Sustainable River Basin Management

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Module – 4 – 1

Lecture - 27

Part - 2

Welcome everybody to sustainable river basin management, module 4- 1, part 2. Let us now go into this sustainable river basin management as our main subject.

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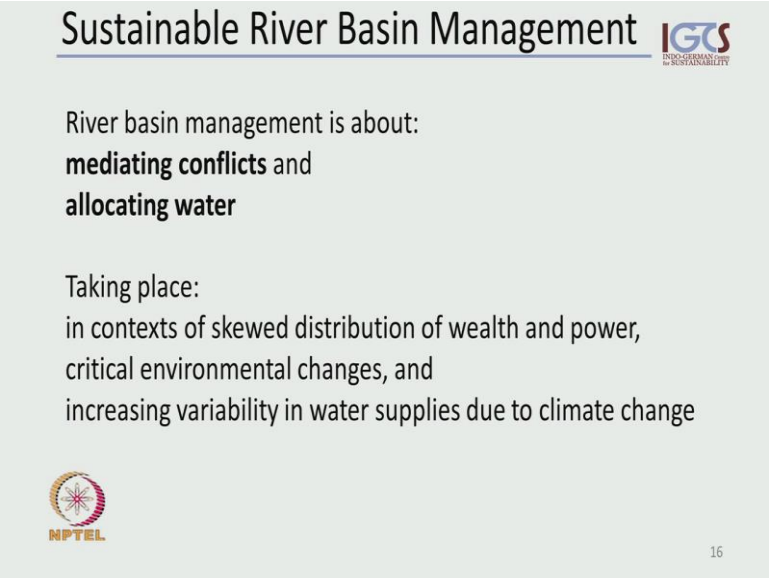

Now, river basin management is essentially about mediating conflicts and about allocating water. This takes place in the context of the skewed distribution of wealth and power, the critical environmental changes and the increasing variability in water supplies as a result of climate change.

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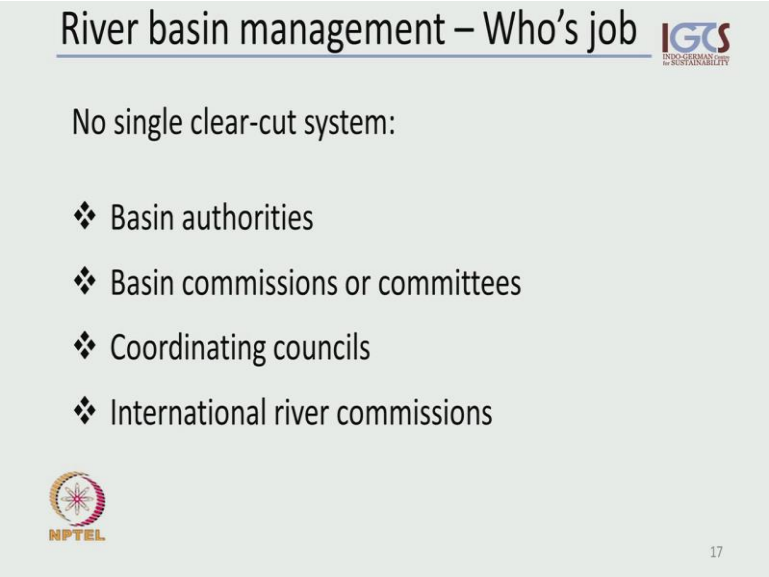

Now, let us ask the question; whose job is the river basin management? Again, there is no single clear cut system or institution that should be responsible for river basin management. There are several setups possible which can also overlook this in one river basin could be for watersheds, within one river basin or it could be across a system of river catchments connected to each other. So, we may see something like a basin authority; we may see something like a basin commission or committee; we may also come across a coordinating council or we may see an international river commission; those occurring in one catchment or in one watershed within a larger catchment.

