Rural Water Resources Management
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Week 08 - Lecture 02
Rural Water Management Issues: Asset Creation and Management

Hello everyone, welcome to Rural Water Resource Management NPTEL course. This is week 8, lecture 2. In this week's lecture as per the syllabus, we are looking at the issues for water resource management. What are the ways that we can overcome these issues and also what are the key players like which agency has to take care of those kind of things. In the last lecture, we looked at capacity building.

We took us viewpoint that water especially in rural water resources, it does not just look at agriculture, there is also the possibilities of industries, possibilities of domestic water use and most importantly climate change and ecosystem services. All these are very important to attain good value for your water in agriculture. For example, if you do not supply enough water structures for climate change adaptation, then whatever you supply for agriculture is not enough.

Because climate change is happening, too much temperature might be ruining the crops temperature increase or a flood period might decrease the crops. So, to navigate that you are in need of rural water resource management as a holistic view. In that we also look especially on capacity building, there are agencies and let us look at how these agencies are managing water.

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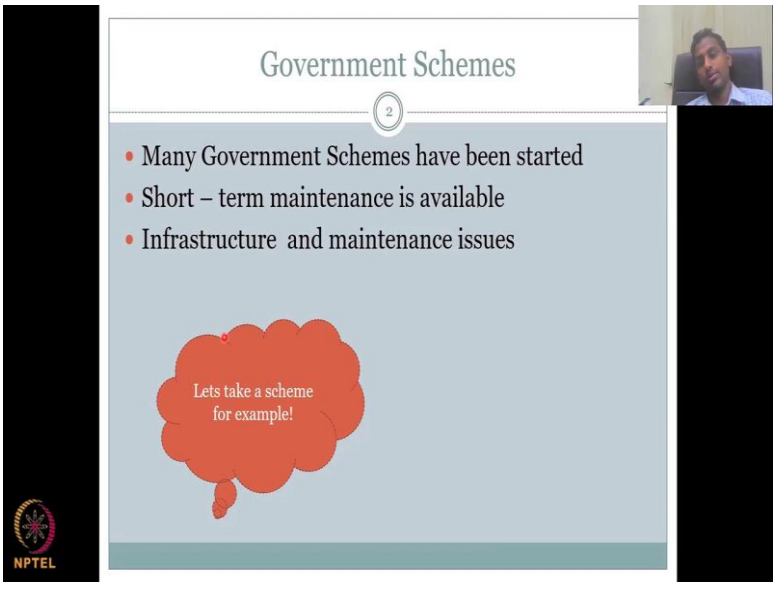

Government schemes in today's lecture, we will be looking at the government schemes and how they do rural water resource management, especially one or two schemes because many many schemes as I discussed in the last lecture, there are many ministries, there are many agencies under the Ministry, which work on water management. However, because there is not much interaction between these agencies or ministries, most of the time water is managed in isolation.

And we want to promote that water should not be managed in isolation, but as a combination or a holistic approach where every key player is taken. Let us look at one government scheme which is actively working on water resources, especially in rural water resources. As I said, there are multiple schemes that have been started. And most of them are short term maintenance less budget and not in a long-term fashion. What do you mean by short term? It was like this by build I see from your village that you need small structures to store water.

So, the government scheme would say okay, now you could set up a check dam a check dam will solve your issue. But after three years, four years, what happens a check dams needs maintenance, who is going to put the money, it is not clear. And to be honest, there is no budget. So, the budget given by the agency is to build the structure, but the stakeholders are not participating that is why these government schemes are kind of failing.

For example, if the farmers are saying oh, I appreciate the work by this check dam and so, I would put in my time and some money to manage this check dam then is good, when it can survive, but most of them are not. And maintenance is very very expensive. In some cases, for example, if sedimentation is too much, then you need a big bulldozer to come or JCB to come in, dig deep and take all the sediment out which normally a small farmer cannot afford.

The players and also the government agencies should come in term of maintenance, infrastructure and maintenance issues are also big. The infrastructure might take too long to build especially in government schemes because of budgets, and also the maintenance is not clearly spent. These are the long-term projects also like for example dams canals et cetera not only the short term benefits and goals but also the infrastructure metrics in the long term.

