

Water Economics and Governance
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Lecture – 54
Water Dispute Management: Water Conflicts

Hi everyone, so, we have eventually moved to the second last week of this course, and this week 11 we will be discussing the dispute management in the water sector. So, in this particular session we will be talking; we will be talking about water conflicts, what are the water conflicts? How do they arise; what are some of the basics related to the water conflicts. So, that is what we will be discussing in next 30 minutes or so.

To start with we are in a state where many experts believe that we are actually heading towards a war over water.

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War Over Water ?

"If the wars of the twentieth century were fought over oil, the wars of this century will be fought over water."

Ismail Serageldin.
Former World Bank Vice President.
August 1995

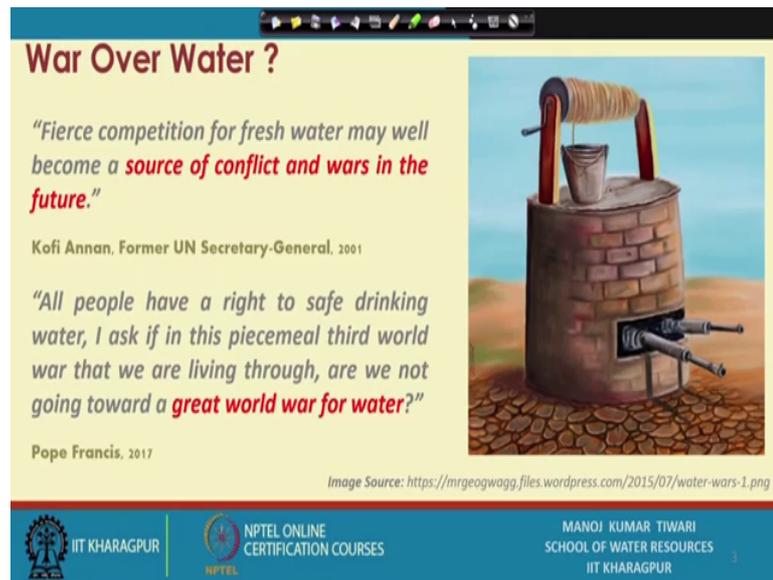
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Image Source: <https://mrgeogwagg.files.wordpress.com/2015/07/water-wars-2.png>

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So, the Ismail Serageldin, which was which who is basically the former world bank vice president; he said in August 1995 then he was actually the world bank vice president, that if the wars of the 12th century was fought over oil the wars of this century will be fought over water. So, that is the sort of the extent of problem which many people and many expert realizes that where are we.

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War Over Water ?

*"Fierce competition for fresh water may well become a **source of conflict and wars in the future.**"*

Kofi Annan, Former UN Secretary-General, 2001

*"All people have a right to safe drinking water, I ask if in this piecemeal third world war that we are living through, are we not going toward a **great world war for water?**"*

Pope Francis, 2017

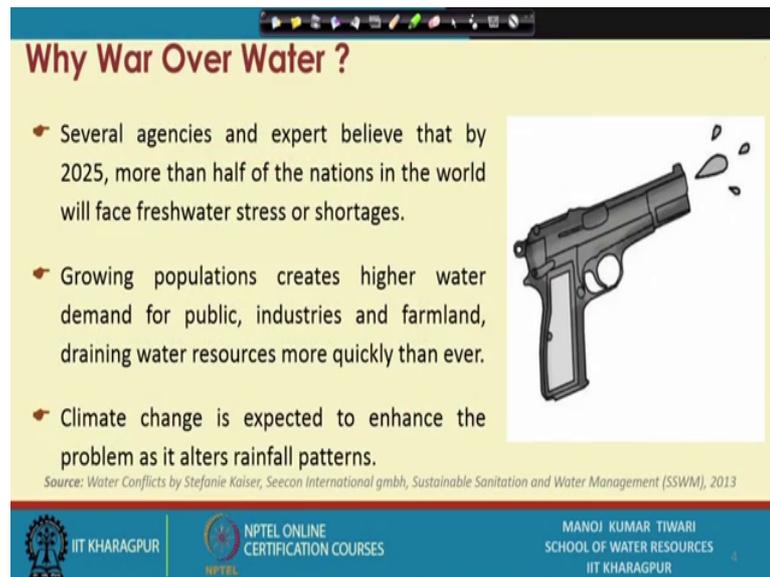
Image Source: <https://mrgeogwagg.files.wordpress.com/2015/07/water-wars-1.png>

