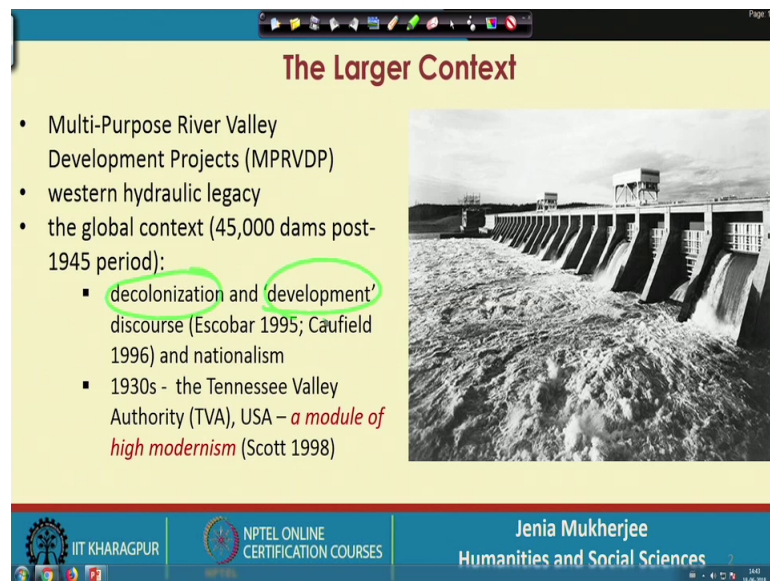


Water, Society and Sustainability
Prof. Jenia Mukherjee
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Indian Institute of Technology, Kharagpur

Lecture – 14
Dam and Development in Modern India


So, this is lecture number 14 on Dams and Development in Modern India.

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The Larger Context

- Multi-Purpose River Valley Development Projects (MPRVDP)
- western hydraulic legacy
- the global context (45,000 dams post-1945 period):
 - decolonization and 'development' discourse (Escobar 1995; Caufield 1996) and nationalism
 - 1930s - the Tennessee Valley Authority (TVA), USA – *a module of high modernism* (Scott 1998)



The slide is titled "The Larger Context" in red. It contains a bulleted list on the left and a photograph of a dam on the right. The list includes "Multi-Purpose River Valley Development Projects (MPRVDP)", "western hydraulic legacy", and "the global context (45,000 dams post-1945 period)". Under the last bullet, there are two sub-bullets: "decolonization and 'development' discourse (Escobar 1995; Caufield 1996) and nationalism" and "1930s - the Tennessee Valley Authority (TVA), USA – *a module of high modernism* (Scott 1998)". The photograph shows a large dam with multiple spillways, with water cascading over them. The slide footer includes the IIT Kharagpur logo, NPTEL Online Certification Courses logo, and the name "Jenia Mukherjee, Humanities and Social Sciences".

So, if you remember the previous lecture on colonial hydrology, so we ended the previous lecture on colonial hydrology by saying that in order to understand multipurpose river valley development projects, we need to contextualize it within the larger historical processes of hydraulic interventions in South Asia.

So, my argument is that multipurpose river valley development projects should be understood as that kind of a continued colonial legacy. So far, as water management or hydraulic interventions in South Asia is concerned. So, I want to contextualize it within the larger processes of you know western technological interventions on the rivers of South Asia

We need to understand the global context as well which is very important to understand multipurpose river valley development projects because this was the era of decolonization, this was the era of decolonization and development. So, I will elaborate

on the same. So, it was the era of decolonization and the implementation of the development discourse. We have very fine and sophisticated literature on the same. Definitely, I would like to site Arturo Escobar and his book called encountering development which came out in 1995 and also a very interesting coverage by Catherine Caufield who is a journalist and her book called the master of illusion on the development projects implemented by the development agencies like you know the World Bank.

So, what I want to say is that during this era of decolonization, there was hold of anxiety and apprehension among the global players. So, the world was to a great extent divided into the so called first world and third world or the later the developed and the underdeveloped and little later developed and developing nations.

So, what happened is that, large scale large scale development projects and infrastructures where implemented in the decolonized countries in the decolonized nations and the united states and the transnational corporations and quote, unquote and unholy trinity that is the world bank, the IMF and also the WTO. These organizations where provided with the megalomaniac role of implementing development in the so called underdeveloped, the so called decolonizations of the global served.

So, not only dams but also, you know agricultural modernization or urbanization and most importantly construction of dams should be contextualize within the larger historical and political processes of decolonization and implementation of the development discourse on the global south by the so called first world countries.

Now, so far as I mean specific history of multipurpose river valley development projects are concerned, we have to keep in mind that the global model was engineered in the United States. And, I mean with the establishment of the Tennessee Valley authority in the 1930's and James Scott who is the author of you know fascinating to title including you know the art of not being governed or seeing like a state. So, James Scott appointed out that this Tennessee Valley authority or this particular project can be looked into as a module of high modernism which was prepackage to get replicated in other parts of the globe, more importantly the decolonization decolonizing quote, unquote or the decolonized quote, unquote underdeveloped parts of the world.