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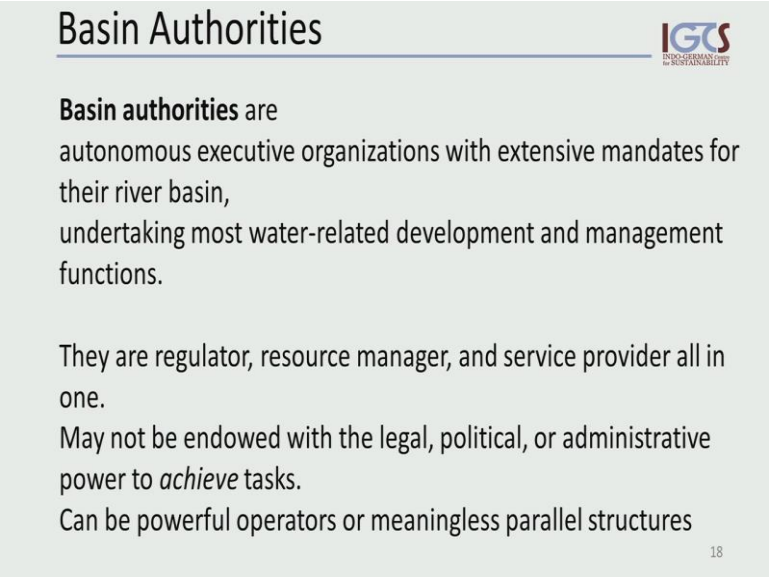

Now, let us try to understand what these institutions organizations are so that, you may be able to clarify this for yourself in this relation that you may be looking for in your river basins. The basin authorities are usually, autonomous executive organizations with very extensive mandate for that specific river basin. They undertake most of the water relevant development, as well as the management functions. So, this is very comprehensive. They act so to say as regulators. They also act as the resource manager and they act as the service provider; all in one and in that point, you can receive here. The challenges may come up and the difficulties in it. So, they may not be in the orders; legal, political and administrative power to actually, achieve those tasks. So, this is in addition something that you may observe that in principle, it could be a very powerful authority, but in reality it is set up any way that it is a paralyzed structure which is meaningless. It cannot operate or implement what it is supposed to be able to do on paper.

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Now, second at dimension of basin commission or basin committees; those basin committees focus on policy setting, on basin wide planning, on water allocation, on information management and also, on the thing to get the stakeholders and ensuring stakeholder participation to define or varying degrees. So, those usually have the authority to manage water resources, which means they can allocate permits; they can define taxation; they can negotiate water allocations; they can define effluent standards. They may sometimes also do conduct the planning for future water infrastructure developments, but they are not involved in the operation or the construction of such water infrastructures.

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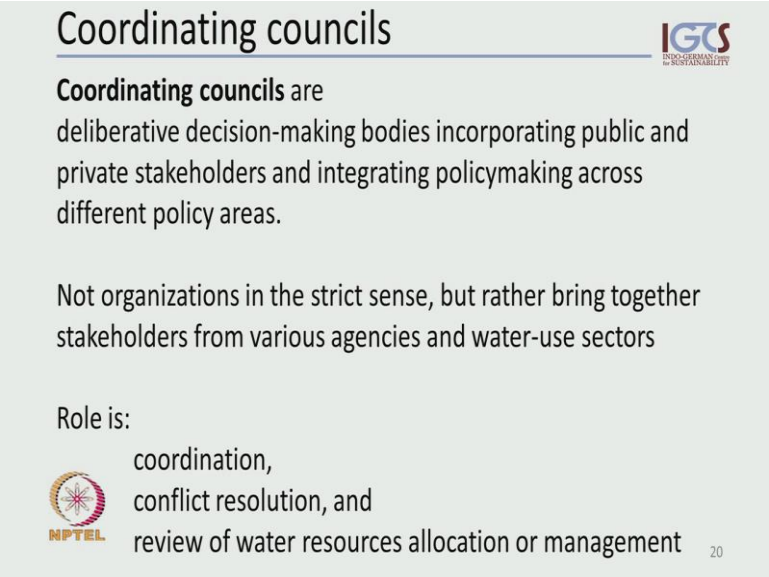

Let us move into the coordinating councils. Those coordinating councils are deliberatively decision making bodies, incorporating a whole range of stakeholders from public to private, also integrating policy making across different policy areas. This could be policies on mining, which may consume a lot of water or policies on health issues, which may be water related and so on, and water infrastructure, major power hydro power projects planned in an area. So, it is, the council is not an organization in the strict legal sense. It is rather platform that brings to get stakeholders from individuals to various agencies and coming from the water use sectors. So, the role of such coordinating councils, usefulness of this is to they are supposed to conduct coordination, conflict resolution and also to review water resource allocation or the water resources management. So, they can be very important in bringing different parties together, which then may eventually, come up with more structured approaches towards basin authority or a basin commission.