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He was not the only one to say so; there are there are many more renowned people or many more experts who believe that; that we are actually in a state of crisis over water and it could turn to nasty. So, the Kofi Annan who was who is former united nations secretary-general; he said in 2001, when he was the un secretary that the sort of the kind of competition for fresh water, we are having may well become a source of conflict and war in the future.

Recently the pope Francis also said that all people have a right to safe drinking water. Now, I asked if this pessimal third world war, that we are living through are we not going towards a great world war for water. So, that is the quote from some of the expert, but in general many people believe that we are actually in a pretty bad state over water and that could sort of lead larger conflicts or larger issues over the water.

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Why War Over Water ?

- Several agencies and expert believe that by 2025, more than half of the nations in the world will face freshwater stress or shortages.
- Growing populations creates higher water demand for public, industries and farmland, draining water resources more quickly than ever.
- Climate change is expected to enhance the problem as it alters rainfall patterns.

Source: Water Conflicts by Stefanie Kaiser, Seecon International gmbh, Sustainable Sanitation and Water Management (SSWM), 2013



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Now, when we are saying that there could be a war over water, why we are saying that? What are the basis for not; what is the basis based on which these renowned people or experts are making this type of opinion, that it could actually trigger to as big as a world war.

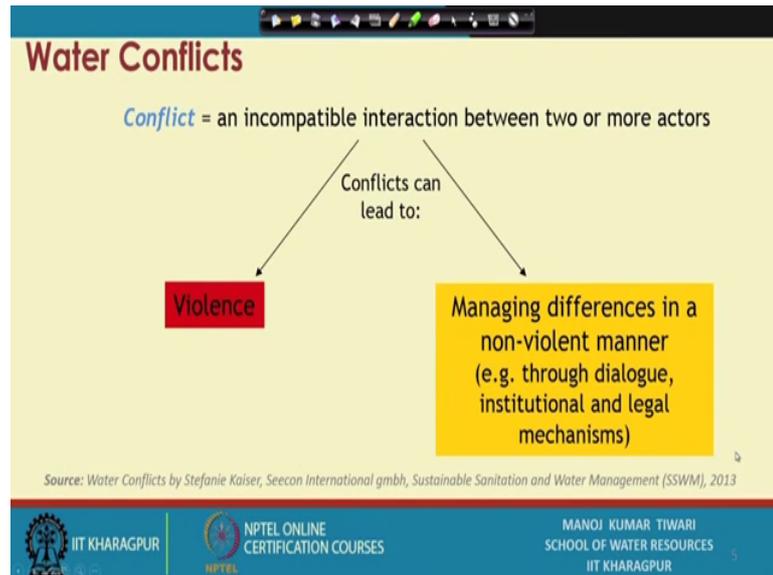
So, we have seen we have discussed it earlier also even in the very basic first week of this course, there are several agencies and several experts who believe that by 2025 or by 2030 more than half of the nations in the world will face freshwater stress or shortage.

So that means, half of the population or more than half of the population are going to be live under these water stressed or water scare conditions. Now the other people are those who are having who are rich in the water resources will have to probably face the heat from this larger section of the society. The growing population creates higher water demand for public industries, farmlands and all other development activities ok.

These drains water resources more quickly than ever. So, water resources are under severe stress and the situations are actually becoming alarming. The climate change is further expected to enhance the problem as it alters the rainfall pattern. So, rainfall is getting more sort of particularly, as a result of climate change if you see so rainfall it is not that rainfall is completely getting stopped, but it is the normal frequency is getting largely disturbed. So, we may have high degree of rainfall for a small span of time.

So, in such situations; if you see if you are having facing a high degree of rainfall for a very small time or for a few days or let us say month or couple of months. So, then we will be having further issues related to flood and these kind of things during that period while rest of the period, when there is no rainfall or not proper precipitation we will see that drought conditions taking place. So, those kind of issues are there.