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The National Context

- Damodar flood of 1943
- 10-member Damodar Flood Enquiry Committee
- Meghnad Saha: replication of TVA in India urgent
- 1945: Central Waterways Irrigation and Navigation Commission (CWINC)
- 1950s, 60s, 70s: optimism and passion in the building of India's mega dams – “dam building spree” (Swain 1997)

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So, that was the global context when the Tennessee Valley authority was established and series of dams were constructed on the Tennessee river and its tributaries. Now, if you look into the specific national context, the Indian context, we will see that in 1943, there was a massive flood in the Damodar River. So, this was a massive Damodar flood of 1943 which generated a lot of worries and anxieties among you know, among the engineers and technocrats and planners and the water experts in India and the 10-member Damodar Flood Enquiry Committee was formed to come up with solutions and recommendations relating to the problem of massive floods and Meghnad Saha, he was there, he was who was playing a pioneering role in the team, he pointed out and he recommended that the replication of Tennessee Valley authority within the Indian context was extremely urgent.

So, that legitimizes the implementation of the Tennessee Valley discourse or the Tennessee Valley ideology and also to a great extent, the technical you know, the technical parameters or technical Nitty Gritty of the Tennessee Valley within the context of South Asia and more specifically India. So, in 1945 that is just before our independence, the Central Waterways Irrigation and Navigation Commission, C W I N C was formed and 1950, 60, 70's, there was a whole lot of passion and optimism surrounding the building of India's mega dams.

So, Swain, the references there at the end, so swain say I mean swine says that there was a kind of dam building spree in this three decades between across 50's 60's and 70's and this optimism and passion is very much reflected.

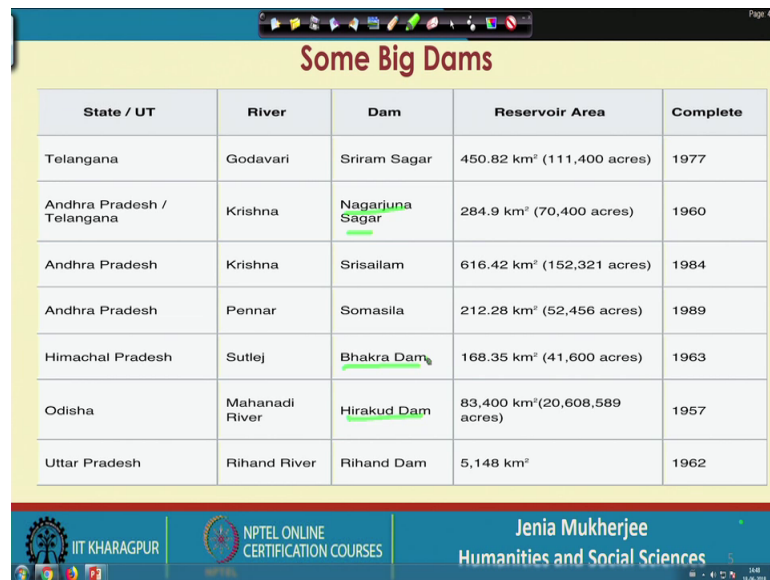
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In what Nehru said or what Nehru pointed out during the inauguration of the Nagarjuna Sagar project in the 1950's, more specifically 1955. So, Nehru says when I lay the foundation stone here of this Nagarjuna Sagar to me, it is a sacred ceremony, to see how sacredness the element of sacredness was also you know included in this in this multipurpose river valley development scheme or projects and so, sacredness you will see that their idea of sacredness it became more concretize when Nehru says that these are the temples of modern India.

So, this is the foundation of the temple of, this is the foundation of temple of humanity of India, a symbol of new temples that we are building all over India. So, this quote is extremely important which captures the a pride, the glory, the passion, the optimism and all these you know positive emotions that were associated with the face or with the with this particular initiative of the dam construction in India. So, it was a moment of national glory, a moment of national pride which is extreme which is I mean totally manifested and reflected in the, I mean argument that Nehru said or in the in the comment that Nehru made during the inauguration of Nagarjun Sagar project.

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State / UT	River	Dam	Reservoir Area	Complete
Telangana	Godavari	Sriram Sagar	450.82 km ² (111,400 acres)	1977
Andhra Pradesh / Telangana	Krishna	Nagarjuna Sagar	284.9 km ² (70,400 acres)	1960
Andhra Pradesh	Krishna	Srisaillam	616.42 km ² (152,321 acres)	1984
Andhra Pradesh	Pennar	Somasila	212.28 km ² (52,456 acres)	1989
Himachal Pradesh	Sutlej	Bhakra Dam	168.35 km ² (41,600 acres)	1963
Odisha	Mahanadi River	Hirakud Dam	83,400 km ² (20,608,589 acres)	1957
Uttar Pradesh	Rihand River	Rihand Dam	5,148 km ²	1962

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So, as I mentioned that the era of the 50, 60, 70's, almost all the rivers big rivers and small rivers visualize the implementation of interventions, big dams, barrages, etcetera on them and. So, is this included like the construction of a for example, the Hirakud dam. So, Hirakud dam an emphasizing it because it is the longest dam in the world. So, it included the you know the Nagarjuna Sagar project or the Nagarjuna Sagar dam which is also like one of the largest, largest dams in the world and also the Bhakra dam which is again one of the highest concrete gravity dam in the world. So, all these big dams on rivers like Satej, like a Krishna, like Mahanadi, like Godavari, Kaveri. So, all these rivers visualize the implementation of big dams and barrage networks on them across the 50's, 60's, 70's that is the immediate post independent period.

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Development or Displacement?