Are they built for climate resilience? Are they taking into account ecosystem services? All these concepts we looked in the previous lecture? And are they focused on only one aspect of the holistic picture? All these are important issues that one has to look carefully in the government scheme. Let us take a scheme for example. And again, I am not picking on a scheme and saying okay this is failing or that is doing better or something, it is just to show

how a rural water management could be better if these schemes take all these considerations into account.

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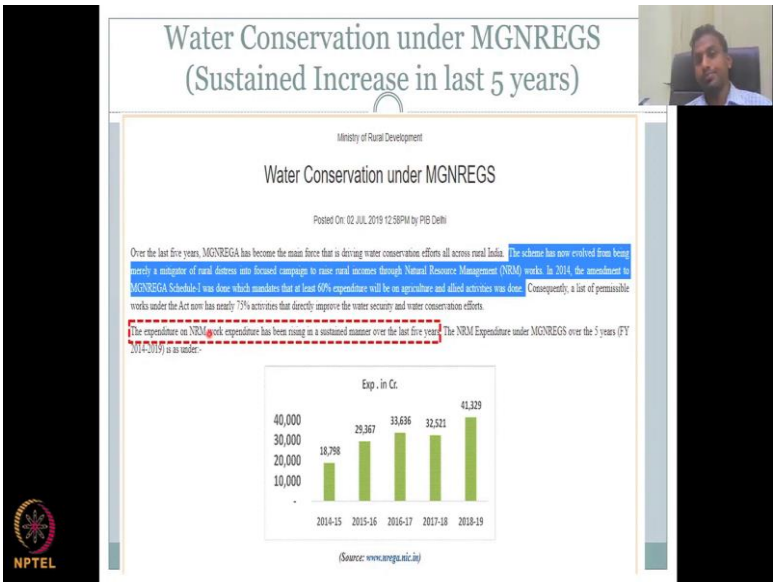

As I showed in the last lecture, water conservation under the MGNREGA has sustainably increased in the last 5 years. Just only show the data then 2014 to 2018 just see that from 18,000 crores it is more than doubled in 5 years, it goes to 41,000 crores and richer spent on water conservation activities under the MNREGA. Even though the MGNREGA was given to prevent migration of farmers 100 days work, the government ran out of work, what work can you give them.

So, in the 2014 times, early early times of the scheme, if you see, all the farmers would do is come put a signature take the 100 the per day salary or that time it was 100 rupees, but now in depends on the state and where you are. For example, Kannada pays around 289 per day. So, they take that money, and they would sit there for a couple of hours just discussing personal things and so, no work done. And then they go back to their houses.

So, this was also not well organized because they did not have bank accounts. So, there was no monitoring of their money. There is no accountability of where it went, because at that time, everyone did not have bank accounts. But now, the banks have been started in villages, you have mobile banks, phones, wallets, and also postman who could take a mobile unit to collect money and give money at the household level.

There is a lot of money that has been pumped into the water resource management under the NRM under the MNREGA. So, MGNREGA is a bigger budget. For example, last year it was

around 60,000-70,000 crores and from there, part of the money is given for NRM and almost 60 to 75 percent as this document says from the Government of India is given for natural resource management and most of the natural resource management is looking at water security.

Because natural resource management includes soil moisture, soil management, soil fertility management, forest et cetera but most of them are still tied with water. So, most of the budget is kept from water. The expenditure on NRM work expenditure has been rising in a sustained manner over the last 5 years from 2014 to 2019. It is good, it is good for the rural water resource management. How the money is used is the question? Is it is it properly used? Is it documented well? Is the question.