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Then we have international river commissions and those international river commissions may be set up because there is a need to coordinate the use of shared river systems between countries. So, this is not about bringing together individual stakeholders or water users it is about these countries dealing at country level at national level or higher political levels sharing the resource in a broader sense and this may be often driven by a certain political dimension that may be pervasive they are frequently established as part of a treaty that has been signed which is the first successful approach approaching of two countries or several countries and those usually come between the interested riparian countries, but not always it could also involve other interested countries in a in the specific water resource or they may come together to manage a large project for the construction of a dam on a shared river.

So, they are interesting cases; they are, for instance Congo River basin; many countries have come together, signed a treaty, which aims at the development of these water resources for power generation. So, not all of these countries; obviously, are residing along the Congo River, as you probably know. The roles are to mediate water conflicts through consultation and cooperation. They may manage common databases as an entry to trust building. They may feed into elaboration of concrete agreements, which then may be taken up to an operational level and may result in the formation of joint water authorities, for instance.

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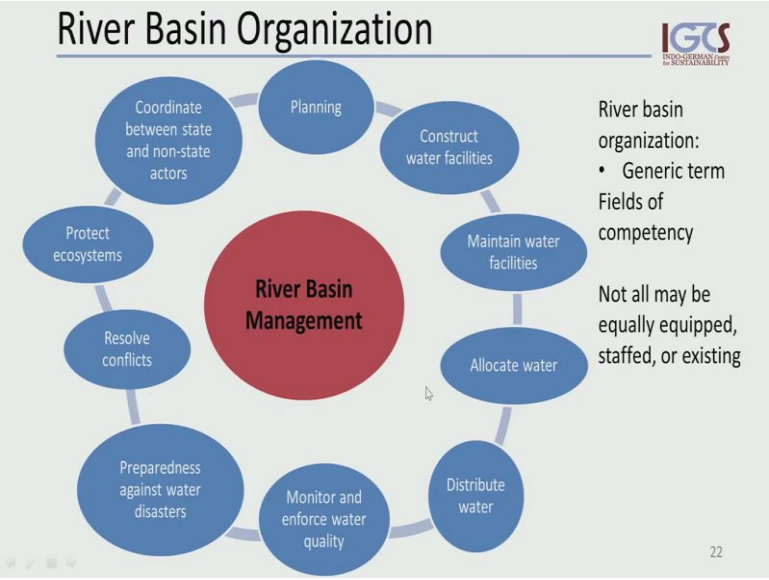

Now, let us look into the functions and we just introduced now, the term river basin organization, which is to replace all these different options of how water river basins could be managed, as I introduced right now to you. It is a sort of a generic term, which brings together the various fierce of competencies, which should be available under one roof to manage water resources. So, here they are all part together. Important, is a planning function, a function dealing with construction of water facilities. The river basin organization should maintain water facilities. They should be dealing with allocation of water with distribution of water, monitoring and also the enforcement of water quality. There should be a function dealing with preparedness against water related disasters. There should be a way to resolve conflicts. There should be function dealing with the protection of ecosystems and there should be some arm or some link, facilitating the coordination between state and non state actors in this particular river basin.

Now, not all of them may be equally equipped or equally staffed or even representing existing in specific river basin of your knowledge. You may think about the specific case for yourself. In some of the parts, the preparedness against water related disasters may be much more predominant, may a way; this is always hit by large cyclone events, large flood events in a flood terrain, large flood rain terrains. This may be a predominant perturbation in not apart you (Refer Time: 11:27). The construction of water facilities may be much more important, because the river basin is under developed in this respect and so on. So, some of those may be much more developed, much more (refer Time: 11:44), receive much more attention, but that does not mean that the rest of those are not

as equally important, but in many cases, they only become important only at the moment, a problem arises for instance, in terms of conflicts coming out of water allocation for instance. Now, we will be looking into those river basin management functions now, and let us start with the water allocation as one of the major tasks.

