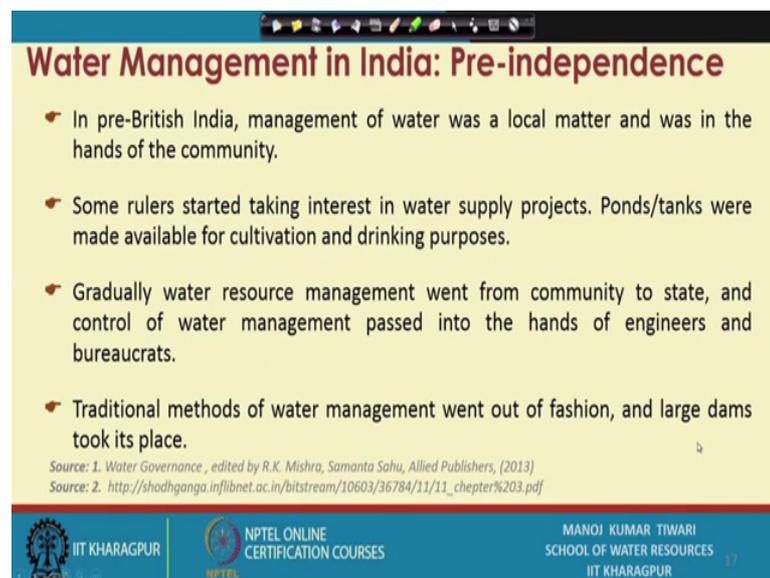


**Water Economics and Governance**  
**Prof. Manoj Kumar Tiwari**  
**School of Water Resources**  
**Indian Institute of Technology, Kharagpur**

**Lecture – 50**  
**Water Governance in India: Pre - and Post – Independent**

Hello everyone and welcome. In earlier session, we talk about some of the water governance practices in the ancient India. In this particular session we will see how the water is governed mostly in the post-independence period. We will talk briefly about pre-independence era as well, the British period, but mostly we will discuss; what are the governance practices in the post-independence period.

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**Water Management in India: Pre-independence**

- In pre-British India, management of water was a local matter and was in the hands of the community.
- Some rulers started taking interest in water supply projects. Ponds/tanks were made available for cultivation and drinking purposes.
- Gradually water resource management went from community to state, and control of water management passed into the hands of engineers and bureaucrats.
- Traditional methods of water management went out of fashion, and large dams took its place.

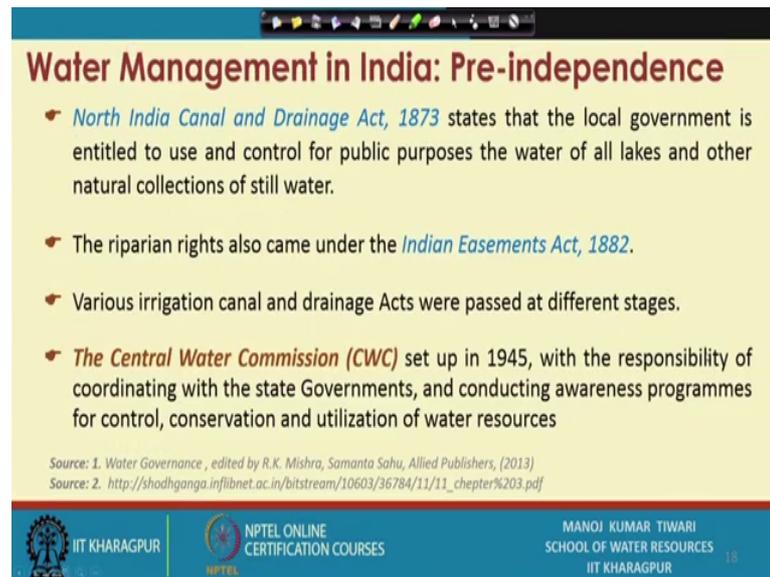
Source: 1. Water Governance, edited by R.K. Mishra, Samanta Sahu, Allied Publishers, (2013)  
Source: 2. [http://shodhganga.inflibnet.ac.in/bitstream/10603/36784/11/11\\_chapter%203.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/36784/11/11_chapter%203.pdf)

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To begin within pre-British India management of water, was a local matter and was in the hands of community, many rural many ruler's started taking interest in the water supply project, and slowly gradually moved from the hands of the community to this state, and eventually the control came in the hands of bureaucrats and engineers.

Traditional water methods traditional methods of water managements, steadily went out of fashion and the modern engineered structure started coming in more frequently.

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**Water Management in India: Pre-independence**

- *North India Canal and Drainage Act, 1873* states that the local government is entitled to use and control for public purposes the water of all lakes and other natural collections of still water.
- The riparian rights also came under the *Indian Easements Act, 1882*.
- Various irrigation canal and drainage Acts were passed at different stages.
- *The Central Water Commission (CWC)* set up in 1945, with the responsibility of coordinating with the state Governments, and conducting awareness programmes for control, conservation and utilization of water resources

Source: 1. *Water Governance*, edited by R.K. Mishra, Samanta Sahu, Allied Publishers, (2013)  
Source: 2. [http://shodhganga.inflibnet.ac.in/bitstream/10603/36784/1/11\\_chapter%203.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/36784/1/11_chapter%203.pdf)

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The north India canal and drainage act which was passed in 1873 that entitled the state local government for taking control of the water for public purposes, the riparian rights also came under the Indian easement acts in 1882 further in that period during that pre-independence period in the British era various irrigation canal, and drainage acts were passed at different stages.

The central water commission that is still there and working was also established in 1945 couple of years before the independence. The responsibility of the central water commission given was to basically conduct awareness program for control conservation and utilization of the resources.