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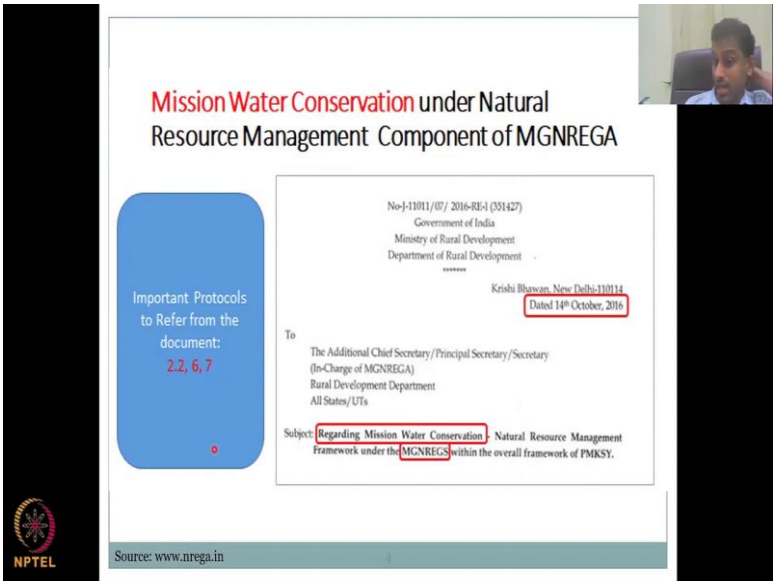

If you look here, the mission water conservation under the NRM component, there are important protocols given in this document or the letter given dated on 14th in 2016. So, you could say that there is a lot of protocols on how to use this MGNREGA money for mission model conservation. You cannot just say okay, I am going to build a dam, put all the MGNREGA money there. It is not possible. There are some protocols there are some signing concerns conservation activities, management et cetera. So, all these have to be taken into account.

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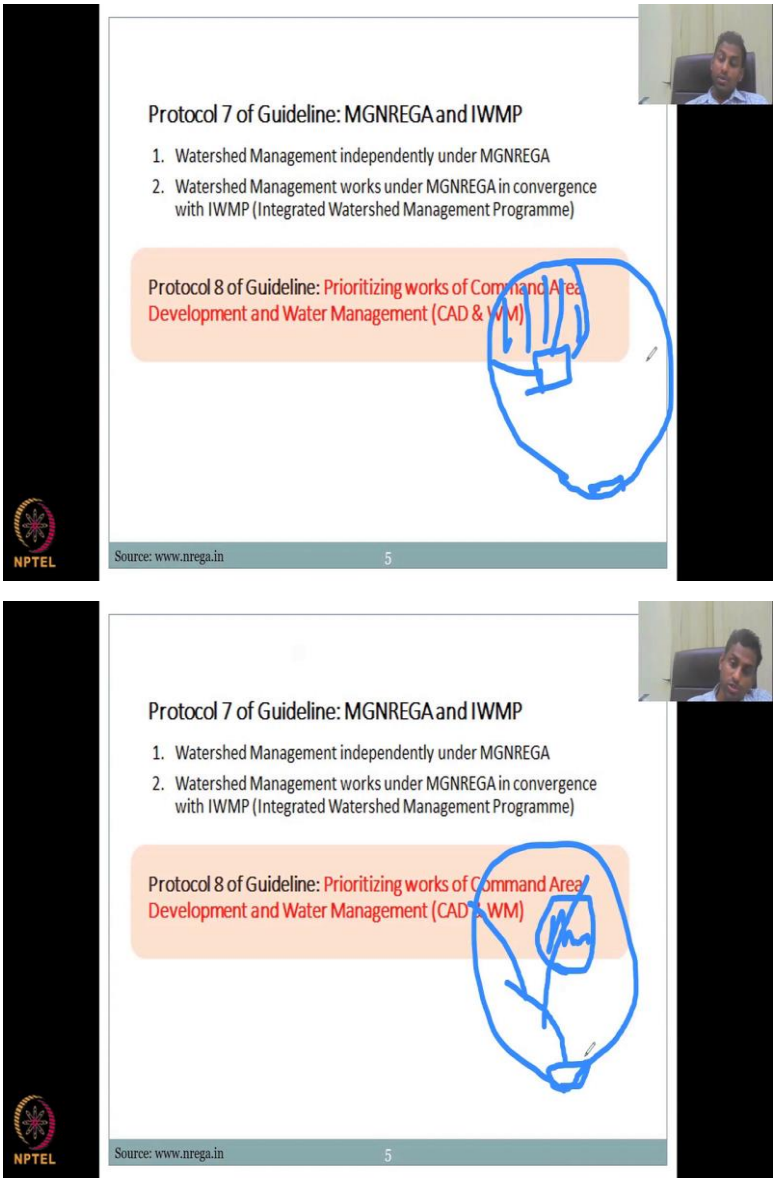