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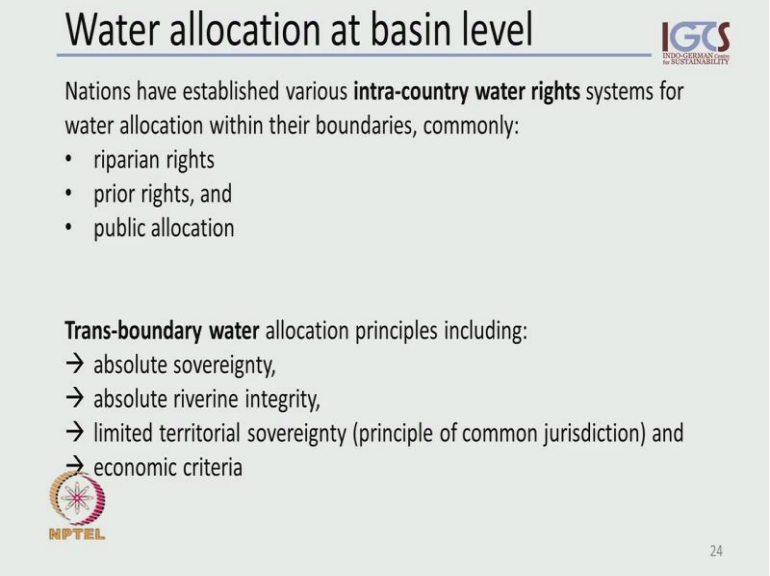

Now, let us look into water allocation at basin level. Nations have established various intra-country water rights systems, which facilitates water allocation within those country boundaries and commonly known are the riparian rights, prior rights and public allocation. Then we have trans-boundary water allocation principles, which take us beyond country borders, which include absolute sovereignty, absolute riverine integrity, limited territorial sovereignty, which is a principle of common jurisdiction and also economic criteria.

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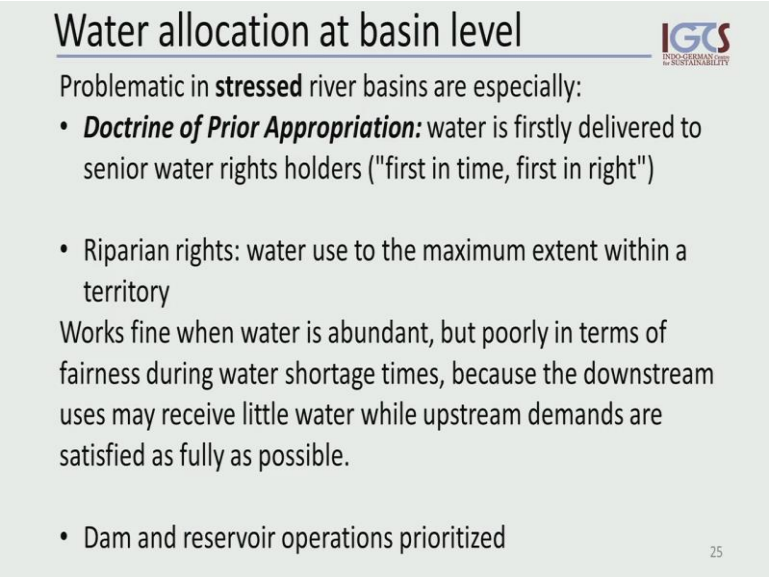

Now, some of those are highly problematic when it comes to stressed river basins and especially, two of them; first the doctrine of prior appropriation, which is meaning filled water, is first delivered to senior water rights holders, which means first in time first in right. This in many areas, many countries or river basins, is not corresponding anymore to the actual developments on the ground as land use changes are taking place as socio-economic developments are taking place. Water use priorities also are changing and some industries may coopt which at the time when the first settlers arrived or the first in time settlers, having accessed to the water sources, those industries may have not existed at all.

They may have started as farmers and now, you may have some other industries, some automobile industries, which require water or some eco-tourism or tourism, taking place and being one of the major income sources for the basin. So, in many cases end, there is a colonial head, which also linked to this when those rights were interfused and over writing common violates or traditional water rights in that location. So, and then the other one is the riparian rights, which is essentially, providing or assuring water use to the maximum extent; this in territory. This is all good and working fine when water is abundant, but it is working very poorly in terms of fairness when there is a water shortage for some time, because the downstream user may only receive very little water; may received not enough water or water at all; while the upstream demands are satisfied probably, fully or as full as possible.