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Now, when we say that dispute water disputes or the conflict in the water conflicts; so the conflict is actually a incompatible interaction between two or more actors. It is not only in the water sector, conflict can be on any topic any given topic, if the two people interact in a non compatible or incompatible manner.

So, it could be two people, it could be two societies, two nations, two states, two villages or one agency and another sort of let us say town, village, government, public, so we have to have two actors two or more actors and they have different opinion on decision on a issue and that leads to the conflicts.

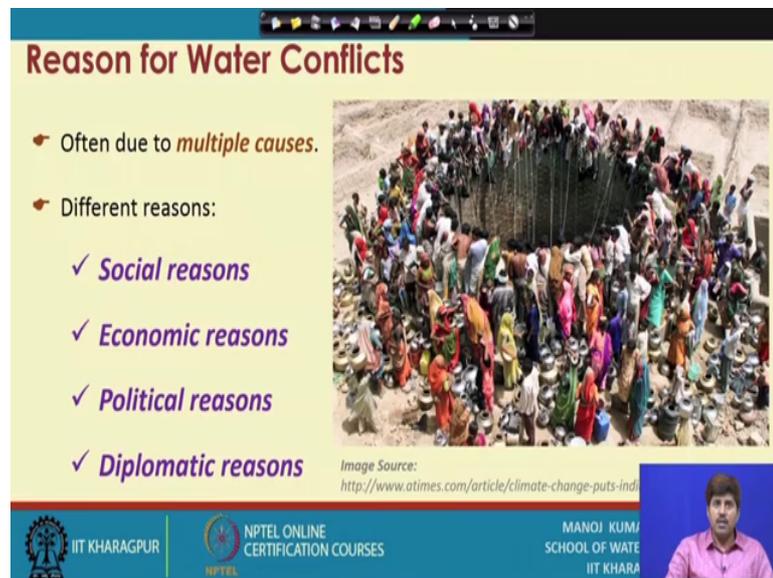
So, conflicts can lead to the violence ok. If it is of that nature or if the parties are of that nature, so we have seen many times like even for very small or trivial issues people start fighting people get into the violence. So, those sort of issues are there conflicts can lead to violence, we have recently seen that the judgment which came over the Kaveri dispute, so there has been lot of violent protests in the Tamilnadu over that.

However, it can actually lead to sort of managing differences in a nonviolent manner also. So, many times we have conflicts between states or conflicts between the nations or conflicts between the societies and they come together, sit through, go through a dialogue process involved legal mechanism or institutions and amicably try to make out the differences or sort out the differences and reach at a decision.

So, the different type of dispute resolution mechanism the tribunals the agreements the treaties they in fact, try to manage the differences in the nonviolent manner, that is what it is for; they otherwise the other option is other option, which is not option I would not say it is an option, but if somebody's let us say opting for violence.

So, that probably is not going to resolve the issue in that way; however, at times particularly in the small conflicts local level conflicts many times you will see that this type of behavior becomes more apparent you have a village, you have a let us say well, you are not allowing a section of society or somebody to take water from that well. So, that can lead a violent sort of conflict. So, those type of issues also are there.

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Reason for Water Conflicts

- ← Often due to *multiple causes*.
- ← Different reasons:
 - ✓ *Social reasons*
 - ✓ *Economic reasons*
 - ✓ *Political reasons*
 - ✓ *Diplomatic reasons*

Image Source:
<http://www.atimes.com/article/climate-change-puts-india>

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Now, if we see what are the reasons for conflicts well the conflicts are often due to multiple causes ok? It may be due to single cause also at time it could be just, because of one single specific cause, but many times there are more than one reasons involved in a conflict ok. It is not necessarily that conflict could be, because of just only single reason. The different reasons could be social, economic reasons, political reasons, or diplomatic

reasons ok. We could have any of these or more than one of these acting simultaneously on the conflicts.

The interesting picture that you see over here is actually you see that there is just one single well. So, the entire idea is to just fetch water from that. Now, if somebody is being denied for fetching water, that is going to lead some sort of conflict or violence or whatever it can lead to.