- local interest sacrificed at national cause (no significant protest)
- continued ecological and social costs
 - Vast areas of forests and agricultural land submerged
 - Massive population displacement
 - ❑ 1951 – 1985: 21 million (Paranjpye 1990)
 - ❑ Rehabilitation limited and unsuccessful (Singh 1985; Maloney 1990, 1991; Thukral 1992)

the very people whose wealth and welfare the projects were supposed to enhance are now worse off economically and demoralized socially (Chandoke & Ghosh 1995)

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Now, so with development of course, came the price of development. This is what we need to understand. And as a social scientist of course, I am going to highlight on you know price of development more than the development you know in the than the technical components of development itself. So, far as there are two things which become very which you know remain very important; so, one understands technological choices as you know understanding networks or technological choices or processes as historical solutions to specific construction of problem. So, far as understanding the broader, political and that you know historical context becomes very important that why a particular project was implemented or was perceived during a particular point of time.

So, what where the political economic logic or what were the political economic imperatives that provoke the implementation of that particular project during that particular point of time. So, this becomes important for social scientists to understand a lot, this is one. And the second thing is that we are also very much concerned about the, about what happens during the post implementing implementation period. So, with dams or with development is very much associated the price of development which we will see that how you know it generated whole lot of ecological and social implications; more importantly, social implications in the form of displacement.

So, this particular phrase called the price of development, I am bringing it from or an using it from Verter Fernandez who is another very important you know water expert. So,

he wrote a paper in 1993 which was published in the seminar and the title of the article itself is the price of development. So, I am using this that with dams or the or this kind of you know multipurpose river valley development projects and schemes came the price of development in the form of submergence of vast areas of forests, agricultural lands and not only you know this ecological implications or impacts, but also social impacts like massive population displacement.

So, according to data like if we go through Paranjpye's article, we find that between 1951 and 1985, in these decades around 21 million people were displaced. So, this was the cost of social cost of dam construction in India. And of course, a rehabilitation packages were provided, there were there were I mean the complex resettlement process um, I mean there are stories of complex stories of resettlement processes, but again the rehabilitation or relocation packages, resettlement processor, inadequate, limited and to a great extent unsuccessful.

So, there are several articles, book chapters and reports that bring out the limitedness or that bring out the inadequacy of this resettlement or relocation packages. But one thing that is that has to be kept in mind is that during the 1950's and 60's or for that matter you know the early 70's as well, we do not find much significant protest against construction of dams though there were displacement because displacement I mean the from the time when dam dams were constructed or even since the pre implementation phase a, lands were acquired, a lands were annex and people were displaced.

So, from the very beginning, dam construction actually also is associated with the process of displacement, but one needs to keep in mind that during the initial years or during initial decades, there were no significant protest because the whole country was to a great extent optimistic towards this kind of massive big infrastructure projects because I mean it was thought upon that big would be beautiful and India's immediate economic objectives or India's immediate economic objectives could be accomplished through the construction of dam. So, it was very important, it was imperative for a decolonize nation like India to make space for you know, for the multipurpose development projects and schemes.

So, there were no significant protest, there were few protest but those were two week and they were you know dismissed at the outset. So, we can remember like how even Nehru,

he tried to dismiss the claims made by the socialist leader like Ram Manohar Lohia who were extremely you know whoever criticizing, criticizing this river valley the schemes and dam construction. So, it was general understanding that local interest for the time being have to be sacrificed at national cost. So, this was the situation during 50's and 60's but if you go through some write ups and reports, we find out that you know the cost of displacement were however, huge from the very beginning itself.

So, Chandogan Ghosh writes Indian 1995's paper that the very few people whose wealth and welfare, you have to you know taken out of these two keywords both wealth and welfare. So, the very few the very people whose wealth and welfare, the projects was supposed to enhance and now vast of economically and demoralized socially. So, this is the you know environment environmental impact. So, these were the environmental impact and social impact of dam. And you can understand that during that time during the initial decades of the formulation of these projects, no detail EIA or that is environmental impact assessments where conducted and so, ESI and that is social impact assessment during that time, it was not you know, it was not in work at all; so of course, the cost of constructions during the pre implementation period, during the implementation and also during the post implementation period where severe and huge.

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The slide is titled "Environmental or New Social Movements" in a bold, dark red font. It contains two main bullet points. The first bullet point is "late 1970s: steadily increasing anti-dam resistance". The second bullet point is "protests against severe socio-ecological implications of dam construction including:", followed by two sub-bullet points: "deforestation, water logging, downstream water shortages, siltation, and salinization" and "displacement and inadequate rehabilitation schemes". The slide has a yellow background and is part of a presentation, as indicated by the navigation icons at the top and the footer information.