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**Water Management in India: Pre-independence**

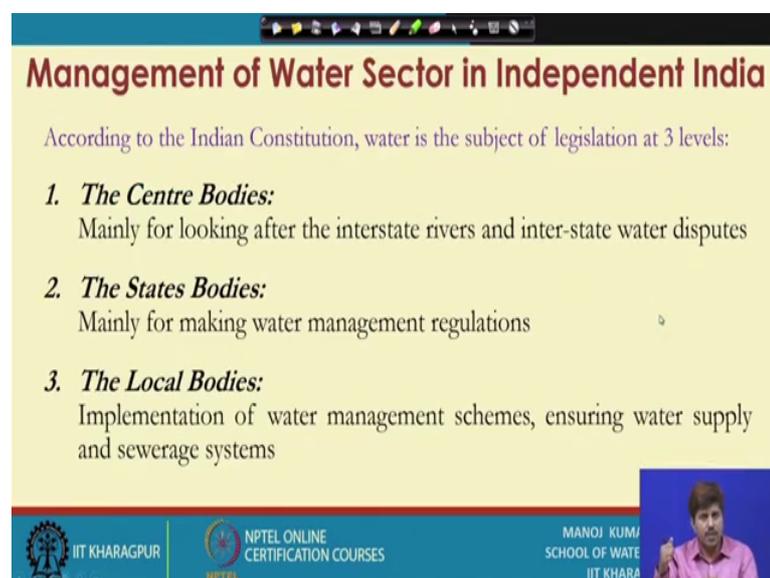
- Colonial legislation also introduced the division of responsibilities between the centre and the regions/states with regard to water.
- *The Government of India Act (1935)* empowered the provinces to take decisions on water supply, irrigation, canals, drainage and embankments, water storage and hydropower.
- Conflicts between provinces and/or states were subjected to the jurisdiction of the Governor General who could appoint a commission to investigate the sufficiently important conflicts

Source: India: Evolution of Water Law and Policy, by Cullet P. and Gupta J. in The Evolution of the Law and Politics of Water, Springer (2008)

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Then this colonial legislation also introduced the division of responsibilities between center and different regions and state in respect to the water. There was a government of India act which was passed in 1935 it empowered the provinces or states that time states were used to be called provinces. So, it empowered provinces, to take the decision on water supply irrigation canal drainage all such sort of projects related to the water. Whenever there was a conflict between provinces or states, it was subjected to the jurisdiction of the governor general who could appoint a commission to investigate the case.

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**Management of Water Sector in Independent India**

According to the Indian Constitution, water is the subject of legislation at 3 levels:

- 1. The Centre Bodies:**  
Mainly for looking after the interstate rivers and inter-state water disputes
- 2. The States Bodies:**  
Mainly for making water management regulations
- 3. The Local Bodies:**  
Implementation of water management schemes, ensuring water supply and sewerage systems

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In the independent India, when we sort of got independent got free in 1947, still we largely relied on to the water governance practices in water governance rules from the pre-independence era. So, the from the colonial period whatever rule was existing at the colonial period we borrowed largely from there, and in our own Indian constitution we also had water as a subject of 3 different levels. So, there was center bodies mainly looking after the interstate rivers, and the disputes interstate water disputes primarily. Then there were state bodies which were mainly responsible for making water management regulations.

So, state bodies are to make policy rules and regulations, for water governance within this state. So, the allocation policy is how much water should go to the agriculture sector how much water should go to the drinking water sector who owns the right of this. So, all that policy decisions are actually in the hands of state bodies. Then we have local bodies, which are there for implementation of the water management scheme. So, what isever policies or practices states develops it has to be implemented by the local bodies. Local bodies as in municipalities Panchayati Raj institutions so, all those smaller section or the various government departments at that district level city level. So, they are the one who are responsible for implementing these programs.

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**Water Management in India: Constitutional Provisions**

**Article 246, List I (Union List) of the 7th Schedule**

- ☛ Regulation and development of inter-state rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest (**Entry 56**)
- ☛ Fishing and fisheries beyond territorial waters (**Entry 57**)
- ☛ Shipping and navigation on inland waterways, declared by Parliament by law to be national waterways, as regards mechanically propelled vessels; the rule of the road on such waterways (**Entry 24**)
- ☛ Maritime shipping and navigation, including shipping and navigation on tidal waters (**Entry 25**)
- ☛ Carriage of passengers and goods by railway, sea or air, or by national waterways in mechanically propelled vessels (**Entry 30**)

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If we look at the constitutional provision so, in our constitution under article 246, we have 3 types of list in the 7th schedule. There is one list one, which is union list then

there is a list 2 which is state list, and then there is a list 3 which is concurrent list. So, union list what is ever item or what is ever entries are there in union list. It is basically under the purview of the central government. So, it is union government or central government holds right on to the items mentioned in the list one or union list. So, in relation to the water, if you see the union list says, that regulation or and development of interstate rivers and river valleys to the extent with such regulation and development under the control of union.

So, basically this is the entry 56 and water for interstate rivers is in the jurisdiction of the central government. The fishing and fisheries beyond terrestrial water, which is listed as entry 50 7 in the union list is also under the purview of the central government. Then, there are some small points related to the shipping and navigation on the inland waterways, and then shipping and navigation in maritime including in the tidal waters which is in the entry 25. And carriage of passengers and goods by Railway Sea or air or by national waterways in mechanically propelled vehicles is also listed as entry 30 in the union list.

So, these rights or these powers are there with the central government.

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**Water Management in India: Constitutional Provisions**

**Article 246, List II (State List) of the 7th Schedule**

- Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to provisions of entry 56 of List I (**Entry 17**)
- Taxes on goods and passengers carried by road or on inland waterways (**Entry 56**)
- Communications, that is to say, roads, bridges, ferries, and other means of communication not specified in List I; municipal tramways, ropeways, inland waterways and traffic thereon subject to the provisions of List I and List III with regard to such water-ways; vehicles other than mechanically propelled vehicles (**Entry 13**)

**Article 246, List III (Concurrent List) of the 7th Schedule**

- Shipping and navigation on inland waterways as regards mechanically propelled vessels, and the rule of the road on such waterways, and the carriage of passengers and goods on inland waterways subject to the provisions of List I with respect to national waterways (**Entry 32**)

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With state government in the list 2 of the 7 schedule of article 246, it says that entry 17 is the most important one in a most important entry there which says that water that is to say water supply is irrigation and canal drainage and embankment, storage and water

power are all subject to the jurisdiction of state government, ok. Subject to the provision of entry 56 list one.