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The Potential Causes for Water Conflicts

- ✓ *Contending Water Uses.*
- ✓ *Population Growth and Demand*
- ✓ *Equity, Access and Allocation*
- ✓ *Micro level dispute*
- ✓ *Dams and Displacement*
- ✓ *Transboundary dispute*
- ✓ *Pollution*
- ✓ *Privatisation*

Image Source: <https://www.e-education.psu.edu/geog438w/node/283>

Source: Water conflicts in India - 'Million Revolts' in the Making, Gujja et al., Economic and Political Weekly February

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The potential causes for water conflicts are actually many it could be due to the contending water uses ok. So, let us say the example that we were giving or many times related to the decision, which is not being acceptable at a smaller level or those kind of which contains the water use issues. So, those type of issues can lead to the conflicts.

Then it could be due to the population growth and demand of course, when population grows the demand is going to rise, when the demand is going to rise it is going to be more stress on water resources, if there are two sections the demand from two sections are there, but resource availability is limited. So, those sections or those states or those rivers, villages, cities, towns, whatever are they are likely to have a conflict with each other. So, those kind of thing can come.

Equity, access and allocation, how we are allocating water ok; whether it is equitable distribution or not, if some section is getting more water, some section is getting less

water, so we can have a that that probably will become a reason for rising a new conflict. So, who is the access to the water? In what way; what manner the water resources are being allocated? Whether it is equitable distribution judicial distribution or not. So, those kind of thing can lead to the conflicts.

Then we have micro level conflicts micro level disputes or micro level conflicts well there are many, if you see we have thousands and thousands of micro level disputes in any village you will see or know I own this property I own this well some other family will come and say no io that is my well that is my property. So, that leads to a dispute or that leads to a conflict a micro level conflict ok. Many times I am going to irrigate my field or the other one is will say no; I will irrigate my field. So, that leads to a conflict or dispute.

So, that way in a very micro level over the right of the water; let us say you have a pond. So, who owns the water upon you have a well you have a disputes related to the irrigation you have disputes related to the very small tribal things ok. You put your you put your sea bridge Nala across somebody's house and he will come and start fighting you. So, that is another reason of disputes that way we can have several reasons specific reasons for micro level disputes and there are many.

Then there are dams and displacements, which are a very big reason for the disputes. So, when this let us say somebody is constructing a dam as state agency or a government is constructing a dam, it needs to own the land and if it needs to own the land. So, there will be it has to rehabilitate or resettle the people. It has to displace those people who are residing there. Now that displacement or removing the people from their houses or set up, which they have which they are living in for over a period of time significant period of time or edges. So, it becomes very difficult and is one of the prime reasons for disputes.

There are transboundary disputes. So, the when there are water bodies, cross the boundary so then primarily the disputes over who owns the right of obstructing water are using water and to what capacity he owns the right. So, this could be transboundary disputes within the state we have seen the. So, many such disputes in India the Kaveri being the most recent one, the year back we had issue with that satellite link canal

between Punjab and Haryana. So, in spite of the code giving the decision that water should come to Haryana Punjab has denied that.

So, the those kind of dispute or this kind of issues comes in the trans boundary disputes, when there are more than one actor more than one state or more than one nations are involved particularly; we have various transboundary dispute at an international level also. We have disputes with Pakistan over in dust water sharing we have dispute over Bangladesh over the farakka or not only we; in fact, meaning of such nations have disputes that kind of disputes.

Then there is a pollution; so polluting water or water pollution is another big reason for disputes. So, we have lot of disputes over the polluting of the our prime rivers Ganga, Yamuna all this. So, we have sort of, so many like public rally; so many government program. So, many this thing coming up over the pollution issues of the such rivers, it could not necessarily be pollution of the rivers, it could be pollution of the let us say lakes, pollution of the other surfaces streams pollution of the ponds or pollution of the groundwater ok.

We have such disputes over the like various industries and various sort of factories, polluting groundwater ok; or the groundwater getting polluted by the agricultural activities. We have seen that; what has been the state of the Punjab, because of the groundwater pollution by the pesticides and these kind of thing.