Environmental or New Social Movements

- late 1970s: steadily increasing anti-dam resistance
- protests against severe socio-ecological implications of dam construction including:
 - deforestation, water logging, downstream water shortages, siltation, and salinization
 - displacement and inadequate rehabilitation schemes

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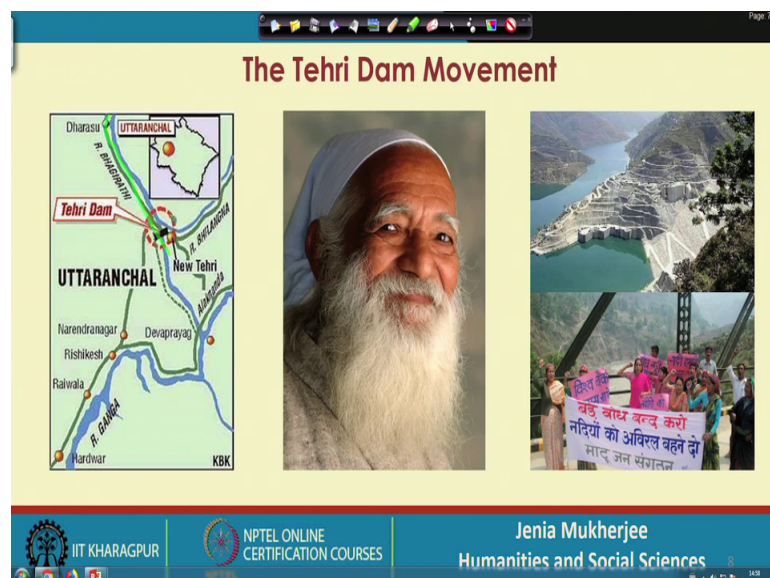
Now, we come to late 1970's and late 1970's is the era of anti-dam resistance. So, the initial decade of you know no resistance or very weak and timid resistance was replaced

by the era of strong anti-dam resistance since the 1970's because now protest became severe against this you know this strong socio ecological implement, implications of dam construction that included as we are learnt deforestation, water logging, downstream, water shortages, siltation, salinization what not and of course, social costs and social problems like displacement and inadequate rehabilitation, rehabilitation schemes.

So, now what I we will do is that we will look into some of these very significant and prominent and an important anti-dam resistance that shrook not only the nation, but also drew lot of international attention and the consequences varied from you know the cancellation or abandonment of project too you know partial implementation of project too, I mean no cancellation, no abandonment even no not even minor modifications in the in those projects at all.

So, there were the consequences may had varied. The consequences had been different, but the to a great extent, the nature of these anti-dam resistance had been I mean we find some starts, similarities so far as the nature and pattern of the anti-dam resistances are concerned that started since late 1970's and that is going on till date.

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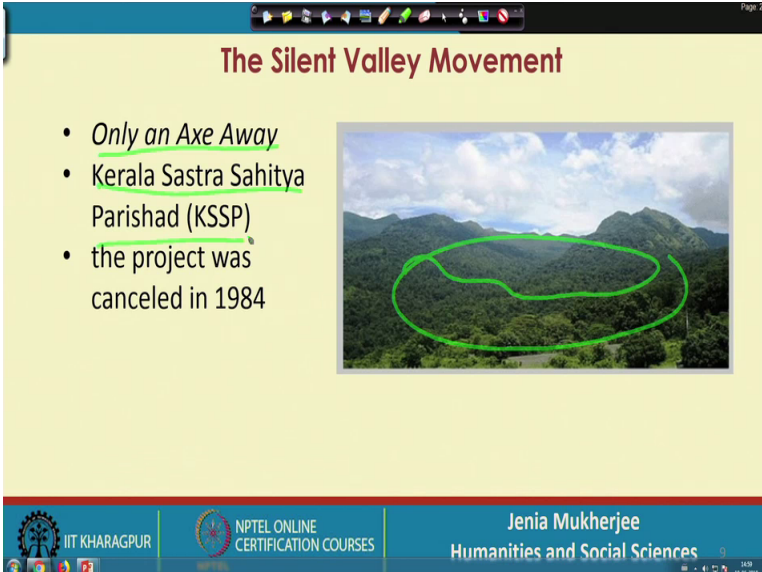


So, so begin with this is the Tehri dam movement and it is one of the oldest anti-dam resistance movements in India. You can see the picture of the great Chipko leader, Sunderlal Bahuguna who was also associated with you know Tehri Dam movements

because his group and the famous organization call the Tehri Bandh Virodi Sangharshan Samiti. So, the Tehri Bandh Virodi Sangharshan Samiti, Sundarlal Bahuguna they mobilize the different other organizations, they mobilize the local people, they mobilize the you know the people inhabiting the area because this dam was supposed to, this dam was supposed to get constructed on I mean of course, in Uttaranchal and on river Bhagirathi. And so, is so, this is the, this is the site of this was the proposed site of construction, but this movement was successful to a great extent that finally, the project was abandoned.


So, what I would like you to do is that in as it will be very difficult for me to cover all the detailed aspects or components of these very important movements that took place in India since 1970's, till today in this 30 minutes or 40 minutes duration lecture. So, I will request you to go through you know details or the technicalities and also social aspects relating to this anti-dam resistances or anti-dam movements in India.

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The Silent Valley Movement

- Only an Axe Away
- Kerala Sastra Sahitya Parishad (KSSP)
- the project was canceled in 1984