So, whatever was the listed in the jurisdiction of the central government as a list one, the union lists, excluding that all other items all other important items related to water including supply irrigation canal drainage embankment water storage water power things are all actually under the purview of this state as mentioned in the entry 17 in the list 2 of the 7th schedule.

Taxes on goods and passenger carried by road or inland waterways are also under the state, mentioned in the list 2, and communication with road bridges ferries and other mean communication not specified in list one. So, basically for smaller such communication because list one takes for the trans boundary or the larger national rivers. So, all other are actually under the purview of the state.

Then there is a list 3 which is concurrent list on which we this center as well as state both have powers is shipping and navigation on inland waterways as regarded mechanically propelled vehicle, and the rule of road on such waterways and carries of the passenger and goods on inland water ways are subject to the concurrent list.

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**Water Management in India: Constitutional Provisions**

- Under **Article 262**, the Union is entitled to legislate on the adjudication of inter-state water disputes.
- The Inter-State Water Disputes Act (1956)** creates specific tribunals for addressing interstate water disputes. This Act has been used in landmark disputes concerning the Cauvery, Krishna-Godavari, and Narmada rivers.
- The Parliament also enacted the **River Boards Act (1956)** to allow the Central Government to establish river boards to advise state governments on the regulation or development of an interstate river or river valley.
- River boards can advise on conservation, control and optimum utilization of water resources, the promotion and operation of schemes for irrigation, water supply or drainage, or the promotion and operation of schemes for flood control. **This Act, however, has not been used in practice.**

Source: India: Evolution of Water Law and Policy, by Cullet P. and Gupta J. in The Evolution of the Law and Politics of

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So, there are there are rights of both, Union Government or central government as well as state government.

Apart from that under article 262, the union is also entitled to legislate on the adjudication of the interstate water dispute. So, that is one of the prime responsibility of the central government to educate the interstate water disputes. For this interstate water dispute act was made and in 1956 which authorized government to create specific tribunals addressing interstate water disputes, and this is the act which has been used in solving so many interstate water disputes including the kaveri krishna Godavari Narmada river.

So, all that interstate water disputes lot of interstate water disputes has been solved using these tribunals constructed under this act. The parliament also enacted a riverboats act to allow the central government to establish river boats to advise a state government on the regulation and development of interstate river or river valley. So, the government was sort of supposed to frame river boats for all such interstate river at least major river basins, ok. The idea of the river boats were that it can advise on conservation control and optimum utilization of the resources, for different purpose obviously, including irrigation water supply drainage or the promotion and operation of these schemes for flood control; however, this act was never came in the full flow in full practice.

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**Water Management in India: Constitutional Provisions**

*Some other related provisions and acts*

- Article 243ZD: Committee for district planning ✓
- Article 243ZE: Committee for Metropolitan planning ✓
- Article 244(2) – Sixth Schedule – Entries 3A, 3B, 33: Administration of the tribal areas in the State of Assam, Meghalaya, Tripura and Mizoram
- Article 288: Exemption from taxation by States in respect of water or electricity ✓
- Article 297: Things of value within territorial waters or continental shelf and resources of the exclusive economic zone to vest in the Union
- The Betwa River Board Act, 1956 ✓
- The Brahmaputra Board Act, 1980 ✓
- The Water (Prevention and Control of Pollution) Act, 1974 ✓
- The Inland Waterways Authority of India Act, 1985 ✓
- The Wildlife Protection Act, 1972

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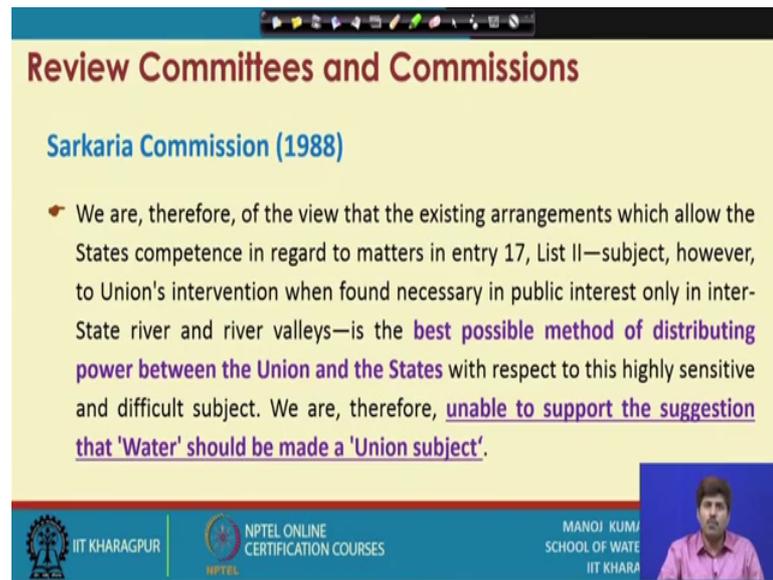
There are quite a few of other related provisions and acts onto the water. So, in under article 243 z d there is a committee for district planning. So, on a district level the local

district administration has the authority for managing the activities in the district and water is also included in that.

Similarly, committee for metropolitan planning which is under 243 article ze, so that is under the jurisdiction of the metropolitan agency looking after that, then there is under article 242 to 6th schedule there are entries regarding the administration of the tribal areas in the state of Assam, Meghalaya, Tripura and Mizoram the northeastern states. And water is also mentioned in that how the jurisdiction of water should be divided and the responsibilities should be distributed among the administrators. Then there is a article 288, which says the exemption of taxation by the state in respects of water or electricity. So, it is law related to that, then there is article 297 which says that things of value within terrestrial waters or continental shelf and resources of the exclusive economic zone belongs to this union. So, basically all the minerals and these kind of resources subsurface resources are in fact, a property of the central government.

There are quite a few other acts and regulations were passed, there was the betwa river board act in 1956 the Brahmaputra board at that came in 1980. The water preservation control and pollution act related to the environmental maintenance of the water resources came in 1974, then inland waterways authority of India act came in 1985, the wildlife protection act 1972. So, that way we had several of these such provisions and acts coming into the picture from time to time. There are some are listed here of course, there are quite a few more.