So, that is again, something that may have worked when population numbers were lower; population densities were lower, but completely inadequate in many cases, where we deal with stressed river basins and high population densities and competing industries, which may be very important in terms of income and livelihoods. Problematic are the situation, where dams and reservoir operations are outright prioritized and this is very often, in the case that dams have to be filled to the top level to ensure hydro power generation and the same time, the downstream users will only receive occasionally, water or no water at all or water at times when it cannot be applied or made useful from an ecological or from farming or other users' perspective.

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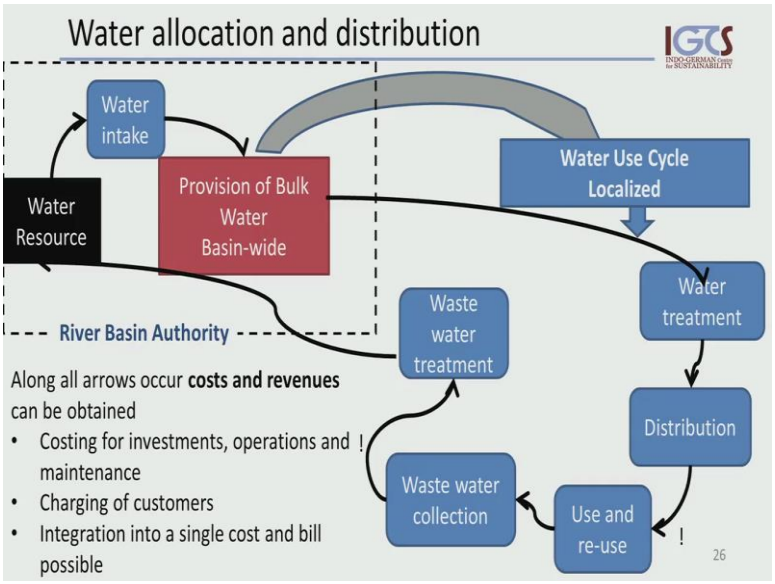

Now, let us look into the water allocation and distribution in the context of river basin. Now, we have a water resource available here; the black box and we usually, have a water intake somewhere, which brings water from our resource and then, we have the river basin organization, dealing with the position of bulk water at a basin wide scale. This water has been provided to some local localized user, which again, operates in a cycle; it is a water use cycle in itself, but outside, this bulk water provision in a river basin. All this takes place in a river basin, but in terms of management and control, those are separate cycles. Those water use cycles include our water treatment to the level required for domestic users, for industry users, the distribution, the use and reuse, the waste water collection, waste water treatment and all of those are somewhere connected like, because this waste water will be joining our water resources at some point, again may be treated or not now.

All of these arrows here, connecting those various steps of water use or water movement, water treatment, indicate also that costs occur and also revenues can be obtained and this is important now, in terms of water allocation and distribution plan, because we can from this, first of all, have to invest into our operation, into our infrastructure, into our water intake for instance and then, investments are necessary at those levels. Then we need costings to run our operations and our maintenance. On the other hand, we are earning also something by charging the customers, charging the water users for the treated water, for the reuse of water and also for the return of the waste water. All of these can be integrated into a single cost and also a single bill that comes to the customer or the water user, but in many cases those are separate processes.

So, we have a river basin authority, dealing with just the bulk water supply and then, we have some other institutions or even companies, dealing with these localized water use cycles. It could be a municipality; it could be a village community organization; it could be an industry doing it for its own purposes; it could be even a large scale farmer, which probably, have its own his or her own water treatment and waste water collection, waste water treatment before they could turn the water into the main river again. Now, this is important to keep in mind and this is also important to understand how these river basin organizations could eventually, operate economically and how they could finance their own operations.