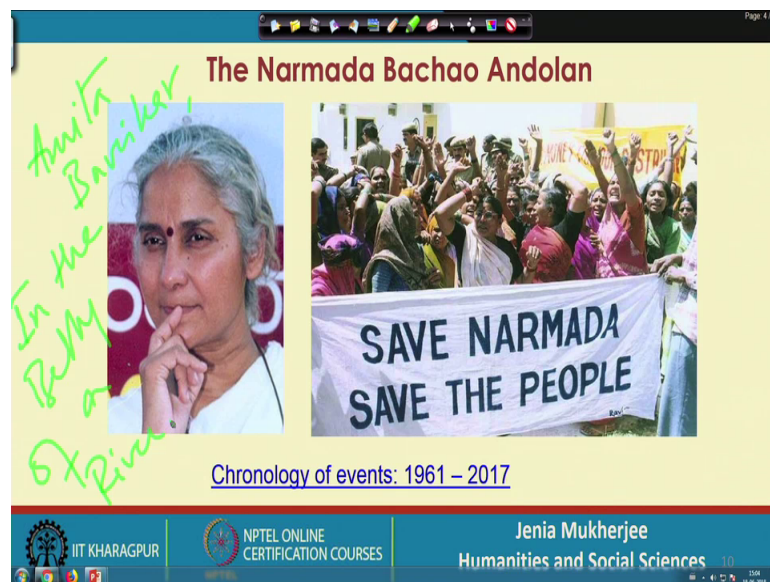


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So, another movement again a very successful movement, unqualified success and there is a very interesting documentary which we will find in a way of course, which is called only an axe away, only on axe away. So, if you see this documentary, you will be able to understand some of the important aspects or crucial aspects relating to the silent valley movement. So, silent valley movement it, I mean the protest was against the construction of the silent valley hydro electric project in Kerala.

So, the understanding was that this particular dam or this project would actually inflict lot of harm on, you can see the tropical vane forest here. So, it will harm the biological life, it will harm the ecological balance in the tropical vane forests of Kerala. So, the people and mainly the Kerala Sastra Sahitya Parishad, KSSP which is otherwise you know body that was mainly interested about literature and culture expression all that. So, they took a political take and took a political stunts and they started you know mobilizing people, they started mobilizing the middle class, but mainly the local people marginalize communities whose lives would be affected by this project. So, they immobilize them and finally, the pressure was so huge on the government that this project was also cancelled in 1984.

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So, and this is known as the anti-dam resistance of the highest profile. So, I do not know, I might be little bit criticized by people who might counter this connotation, but I this is not my connit, but you know the experts only, they say that this is the anti-dam resistance of highest profile not only in India, but you know of course, it also gain lot of international recognition, we will see the chronology of events, we will see the time line and we will understand how I mean how long I mean I mean we will understand the duration because it is it is it has the stretch of more than few decades from the inception of the project since the 1960. So, when there were lots of talks that you know this project or the Sardar Sarovar project will be implemented at till today.

So finally, 2017 I mean the project has been finally inaugurated, but there is a decadal history of what had happened like how this project was perceived. So, I mean and the technical it is of the Sardar Sarovar project and why and how people had registered against the Sardar Sarovar project, what had been the consequences, the pressure on the government. So, how the government had address the needs and interests and the arguments of the protesters, then what had happened and the long series of events that are occurs in the last few decades.

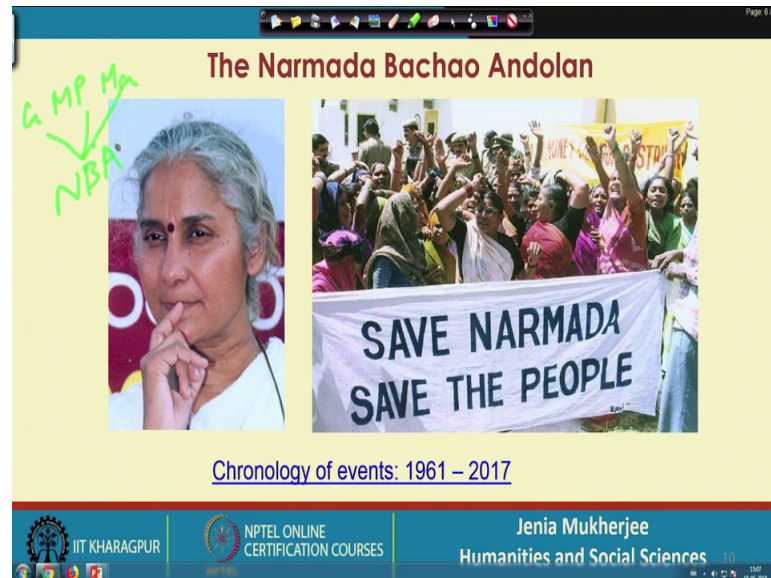
So, it is a big movement, it is an umbrella movement and I mean it would have been actually just to make a presentation on Narmada Bachao Andolan itself, but that was not possible. So, I have just I, I am just touching Narmada Bachao Andolan here and I will ask you to go through the chronology of events to understand the movement, to learn the pattern of the movement because this is a movement which we really need to understand everyone; the civils, the I mean the the the scientist, the engineers, a social scientist, any citizen of India really need to understand the pattern of the Narmada Bachao movement across the last I mean more than three, three and a half decades.

So, this is the picture of I think you all know Medha Patkar who is I mean, who is the forefront leader of the Narmada Bachao Andolan. Again, I might be criticize there might be controversy that why I am highlighting only Medha Patkar because there are many other people who are associated with the Narmada Bachao Andolan and it is we all know you know we I mean people who are trained in history we know that we should not be actually focusing on one particular leader because that does in justice to number of subaltern masses who are otherwise involved in you know big the projects or big resistances or big protest movements like that, but anyway I have kept the image of Medha Patkar because Medha Patkar of course, she played a leading role in this particular movement and lot of milestones were achieved under her leadership so far as Narmada Bachao is concerned.