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**Review Committees and Commissions**

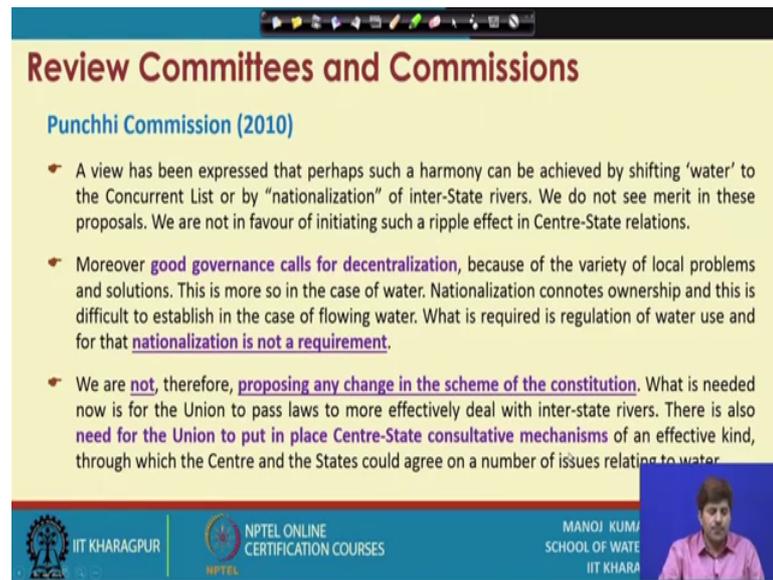
**Sarkaria Commission (1988)**

- We are, therefore, of the view that the existing arrangements which allow the States competence in regard to matters in entry 17, List II—subject, however, to Union's intervention when found necessary in public interest only in inter-State river and river valleys—is the **best possible method of distributing power between the Union and the States** with respect to this highly sensitive and difficult subject. We are, therefore, unable to support the suggestion that 'Water' should be made a 'Union subject'.

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Now, there were a few review committees and commissions constituted on from time to time on looking after this responsibility sharing or the water making a state subject, largely at least water making largely as a state subject. So, in order to review these there were several commissions looked the case from time to time. One of the popular one was Zakaria commission which gave it is report in 1988. So, it says that the this is probably the best possible method of distributing power between union and state, and the commission does not supported the suggestion of water should be made a union subject. So, commission was more or less ok, with that water the major water powers are listed under the list 2 of the state jurisdiction.

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**Review Committees and Commissions**

**Punchhi Commission (2010)**

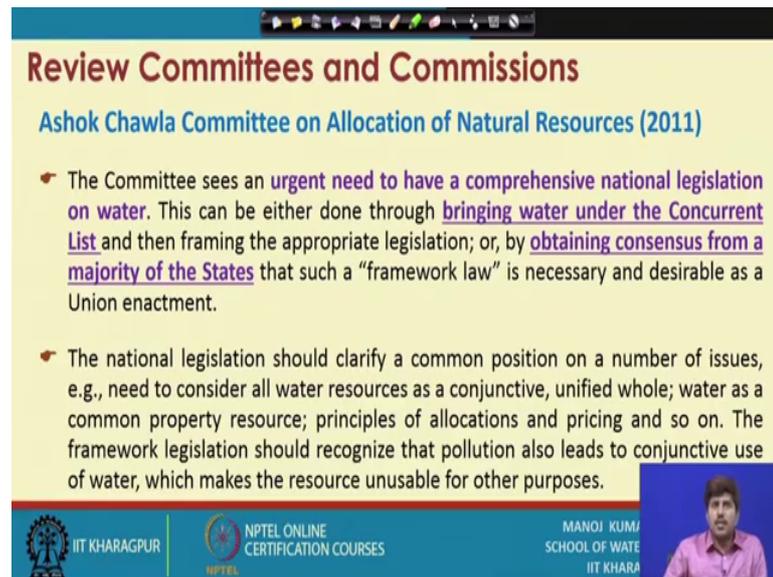
- A view has been expressed that perhaps such a harmony can be achieved by shifting 'water' to the Concurrent List or by "nationalization" of inter-State rivers. We do not see merit in these proposals. We are not in favour of initiating such a ripple effect in Centre-State relations.
- Moreover **good governance calls for decentralization**, because of the variety of local problems and solutions. This is more so in the case of water. Nationalization connotes ownership and this is difficult to establish in the case of flowing water. What is required is regulation of water use and for that **nationalization is not a requirement**.
- We are **not**, therefore, **proposing any change in the scheme of the constitution**. What is needed now is for the Union to pass laws to more effectively deal with inter-state rivers. There is also **need for the Union to put in place Centre-State consultative mechanisms** of an effective kind, through which the Centre and the States could agree on a number of issues relating to water.

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There were a punchhi commission, which again quite similar opinion, it says that the good governance calls for decentralization. And putting things on a state level or local level are one of the better ways to decentralize the management. So, nationalization is against the concept of decentralization, and that is why it is not recommended. So, that commission therefore, said that we are not proposing any change in this scheme of the constitution. So, as it is listed like the water or the major water services should be in the hands of state, it is fine.

However, they said that there is a need that union put in a place and center state consulting mechanism, where in a effective way the center and state could agree on to the number of related issues on the water, and could emitably come up with the policy which is acceptable to central government as well as state governments.

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**Review Committees and Commissions**