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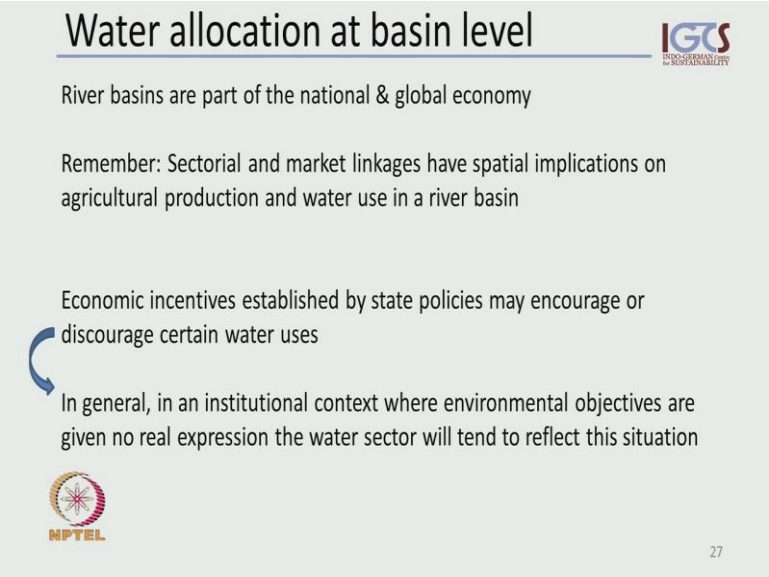

Now, let us continue on water allocation at basin level and be clear about some over-arching principles. First of all, river basins are part of the national and global economy. So, that is important to remember that there are sectorial and market linkages; there is spatial implication on agricultural production and water use in a river basin; food security, its country's income, gross domestic product; it is the virtual water trade; all of those playing a role as part of our national global economy. Now, those economic incentives which are established by the state policies may encourage or discourage certain water uses. This again, in general, is creating an institutional context, where the environmental objectives are given no real expression in the water sector and this will be reflected in our economic priorities setting.

So, when for instance, there are large scale farming projects in desert or in a water scarce region and this is a political goal. It is part of the national global or national agenda and global economical agenda of particular area or state, but on the other hand, it has its corresponding negative impacts on the water sector, and the water sector itself, cannot lift itself out of such preconditions and improve on water conservation or water development allocation efficiency on any sustainability measures, unless the overall global political objectives are lying to what the water sectors able to provide and secure. So, that sustainability can only be achieved if at large scale, the political frame is in place as well.

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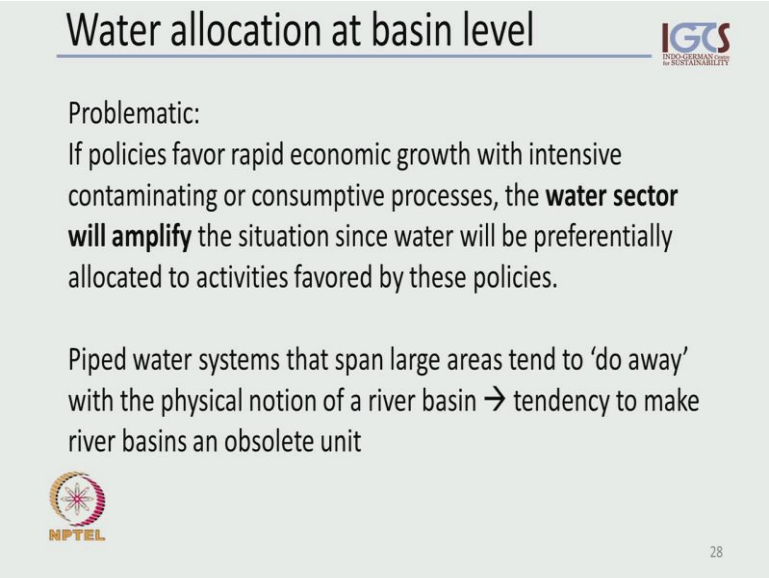

Now, being problematic in this; our policies which favor rapid economic growth with usually, intensive contamination and intensive development of consumptive processes, which will be amplified in the water sector and the water sectors situation, because the water will be allocated preferentially, to these activities which fit and favor our political strategies. So, another tendency; this is one of the parts of the accreditation. The other is that the more we allocate and provide water through piped water systems, which come from very far distances and provide water to some area.

Then very often, we lose the linkage between the sources of the water, the hydrological system with physical notion of the river basin as such and very often, there is a tendency to make the river basin as such an obsolete unit. Very often, people separate between the urban water cycle, urban watershed management, which has and if this is not embedded in a river basin as such, because there is no notion of where water actually comes from in a complex system. Now, at this point I want to stop and we will continue on water allocation during the next classes. I will see you again.