it and they do not have an alternate sources due to by regulation or by law.

So, they have to deal with that. So, that is very important to understand that, for what use you are paying and what the willingness to pay that is is what sort of decides or that is what governs the economic value of water, how much is the economic value of water. And how much people are willing to pay for it which again will depend on which again will be used is specific. So, we will end this lecture here and we will go probe into the more details of different values of water, different type of values of water in the next lecture when we will discuss the use and non use values of water.

Thank you.