**Ashok Chawla Committee on Allocation of Natural Resources (2011)**

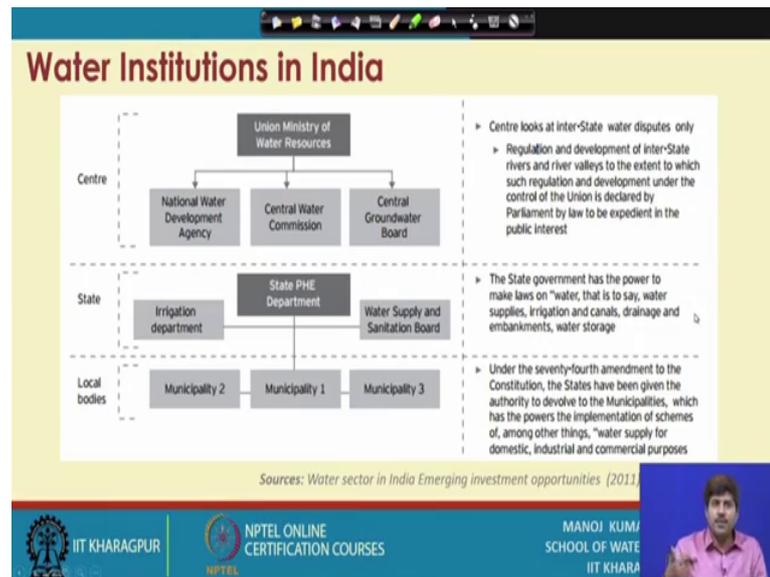
- The Committee sees an **urgent need to have a comprehensive national legislation on water**. This can be either done through **bringing water under the Concurrent List** and then framing the appropriate legislation; or, by **obtaining consensus from a majority of the States** that such a “framework law” is necessary and desirable as a Union enactment.
- The national legislation should clarify a common position on a number of issues, e.g., need to consider all water resources as a conjunctive, unified whole; water as a common property resource; principles of allocations and pricing and so on. The framework legislation should recognize that pollution also leads to conjunctive use of water, which makes the resource unusable for other purposes.

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In another such committee was by Ashok Chawla, who looked on the allocation of natural resources so, this; however, sees rather like a contradictory took a rather contradictory approach and it said that there is a urgent need that a comprehensive national legislation on water should come, ok.

So, it said that the like it is in a way required that the water either can be bring to the concurrent list, where state and central both have powers to exercise. So, central can have a say in the state policies as well, or their appropriate legislation is framed by obtaining consensus from the majority of the state, and such a framework law would be made where all the issues can be discussed on a larger scale. So, that was the idea of the Chawla Committee.

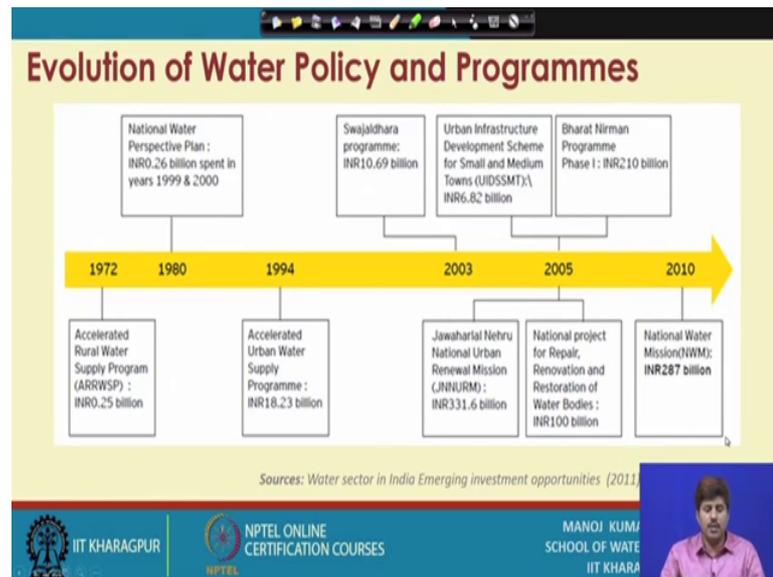
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Now, if we look at the different water institutions in India. So, we have at center we have union ministry of water resources, where there is a national water development agency which is looking for the primarily river interlinking projects, then we have central water commission. Mostly looking at the surface water management or a river basin management activities, and there is a central groundwater board cdwb which looks for the groundwater related issues. The major role of them is basically interstate water dispute resolution only. Then we have state level. So, there are public health engineering department PHCD's at the state level irrigation department water supply and sanitation board.

So, those kinds of state level institutions are there acting into the water sector, and at local bodies so, municipalities or if we go further down the level. So, in a Village Panchayat or Panchayati Raj institutions are there for implementation purpose of this scheme.

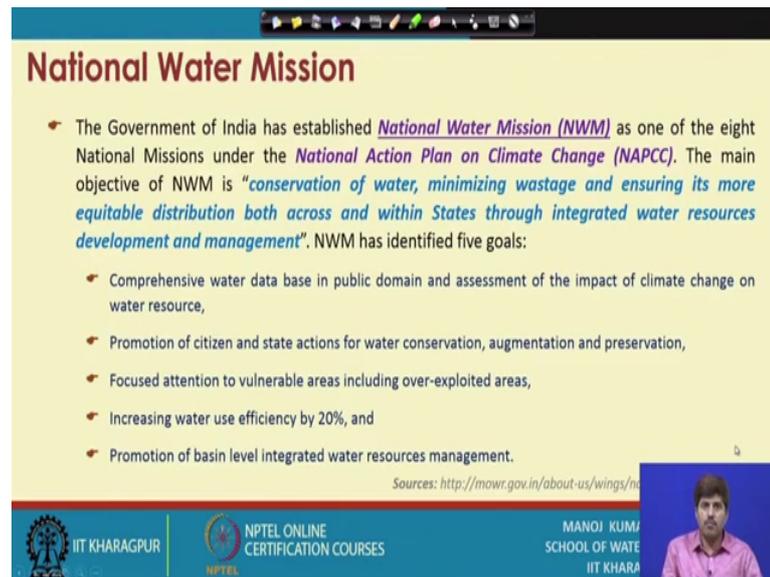
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So, this is how the water responsibilities are shared in the nation, now if we see there has been a evolution of water policy and program of course, and some of the major ones are listed here, we had accelerated rural water supply program of 0.25 billion in 72 then national water prospective plan came in 1980.

So, quite a few program the more popular one likes Swajaldhara, which was around 10.7 billion rupees program, that came in 2003 we had like Jawaharlal Nehru urban renewal renewable mission that project in 2003 Bhagat Nirmaan project in 2005 national was what project for repaired innovation and restoration of water bodies of 100 billion. So, that also launched in 2005, around 2009 or 2010 the national water mission which was under the climate change this thing was also came. And we had evolution even thereafter.

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**National Water Mission**

The Government of India has established *National Water Mission (NWM)* as one of the eight National Missions under the *National Action Plan on Climate Change (NAPCC)*. The main objective of NWM is "*conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management*". NWM has identified five goals:

- Comprehensive water data base in public domain and assessment of the impact of climate change on water resource,
- Promotion of citizen and state actions for water conservation, augmentation and preservation,
- Focused attention to vulnerable areas including over-exploited areas,
- Increasing water use efficiency by 20%, and
- Promotion of basin level integrated water resources management.