So, and few data, so there this is a whole lot of data on Narmada Bachao Andolan, but I must say that you the this two books are not there in the reference list, but these are additional references. So, one is by Amita Baviskar. She has worked on this particular movement. So, the name of the book is In the Belly of a River. So, this is the Narmada river. So, in the belly of a river, you must at least go through the introduction of Amita

Baviskar's in the belly of a river and there is another book by Arundhati Roy, it is called the algebra of infinite justice.

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So, Arundhati Roy is a very famous personality, lot of controversy surrounding her as well.

So, let us not go into that, but definitely I would ask you, provoke you to go through the algebra of infinite justice and you will be able to understand the scale gravity of this and intensity of course, of this particular movement called Narmada Bachao. So, just one or two details I would be sharing with you, then I will just give you a document share with your documents on the chronology of events between 1961 and the contemporary times 2017 so far as this movement is concerned; so, just one or two detail.

So, one thing is that it is a project that the I mean the comprising three major states of India, Madhya Pradesh, Maharashtra and Gujarat. And today also, a lot of problems and lot of hot I mean hold lot of hot bed of controversies and heated exchanges are going on across these states so far as water sharing is concerned. So, Gujarat, Gujarat, the farmers they are complaining about you know prolong draught and their complaining about water challenges and water severity due to this Sardar Sarovar project.

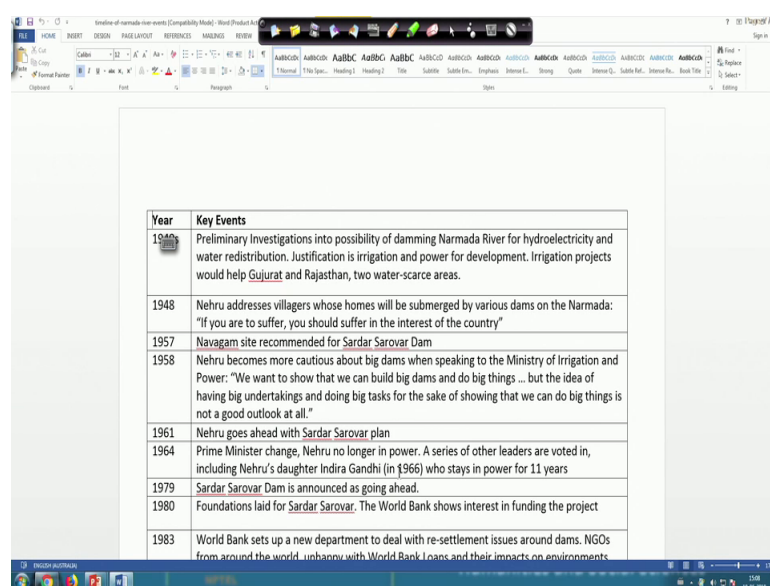
So, this is one, so if you go through some of the you know very um popular also, but also very significant journals like a down to earth or for that matter, some of the articles in

EPW, you will get to know like the scenario, a farmers protest and farmers allegations and lot of other things that are going on in the field due to the implementation of the Sardar Sarovar project.

So, initially when it was it was conceive, so the experts came out with the finding that it will if the project is implemented at it is full scale, then then it will displace not less than 2 million people. So, this was one. So, more than 250 villages we will get submerged and more than like 34, 35000 hectares of land we will get underwater. So, these, these were the massive implications of the project, but then, so there was whole lot of protest, whole lot of resistances which actually started in Gujarat and then there were protest by a Grassroot organization and non-governmental organization as a civil bodies in Maharashtra and Madhya Pradesh. And all these, so all these a Grassroot organizations and all these you know civil society organizations which were protesting in Gujarat, MP and Maharashtra. They merge together to form what is known as the Narmada Bachao Andolan or the Narmada Bachao alliance.

And this was so important that it not only pressurized the Indian government, but it drew large scale international attention. So, the Japanese government, even the World Bank became extremely involved in the nitty gritty of the project. So, I will not go beyond this, but it will be your task now to go through the chronology of events.

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Year	Key Events
1946	Preliminary Investigations into possibility of damming Narmada River for hydroelectricity and water redistribution. Justification is irrigation and power for development. Irrigation projects would help Gujarat and Rajasthan, two water-scarce areas.
1948	Nehru addresses villagers whose homes will be submerged by various dams on the Narmada: "If you are to suffer, you should suffer in the interest of the country"
1957	Navagam site recommended for Sardar Sarovar Dam
1958	Nehru becomes more cautious about big dams when speaking to the Ministry of Irrigation and Power: "We want to show that we can build big dams and do big things... but the idea of having big undertakings and doing big tasks for the sake of showing that we can do big things is not a good outlook at all."
1961	Nehru goes ahead with Sardar Sarovar plan
1964	Prime Minister change, Nehru no longer in power. A series of other leaders are voted in, including Nehru's daughter Indira Gandhi (in 1966) who stays in power for 11 years
1979	Sardar Sarovar Dam is announced as going ahead.
1980	Foundations laid for Sardar Sarovar. The World Bank shows interest in funding the project
1983	World Bank sets up a new department to deal with re-settlement issues around dams. NGOs form around the world unhappy with World Bank Loans and their impacts on environments

Everything is there, this is the historical timeline, timescale about the projects.