Then in Kerala the couple of districts has suffered a lot by the pesticide Endo Sulfon coming into the groundwater. So, those sort of disputes are there, then privatization is another reason for the dispute, where people perceive means privatization is generally privatization of government services is generally opposed in India particularly the one who are working in the government sector or who are working with that company or earlier so it is largely opposed.

The privatization of water sector is not sort of well susceptible by the public also, because there are there are sort of belief that even though the services might be improved little, but the private sectors are known to make profits.

So, if they are let us say if it is going on to the hands of private sector, so then the services will be aware only by the people who can afford it and the poors will eventually

suffer, because of non ability or because not having that adequate capacity to pay for the services they might not get the services. So, those kind of sort of ideas are there against privatization and that is what leads to the dispute for privatization.

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Type of Water Conflicts

- **Water as a Cause**
Conflicts over the control of water resources
- **Water as a Tool**
Military or political tool
- **Water as a Target**
Military or terrorism target
- **Water in Development Disputes**

Image Source:
<http://theviewpaper.net/%E2%80%9Cthirsty-in-the-sea%E2%80%9D-a-world-war-for-water/>

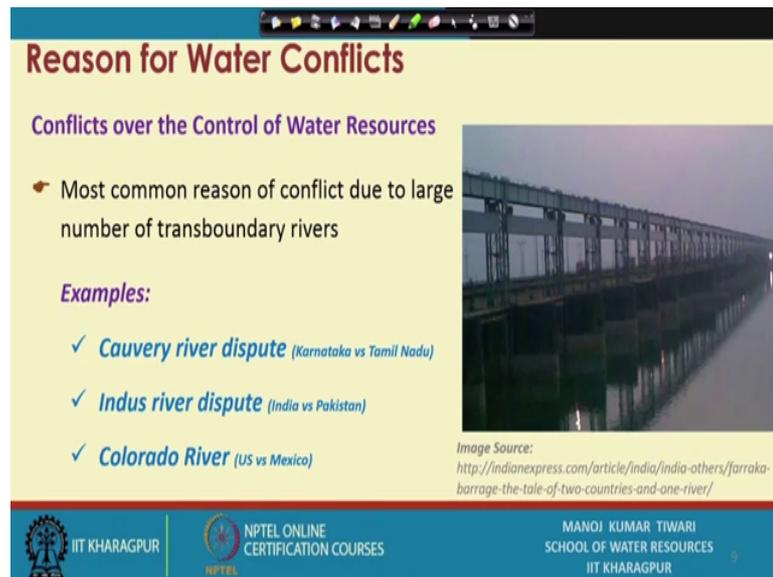
Source: *Water Conflicts* by Stefanie Kaiser, Seecon International gmbh, Sustainable Sanitation and Water Management (SSWM), 2013

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Now, if we see the type of water conflicts. So, water conflicts can be of several types. We can have water as a cause for a conflict, so when there is a conflicts over the control of water resources. So, here water is a cause for a particular cause people are fighting they want to control the water, then water as a tool in the sort of military actions or political actions water is to considered as a tool for taking those sort of advantages ok, by military at the time of war probably or by the political parties for their own advantage own benefit own gains.

And then water as a target can also have some conflict. So, many times military or terrorist, targets water resources or target water services particularly; in order to have upper hand in the during the time of war or in the sort of that activities, and then water in developmental activities can also lead to dispute.

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Reason for Water Conflicts

Conflicts over the Control of Water Resources

- Most common reason of conflict due to large number of transboundary rivers

Examples:

- ✓ *Cauvery river dispute* (Karnataka vs Tamil Nadu)
- ✓ *Indus river dispute* (India vs Pakistan)
- ✓ *Colorado River* (US vs Mexico)