Sources: <http://mowr.gov.in/about-us/wings/nwm>

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But not listed in that figure.

So, national water mission which is one of the important step taken by the government of India, the national water mission was established by the ministry of water resources as one of the 8 national missions under national action plan on climate change. So, when India accepted that and came up with the national action plan on climate change so, national water mission is one of the 8 components of that.

The main objective of this mission was to conservation of water minimizing wastage, and ensuring it is more equitable distribution both across and within the states and sort of coming with an integrated water resource development and management program.

So, this national water mission identified 5 distinguished goals of which there were comprehensive water database creation and putting that in the public domain then promotion of citizen and state actions for water conservation augmentation and preservation. There was focused attention on the vulnerable areas, where the over exploitation of water was taking place. The one of the major targets was increasing water use efficiency by 25 percent. And then there was promotion of basin level integrated water resource management.

So, these were sort of the 5 major goals identified. Now for each of these 5 goals a action agenda was also developed, ok. Most of them was related to the policy improvement; so

there and some budget allocation or requirement of funds and budget or bringing in stakeholders together.

And these were a timeline-based plans. So, like one of the idea was to revise national water policy. So, this national water policy was revised in again the latest revision came in the 2012. Then there was idea of like a putting expenditure in certain sectors by 11 13th even there was discussion about the completing the river interlinking project, or making significant progress in the river interlinking project. So, there way the variety of acts and agendas variety of items under acts and agendas were set; however, it could not meet all those points or all those targets, but still some improvement were made.

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**National Water Mission**

**Important Thrust Activities**

- ✓ Promoting research and studies.
- ✓ Expeditious implementation of projects.
- ✓ Promotion of traditional system of water conservation.
- ✓ Intensive programme for ground water recharge in over-exploited areas.
- ✓ Incentivize for recycling and reuse.
- ✓ Capacity building & awareness programme.
- ✓ Sensitization of elected representatives.
- ✓ Orient investment under MGNREGA towards water conservation.

**NATIONAL WATER MISSION under National Action Plan on Climate Change**

**COMPREHENSIVE MISSION DOCUMENT**

Volume - 1  
New Delhi  
April 2011

**NATIONAL WATER MISSION under National Action Plan on Climate Change**

**COMPREHENSIVE MISSION DOCUMENT**

Volume - 2  
New Delhi  
December 2008

Sources: <http://mowr.gov.in/sites/default/files/>  
<http://mowr.gov.in/sites/default/files/>

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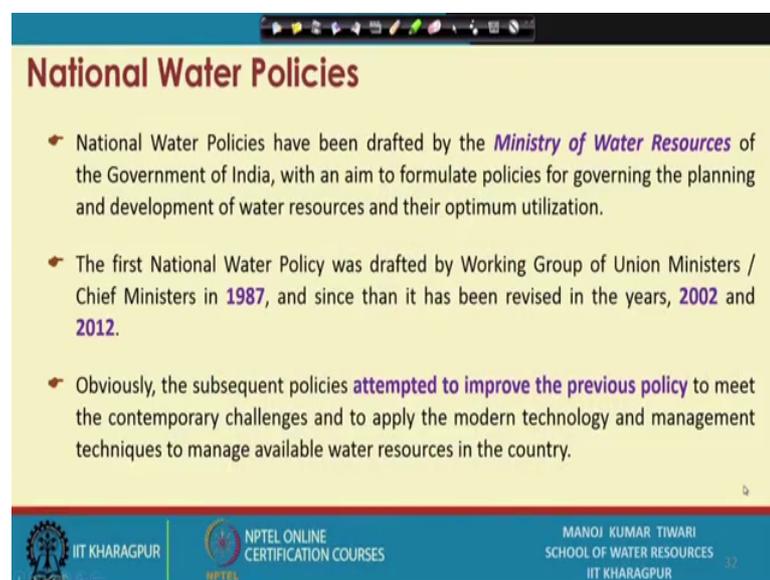
So, this mission is actually available on the ministry of water resources website. There are 2 volumes of this so, the volume of volume one is there and volume 2 is there. Now these 2 volumes whoever is interested can actually go and refer the links are also provided and download and read them. The important thrust activities outlined in the mission was promoting research and studies, then expediting the implementation of the projects related to the water resources. Particularly those who are acting on to the climate change also. Because this if you recall this nest and mission was planned as one of the missions under that climate change program. Then there was a promotion of traditional system of water conservation that was also one of the important areas that was highlighted.

Then intensive program for groundwater recharge in the overexploited areas. So, under overexploited area how these groundwater recharge can be ensured in order to replenish the water table. Incentivizing the recycling and reuse of water and especially the waste water, then there was sort of emphasis on the capacity building and awareness program for involving different stakeholders, sensitization of the elected representatives or politicians.

So, the one of the important this thing was given because the politician may not have that exact background. So, they also should be sensitized and made aware, with the local issues in their own area. So, that they can think over and if possible take some steps onto that. And then orient investments under MGNREGA towards the water conservation.

So, that this MGNREGA scheme which is for the providing job security or at least 100 days of work to the local or village level or those sort of people. So, under that it was bought that those investments or those projects should target towards the water conservation. So, this was the main thrust activities outlined in the national water mission. The further details are available in the documents.

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**National Water Policies**

- National Water Policies have been drafted by the *Ministry of Water Resources* of the Government of India, with an aim to formulate policies for governing the planning and development of water resources and their optimum utilization.
- The first National Water Policy was drafted by Working Group of Union Ministers / Chief Ministers in **1987**, and since then it has been revised in the years, **2002** and **2012**.
- Obviously, the subsequent policies **attempted to improve the previous policy** to meet the contemporary challenges and to apply the modern technology and management techniques to manage available water resources in the country.