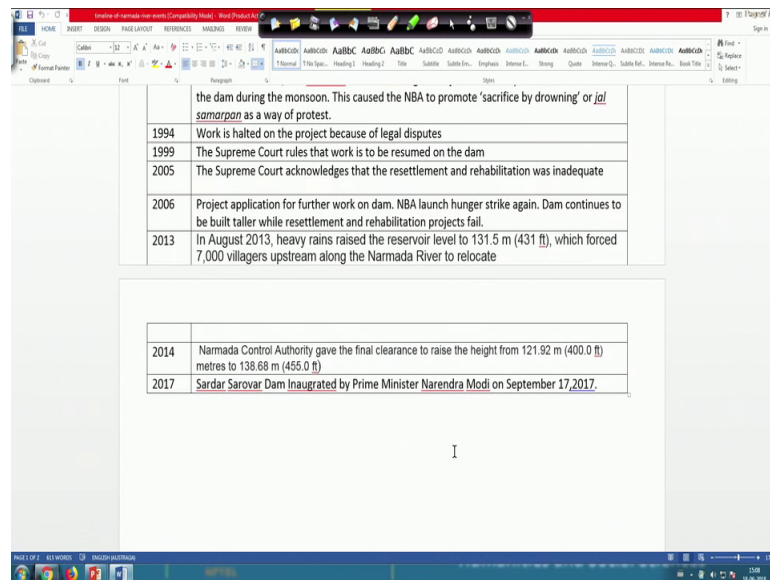
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1979	Sardar Sarovar Dam is announced as going ahead.
1980	Foundations laid for Sardar Sarovar. The World Bank shows interest in funding the project
1983	World Bank sets up a new department to deal with re-settlement issues around dams. NGOs from around the world, unhappy with World Bank Loans and their impacts on environments and societies in developing countries, band together to form a campaign against funding of various Narmada Dams
1984	Global attention is brought to protests against the dams
1985	World Bank agrees to finance Sardar Sarovar with a contribution of \$450 million, without consulting the Indigenous (Adivasi) communities that would be displaced. Their goals are to a) further the progress of India's long-term power plan, b) bring potentially valuable agricultural land in Gujarat and Rajasthan under irrigation, and c) supply domestic, municipal and industrial water for Gujarat
1987	Sardar Sarovar construction begins
1989	Narmada Bachao Andolan (NBA or Save the Narmada Movement) officially forms
1991	21 day standoff between police and NBA, with NBA hunger striking. As a result, the World Bank agrees to an independent investigation into its financing criteria and practices.
1992	The independent report is released, showing that the World Bank has violated its own policies in funding Sardar Sarovar and stating: "The Sardar Sarovar Project is flawed. Resettlement and rehabilitation of those displaced is not possible under the prevailing circumstances and the environmental consequences have not been properly considered". NGOs in developed countries including England and the US write an open letter to newspapers demanding that their governments withdraw funding from the World Bank if they continue to finance Sardar Sarovar
1993	World Bank withdraws funding for Sardar Sarovar because of pressure. The Indian Government

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1992	The independent report is released, showing that the World Bank has violated its own policies in funding Sardar Sarovar and stating: "The Sardar Sarovar Project is flawed. Resettlement and rehabilitation of those displaced is not possible under the prevailing circumstances and the environmental consequences have not been properly considered". NGOs in developed countries including England and the US write an open letter to newspapers demanding that their governments withdraw funding from the World Bank if they continue to finance Sardar Sarovar
1993	World Bank withdraws funding for Sardar Sarovar because of pressure. The Indian Government continues however, and <u>Manibeli</u> is the first village in Gujarat to be fully drowned because of the dam during the monsoon. This caused the NBA to promote 'sacrifice by drowning' or <u>jal samarpan</u> as a way of protest.
1994	Work is halted on the project because of legal disputes
1999	The Supreme Court rules that work is to be resumed on the dam
2005	The Supreme Court acknowledges that the resettlement and rehabilitation was inadequate
2006	Project application for further work on dam. NBA launch hunger strike again. Dam continues to be built taller while resettlement and rehabilitation projects fail.
2013	In August 2013, heavy rains raised the reservoir level to 131.5 m (431 ft), which forced 7,000 villagers upstream along the Narmada River to relocate
2014	Narmada Control Authority gave the final clearance to raise the height from 121.92 m (400.0 ft) metres to 138.68 m (455.0 ft)

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2005	The Supreme Court acknowledges that the resettlement and rehabilitation was inadequate
2006	Project application for further work on dam. NBA launch hunger strike again. Dam continues to be built taller while resettlement and rehabilitation projects fail.
2013	In August 2013, heavy rains raised the reservoir level to 131.5 m (431 ft), which forced 7,000 villagers upstream along the Narmada River to relocate

2014	Narmada Control Authority gave the final clearance to raise the height from 121.92 m (400.0 ft) metres to 138.68 m (455.0 ft)
2017	<u>Sardar Sarovar Dam Inaugrated by Prime Minister Narendra Modi on September 17, 2017.</u>

You please go through the entire timeline and and try to learn like what happened which here I mean not here by, here the depiction of events is very important, but what is a important is there, how the movement started, what happened at the middle, how the state reacted, how the state address the you know the points raise and the arguments raised by the protestors and then finally, what happened.

So, these are the things which we really need to learn about the Narmada Bachao Andolan and there are lot of works on this. I can also remember Patrick Mccullys work, Amita Baviskar, Arundhati Roy, many others, many other.