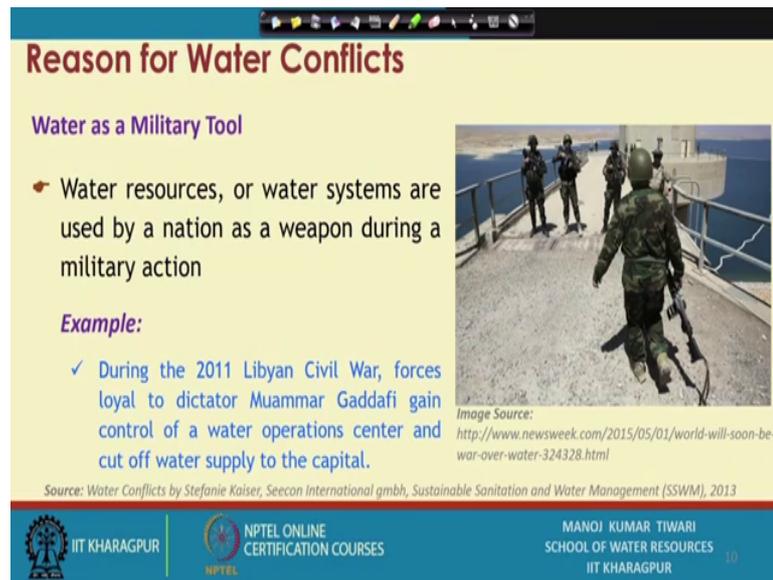
Image Source:
<http://indianexpress.com/article/india/india-others/farraka-barrage-the-tale-of-two-countries-and-one-river/>

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So, if we see the conflicts over control of water resources. Well this is the most common reason of conflict due to large number of transboundary rivers. So, we have; so many trans boundary rivers or so many issues that such conflicts keep on coming. And this is the one of the most common most prime reason for the conflicts ok, examples well there are many we have Kaveri river dispute recently, where there is a dispute over who owns the or who controls the water, how much water is to be distributed?.

We have Indus water dispute between India and Pakistan, we have ah; then I just gave an example of that satellite link canal between Punjab and Haryana. So, who owns the water of satellite ? So, that kind of that kind of several disputes are there on national level as well as on international level; the there is a dispute between the United States and the Mexico over Colorado River. So, those kind of disputes or those kind of conflicts are for the holding authority onto the water or having sort of control of the water.

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Reason for Water Conflicts

Water as a Military Tool

- Water resources, or water systems are used by a nation as a weapon during a military action

Example:

- During the 2011 Libyan Civil War, forces loyal to dictator Muammar Gaddafi gain control of a water operations center and cut off water supply to the capital.

Image Source:
<http://www.newsweek.com/2015/05/01/world-will-soon-be-war-over-water-324328.html>

Source: Water Conflicts by Stefanie Kaiser, Seecon International gmbh, Sustainable Sanitation and Water Management (SSWM), 2013

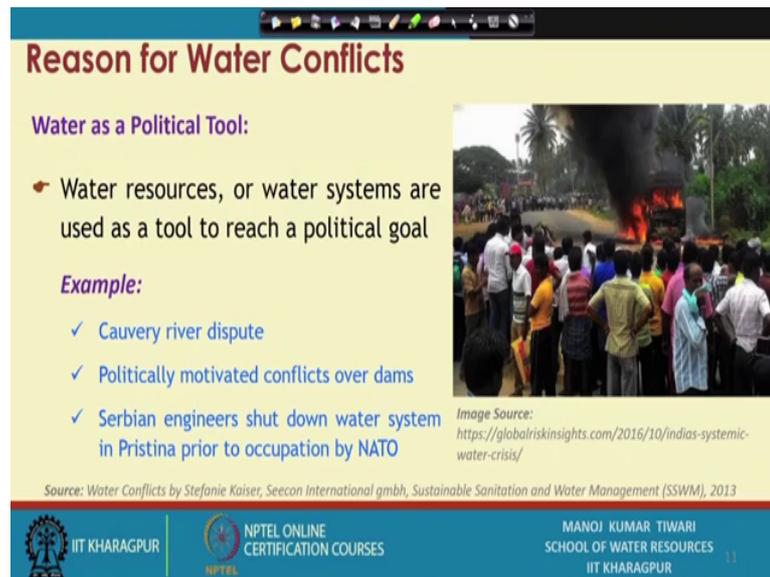
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Then water as a military tool can also lead to the conflicts as I was saying and one of example is during the 2011, when there was civil war going on Libya; so forces loyal to the dictator Gaddafi gained the control of the water operation center and cut off the water supply of the capital.