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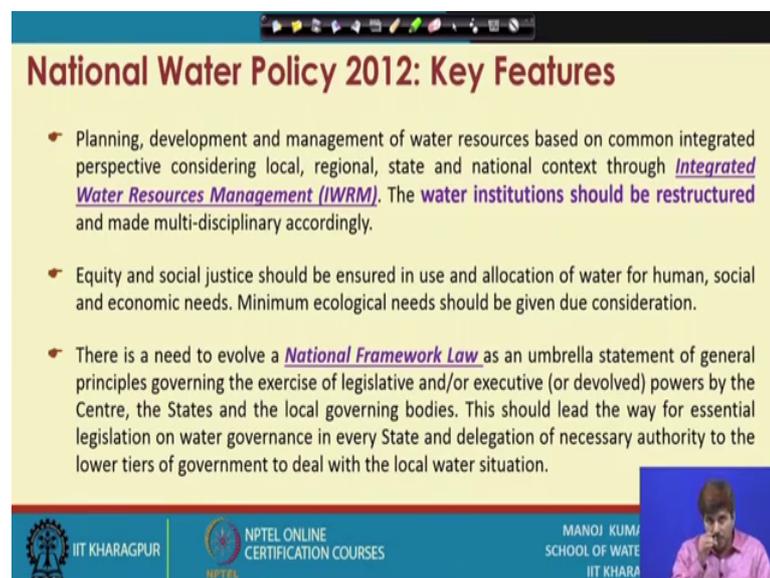
The national water policies are also one of the important milestone in the water governance structure in India. So, national water policies have been drafted by the ministry of water resources, with the aim to formulate the policies for governing and

planning governing the planning and development of water resources. And their optimum utilization so, that was the broad idea.

The first policy was drafted by working group of union ministers and chief ministers in 1987. So, in fact, it was constituted in 1985 so, from 80 5 to 80 7 around for couple of years there were several round of discussions on to that. And then in the finally, in 1987, the first draft or first document was prepared.

Further it was revised in 2002 in the fifth meeting of this working group of expertise. And the latest revision took place in 2012, which was after the national water mission came and it said that the water the national water policy need to be revised; so obviously, the subsequent policies. That means, the policy in the 2002 and 2012, attempted to improve the previous policy to meet whatever the current or contemporary challenges there, and to apply the modern tools and technologies for the management of the water resources.

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**National Water Policy 2012: Key Features**

- Planning, development and management of water resources based on common integrated perspective considering local, regional, state and national context through Integrated Water Resources Management (IWRM). The water institutions should be restructured and made multi-disciplinary accordingly.
- Equity and social justice should be ensured in use and allocation of water for human, social and economic needs. Minimum ecological needs should be given due consideration.
- There is a need to evolve a National Framework Law as an umbrella statement of general principles governing the exercise of legislative and/or executive (or devolved) powers by the Centre, the States and the local governing bodies. This should lead the way for essential legislation on water governance in every State and delegation of necessary authority to the lower tiers of government to deal with the local water situation.

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If we look at the key features of the national water policy so, the major idea was to basically emphasize the integrated water resource management, and restructure the water institutions in a way.

So that the multidisciplinary approach could be adopted for water resources management. Because for integrated water resource management we have to have

interdisciplinary approach and our water institutions are not structured that way that they have the people from different expertise or that interdisciplinary skills are there. So, it was one of the idea proposed in the national water policy to restructure these institutions.

There was a idea over like equity, and social justice ensuring these things, then making a national framework law as in umbrella statement. So, that there has to be a in the national water policy it was believed that there has to be a national framework law. Like, a big law under which a kind of umbrella statement under which the different state or different other organizations can have their own legislations, ok. And under that the powers could be distributed between central state and local governing bodies.

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**National Water Policy 2012: Key Features**

- **Utilization of water should be optimized** in uses for domestic, agricultural, hydro-power, thermal power, navigation, recreation, etc. and an awareness of water as a scarce resource should be fostered.
- **Highest priority allocation for drinking and sanitation**, followed by other basic domestic needs (including needs of animals), achieving food security, irrigation, and minimum ecosystem needs. The governance institutions must ensure access to a minimum quantity of potable water for essential health and hygiene to all its citizens, available within easy reach of the household.
- Water saving in irrigation should be encouraged through promoting and incentivizing methods like aligning cropping pattern, micro irrigation (drip, sprinkler, etc.), evaporation-transpiration reduction, automated irrigation operation etc. Recycling of canal seepage water through conjunctive ground water use may also be considered.

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So, that was one of the key features. Then utilization of water should be optimized in domestic agriculture hydro power thermal power in all different sectors the utilization of water should be optimized that was one of the propositions of the national water policy. And there was further like stress that the highest priority allocation should be for drinking water and sanitation.

After that the basic human needs then irrigation and sort of ecological needs industrial needs all that can be taken care of, but highest priority has to be a location of drinking water and sanitation. The governance institutions must ensure that access to the minimum quantity of the safe potable water should reach to the every individual. Further, the water saving in irrigation should be encouraged means one can promote different

technologies for that including the micro irrigation like drip or sprinkle irrigation methods, minimizing evapo transpiration losses or atomizing the irrigation operations so, all those things should be there. And canal seepage water should be recycled through conductive ground water use purpose.

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**National Water Policy 2012: Key Features**

- Water available for use should be enhanced by direct use of rainfall, desalination and avoidance of inadvertent evapo-transpiration.
- Community should be sensitized and encouraged to adapt first to utilization of water as per local availability of waters, before providing water through long distance transfer. Community based water management should be institutionalized and strengthened.
- Inter-basin transfers of water for increasing production and meeting basic human need and achieving equity should be considered on the basis of merits of each case after evaluating the environmental, economic and social impacts of such transfers.