So, please go through some of the box about Narmada Bachao Andolan, yes. So, I highlighted the Tehri dam resistance, I highlighted the like silent valley movement, I talked about Narmada Bachao Andolan, but there are many other small scale movements as well.

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Other Movements

- Vishnuprayag dam on the Alakananda River – Chandi P. Bhatt
- Koel-Karo dams – Jharkhand Visthapith Mukti Sangh
- Poondi dam – farmers and agricultural labourers of Ramanjeri and Thirukkandalm, Tamil Nadu
- Bedthi dam – farmers of Karnataka

The fight is on...

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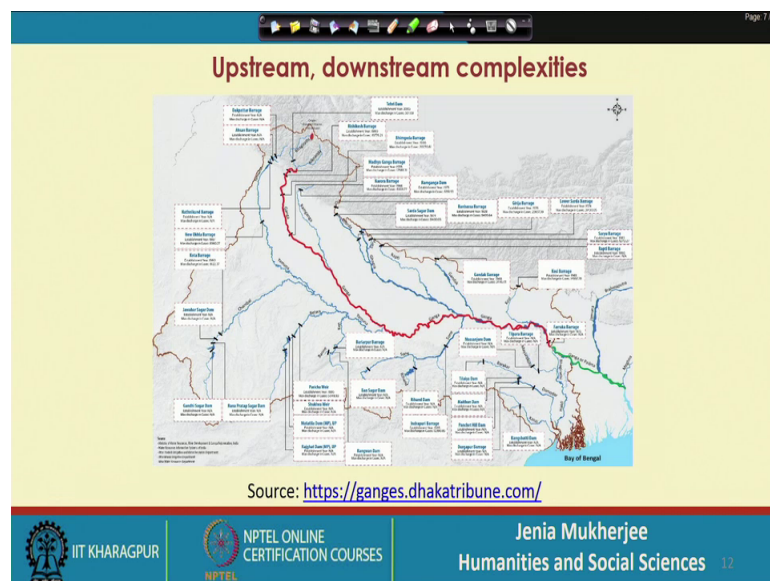
So, I do not think small scale we will be an appropriate turn to categorize this or classify this movements as, but we can say this, these are some movements which are to a great extent underexplored. But these are also fascinating movements which put a lot of pressure on this state government and also the national government and some projects were compared to get anal and abandoned. So, these are some of the examples like you know the Chandi Prasad Bhatt, C P Bhatt who was again associated with this Chipko movement. He protested, he and his group team members, they protested against the construction of the Vishnuprayag dam on the Alaknanda river, then there was a movement by the farmers and the you know tribals against the construction of the Koel Karo dams in Jharkhand.

So, the formers in agricultural labourers of Tamilnadu, the protested against the Poondi dam and Bedti dam, this is another success story where the farmers of Karnataka, the protested against the implementation of Bedti dam and finally the project have to be cancelled. So, the fight is still on, still on it is a constant fight between the state and the people with so many other stakeholders in between always you know it is not a linear story, but you know to a great extent, I mean there are heavily loaded per equations and politics relating to multipurpose river valley development projects and schemes; like some of my other presentation here also, I would like to highlight that what is the role of social sciences so far as you know understanding dams are concerned.

So, the role of social scientist or the role of history and these I will emphasized time and again and keep on asserting because I very much feel that the engineers and the you know the technicians, they really need to understand this social science components because if they want to come up with you know if they want to come up with a technical design for a dam, they need to consider you know very crucial and important aspects of environmental impact assessment or social impact assessment and all these other things that are so very important into the pre implementation, implementation and post implementation phases.

So, what I would like to highlight is that, we not only need to concentrate on the technical component, but we also need to you know highlight on we also need to understand the larger historical and political processes that had made way to the implementation of this kind of projects.

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So, the fight is on and I will say the stories are very complex and multipurpose river valley developments projects, actually embed lot of complexities because this complexities and challenges, these are not only restricted and limited to the local and national scale but the transient the local and national scale and include and consist of transnational geo political complexities

Now, if you just take a look into the picture, you will see that this is the Ganges river, I am sorry the picture is not that clear maybe, but I think you can read I mean you can read

the details that are there. So, this is a snapshot that shows the different major infrastructural interventions on the river Ganges from upstream to downstream. And we all know that how downstream areas, how downstream regions and countries they actually to a great extent are affected by large scale infrastructure interventions.

So, so what I want to highlight is that it is not only a national affair, but it is also a transnational affair involving geo political equations and involving geopolitical complexities where marginalized vulnerable people across you know national boundaries, they keeps suffering. This will become cleared when I will proceed on to the next lecture and we will do a case study, you know from taking into consideration these aspects that I had covered in this particular lecture. So, the case study would be on the Farakka Barrage project where I will be covering the technical details, but also the you know social impact and environmental impact of the construction of Farakka barrage on the people of West Bengal, more specifically the upstream and the downstream districts and it will become clear to us that how I mean how the people suffer, what are the massive and severe socio ecological cause of big scale large scale intervention like this.

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So, these are some of the references that we were talking about. So, we talked about the Catherine Caulfield. You need to go through masters of illusion and Escobar for understanding the development discourse that was imposed on the decolonization in the immediate during the 1940's, in during the immediate post world war 2 scenario, then

they these there are some you know references on the Grassroot movements and their consequences of dam construction so far as displacement and resettlement are concerned.

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And yeah, so some reports yes, that is it.

Thank you.