So, when there was lot of agitation in this city was going on under that civil war. So, because if you cut off the water supply, it becomes very difficult for society to act upon they have their ah; water we know is one of the baseline requirements and cutting off water supply will affect a lot. So, those sort of things have been seen.

So, here in this particular example; if you see so these water system or water services were used as a weapon during a military action. So, that is means water acted as a military tool one can say ok. Although we are not talking about right or wrong justice or injustice, but this is just in sheer example of water being used as a military tool. So, it could be water resources or water systems that can be used as a military tool in such conditions.

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Reason for Water Conflicts

Water as a Political Tool:

- Water resources, or water systems are used as a tool to reach a political goal

Example:

- ✓ Cauvery river dispute
- ✓ Politically motivated conflicts over dams
- ✓ Serbian engineers shut down water system in Pristina prior to occupation by NATO

Image Source:
<https://globalriskinsights.com/2016/10/indias-systemic-water-crisis/>

Source: Water Conflicts by Stefanie Kaiser, Seecon International gmbh, Sustainable Sanitation and Water Management (SSWM), 2013

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Water can be used as a political tool as well, we have seen that water resources or water systems used as a tool to reach political goals ok. There are many such examples ok; not only in India, but abroad as well; the Kaveri water dispute, if you see it is not only the dispute primarily is not only, because of the water there are a lot of political angles involved in this and as we were saying earlier that dispute may not be, because of one single reason it could be because of the combination of reasons.

So, here there is a political angle involved to it the people in Karnataka want to have the political gain of that dispute, people in Tamil Nadu want to have their own political gain of that political gain of over that disputes. So, those kind of such issues or such disputes lead to the political gain to certain section also ok.

Now, political gain not necessarily because you know particularly in the politics in India; is not like; if I need to rise up I will have to always perform good ok. By pulling other one, other party or other person down also one can actually plan to rise to [laughter] politics; that is unfortunate state of scenario, but that is how it is in India.

So, in such cases if you see that the such disputes related to the water resources many times are used as a political tool to gain advantage and that is why these disputes are fueled up. So, even after let us say getting a decision from the court, which probably two parties or two states can accept that or amicably resolve that, but there is political will that ok; this dispute should go on and as long as this dispute is going on I might get a

mileage of this. So, those kind of political advantages or political games also go on in such cases.

There are lot of politically motivated conflicts over dams also we have seen that every almost every big hydro project or water project are actually put under dispute in India. Of course, there are reasons of course, there are other reasons also like the re habilitation or resettlement and those kind of thing, but many times these disputes are politically motivated ok; saying that what happen if it fails.

So, will not let it take place there are a group or expert team of expert engineers or team of a like well knowledgeable people designing those projects constructing those projects with adequate and appropriate factor of safety is; now why this kind of question that what will happen if it fails and all that that way no development project can take place; you construct a house and have what happens if this roof falls and hills [laughter] die and those kind of things. So, with that level of mentality; with that level of approach no development decision can be taken up.

So, of course, there are other issues of the disputes, it should be basically focused, but many times we see that dispute over with; obviously, with political motivations and the dispute come and the reasons are cited are very stupid or abrupt. So, those kind of disputes could also take place. Then we have example of Serbia, where engineers shut down a water system in pristine prior to occupation by Nato. So, means it was going on to the hands of not also they shut down the operation completely. So, those kind of issues political issues are there not only in India, but over the world.

Then water as a terrorism or military target could also result in some sort of conflict or disputes. So, in such cases water system or water resources become the target of a military or terror attack.

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The slide is titled "Reason for Water Conflicts" in a dark red font. Below the title, the subtitle "Water as a Terrorism or Military Target" is in purple. A red bullet point states: "Water resources, or water systems are targets of a military or terror action." Underneath, the word "Example:" is in purple. Two blue checkmarks follow: the first describes an attack on schoolgirls in Afghanistan in 2012, and the second describes damage to water systems during the U.S.-Iraq war in 2003. At the bottom, there is a source citation, logos for IIT KHARAGPUR and NPTEL ONLINE CERTIFICATION COURSES, and a small video inset of a man in a pink shirt. The NPTEL logo also includes the text "MANOJ KUMAR SCHOOL OF WATER IIT KHARAGPUR".