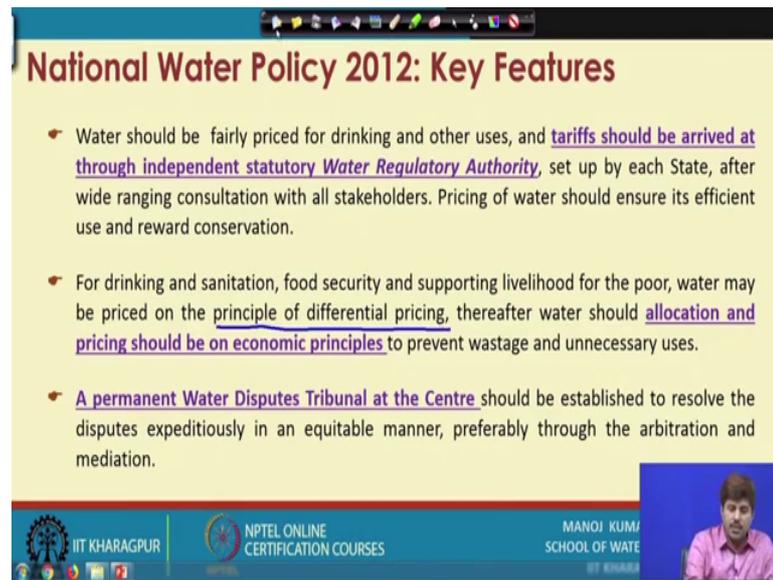
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The water available for use should be enhanced, now how water available for use could be enhanced. So, they gave an idea that we should use direct rainfall some of the desalinated seawater should be used, and we should do whatever it takes to avoid the evapo transpiration losses. Because there is a significant evapo transpiration losses that takes water away to the atmosphere fresh water away to the atmosphere.

So, that was some step suggested for making for having more water available for the uses purpose. Further, the community should be sensitized and encouraged to adopt the utilization of water as per local availability ok, and then thereafter the transfers should be considered.

The inter basin transfers of the water for increasing production or meeting basic human needs, should basically be considered basis on the merit of each case. So, it has to be basically evaluated on case to case basis looking for environmental economic and social impact of such transfer.

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**National Water Policy 2012: Key Features**

- Water should be fairly priced for drinking and other uses, and tariffs should be arrived at through independent statutory Water Regulatory Authority, set up by each State, after wide ranging consultation with all stakeholders. Pricing of water should ensure its efficient use and reward conservation.
- For drinking and sanitation, food security and supporting livelihood for the poor, water may be priced on the principle of differential pricing, thereafter water should allocation and pricing should be on economic principles to prevent wastage and unnecessary uses.
- A permanent Water Disputes Tribunal at the Centre should be established to resolve the disputes expeditiously in an equitable manner, preferably through the arbitration and mediation.

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There were suggestions over pricing water. So, it said that the water should be fairly priced, and the tariffs that are arrived through independent statutory water regulatory authority. So, the policy suggested that we should have an independent water regulatory authority, we discussed in earlier lecture the independent advantage of having an independent regulator.

The policy also suggested that we should have an independent stated water regulatory authority, which should basically fix up the tariffs by looking at the conditions of the states, and by consultation with all the stakeholders. Further, for drinking water and sanitation purpose food security and supporting basic livelihood. The water can be priced based on the principle of differential pricing.

So, principle of differential pricing essentially means we could have different prices for different person. So, the one like income-based pricing, or concept of subsidies and all that come into the principle of differential pricing; however, after that the water allocation and its pricing should be based on solely economic principle. So, that the water could be appropriately priced and its unnecessary uses and wastages could be reduced. There was a permanent water dispute tribunal at center was suggested, that center should have a permanent water dispute tribunal in order to look for such disputes.

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**National Water Policy 2012: Key Features**

- Efforts should be made to enter into **international agreements with neighbouring countries on bilateral basis** for exchange of hydrological data of international rivers on near real-time basis.
- Negotiations about **sharing and management of water of international rivers** should be done on bilateral basis keeping paramount the national interest. Adequate institutional arrangements at the Center should be set up to implement international agreements.
- Continuing **research and technological advancement shall be promoted** to address issues in the water sector in a scientific manner. Innovations in water resources sector should be encouraged, recognized and awarded.
- An **autonomous center for research in water policy** should also be established to evaluate impacts of policy decisions and to evolve policy directives for changing scenario of water resources.

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Then there was a appropriate institutional arrangement required to collect all the data on regular basis for every river basin. And then their appropriate mechanism to audit that data and put that data in a public domain, the suggestion was that it should be put on a public domain on 10 daily basis every year. Means at every 10 day, how is the variation that sort of information should be put in.

The water budgeting and accounting should be carried out for aquifers also for ground waters also so, this was the idea. Further, all the data should basically be in the public domain other than the one which are classified on national security consideration. So, those things can be like kept reserved with the government entities, but rest others should be in the public domain. And a national water informatics center was proposed was suggested to basically collect collate and process the hydrological data regularly, and put that in a public domain in a usable format in open and transparent manner like in a gis platform.

Then there were few more points on international agreements with neighboring countries on a bilateral basis should be emphasized, sharing and management of the data on international data and water on international rivers should be planned out by the bilateral treaties, and a bilateral agreements. Further research and technological advancement should be promoted. So, quite a few obvious things and then said also recommended that there should be an autonomous center for research in water policy should be set up.

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**State Water Policies**

- Similar to National Water Policy, states have their own water policies
  - Rajasthan State Water Policy, 1999.
  - Uttar Pradesh Water Policy, 1999.
  - Karnataka State Water Policy, 2002.
  - Maharashtra State Water Policy, 2003.
  - Punjab State Water Policy, 2008.
  - Bihar State Water Policy, 2010.
  - Other states water policies.....

Except for some changes, the provisions were kept on similar lines as that for National Water policy, for most of the states.

- In Maharashtra, second priority to Industrial water after drinking water [However, this stands changed with second priority to irrigation]
- In Orissa, second priority to environment after drinking water.

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So, that it can evaluate the implications of the various policy decisions. So, in line to the national water policy, various state also had their own water policies. Like, we have Rajasthan state water policy up Karnataka Maharashtra. Almost majority of the state has, and these state water policies borrow most of the things, from national water policy except few small changes, like in Maharashtra we have a second priority, given to the industrial water early after drinking water.

However, this stands changed and second priority has now come to the irrigation. In Orissa, second priority is given to the environmental sector after drinking water. So, there are few small changes here and there; however, the state water policies largely adopts the largely adopts the principle and the suggestions put in into the national water policy.

So, this was the sort of major governance structure on a government level in India, which is adopted post-independence, and will end this session here. And next session will discuss some specific program and policies related to the specific sector like for drinking water.

Thank you.