Reason for Water Conflicts

Water as a Terrorism or Military Target

- Water resources, or water systems are targets of a military or terror action.

Example:

- ✓ In 2012 up to 150 schoolgirls in Afghanistan were reported sickened by poison in a school water supply in an intentional attack thought to be carried out by religious conservatives opposed to the education of women.
- ✓ During the U.S.-Iraq war in 2003, water systems were reported damaged or destroyed by different parties, and major dams were military objectives of the U.S. forces.

Source: Water Conflicts by Stefanie Kaiser, Seecon International gmbh, Sustainable Sanitation and Water Management

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Well, in 2012 as reported there are around 150 schoolgirls in Afghanistan, where sickened by poison in a school water supply in an intentional attack which was bought with a sort of religious conservation ideas to oppose the education of women ok. So, for that purpose let us water was made a target ok. So, here like it is an example of terrorism on to water resource or water services not resources as such ok.

Further in U.S. Iraq war in 2003, water systems were reported damages and destroyed by the different parties, and major dams were military objectives of the U.S. forces. So, those kind of like the military targets the water resources or water systems. So, that is another example of such conflicts.

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Reason for Water Conflicts

Development Disputes:

- Water resources, or water systems are a major source of contention and dispute in the context of economic and social development

Example:

- ✓ Conflict over river inter-linking project
- ✓ Conflicts over dams (e.g. Narmada)



Image Source:
<https://countercurrents.org/2016/08/17/%E2%80%8Bnarmada-bochao-andolan-completes-31-years-of-struggle/>

Source: Water Conflicts by Stefanie Kaiser, Seecon International gmbh, Sustainable Sanitation and Water Management (SSWM), 2013

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Then there are development disputes development disputes as such water resources or water systems if you see; so are a major source of contention of disputes in context of economic and social development. So, primarily related to the rehabilitation issues or other issues land acquisition issues some other issues. So, many of the development decisions are put under dispute, as we were discussing the dam project.

So, for example, that [FL] which was a conflict over these [FL], then conflict over river interlinking project also. So, we the there is a lot of opinion or even in the policy level; every level people recommend that river interlinking project should go on, but there is a dispute over that as well, there is a conflict over this river interlinking project as well, many people oppose it by saying that; so much of land acquisition has to be made from here it will come what will happen, then natural ecology of the rivers will disturb if we stop taking water. So, the downstream areas are going to be affected. So, there is lot of propositions over, which the conflicts arises in such cases ok.

And majority of the development disputes related to the water, because for water services we need particularly for the large water services large water systems we need land. And that is one of the major issues of the dispute. So, those such disputes over the development decisions also keeps on taking place and this puts the scenario complicated for not only with the development for all such disputes the scenario becomes complicated, because it has to be taken care of it has to be resolved amicably you cannot

put your water services on hold as we have discussed in earlier we also that water projects are a necessity.

If you want to do a water supply project or even many times even dam project, irrigation project, canal project, river interlinking project. So, these are sort of a necessity and they have lot of advantages as well, if you probably go with the benefit cost analysis or those kind of thing you will see that net social advantages or net economic advantages are far higher than not doing or not implementing any such project, but a still these attract lot of controversies and it is not problem in a way like if you are just having controversy it is not about the dissolution this delays the project.

And if a project; let us say has started and come under and under a controversy and thereafter sort of you take back a decision or your investments are basically are all gone or if it is delayed. So, you are going your cost of the project is going to increase multifold. For example, if you see the Tehri dam there is it is initial cost, which was proposed eventually it by the time it complete that cost was included by several folds

So, that is the status and we will end this session here and in next session we will talk about another different aspects of disputes and, how the dispute takes place between the two parties, it can take place in state and state or means all different levels involving from the public to public disputes and public to government disputes government to government disputes all those we will winter state and intrastate water disputes we will be discussing in the subsequent sessions.

Thank you.