Let us take a couple of the protocols in example. Protocol 7 of guideline MNGREGA and IWMP, IWMP is it will integrated water management plan and program integrated watershed management program scheme area. So, water management independently under the MGNREGA. So, you can you can say that this budget of the MGNREGA is used for water management independently under the MGNREG. And watershed man works under MGNREGA in converges with IWMP scheme.

So, IWMP is a different scheme and from that scheme also there is water budgets, budgets to conserve water. So, what this protocol says is you can use this budget for water management independently and then the MGNREGA or you could take it out and then use it with another

scheme, which is IWMP. So, why is this important? As I was saying in the previous lectures, sometimes ALC stock two do not talk to each other.

And at one point, this guy will be building a dam so, that the other guy will also be building a dam there will be two dams in the same location on paper and budgets. And then when they go there and see oh no, there is a dam already a small dam check dam for example, or a check dam and then 10 feet away there is another check dam both are not built by the same agency different agencies.

So, this is where the government scheme especially MGNREG has been very wise to say that I do not have to put all the amount if I am collaborating with IWMP which is in convergence, which means IWMP is money is coming MGNREG money is coming and we will built one check dam to conserve water which is good. Protocol 8 of the guideline claims that prioritizing works of commanded area development and water management CAD and WM.

So, it needs to prioritize the Command Area Development the area of the watershed that gives water into the outlet point and just redrawing it for clarity. So, this is your watershed and for example, this is your structure. Each structure has a command area if you such as here, then like a dam or a small recharge pound then this area is your command area which drains into your conservation infrastructure.

Whereas this does not take the whole basin approach in terms of command area yes, all this is the command area for this point, which is the outlet point for the watershed or the four point but more importantly, you have some basins or sub catchment areas which can be prioritized for rural water management. So, the protocol 8 is prioritizing works or Command Area Development and Water Management for rural water resources.

You need to not only build your check dam, but also the work in the command area has to be done. So, that water is coming clean and in a sustainable way. Example, you have this area where you have this is the command area suppose there are some streams or networks that is bringing water and you have encroachment in this area or the cameras broken then that is not managed. So, here protocol A can be used, the budget can be used for managing that line. It is not directly saying that oh I am clearing the land for water. However, we know that only if you clear that part of the land water will flow that has to be documented.

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So, the MGNREGA assets, because of this, there is multiple multiple assets that are being developed under the MGNREGA scheme, because of the big budget as we saw around 41,000 crores in 2017-18 period or similar period. And that money cannot be just simply used to build assets. This is the concern for a lot of people working on the rural water management. You should build it for a particular idea for a long-term purpose be just saying that I am going to build because the budget is there, just build build, build these check dams and go then there is less scientific validation for it. Let us look at some.

So, the Mahatma Gandhi National Rural Employment Guarantee acts of this is the 100 days guarantee employment to farmers in villages. So, if you give that 100 days employment out of 365 days, then the idea is the remaining part. They will do some agriculture for example, a monsoon period is spread across 3 months. So, 90 days they may do some agriculture and the remaining part they will sustain using the money they earned in agriculture and the 100 days. The 100 days is mostly the summertime when there is no agriculture possible.

So, many assets have been created, because the government suddenly arise that instead of just giving the money use them as laborers to build some water conservation activities, like check dams, nalas, ponds and managing these water resources, nursery, forestry, you can monitor and manage these saplings so, that when someone asks for reforestation, afforestation work, you can give these saplings, agroforestry. climate resilient crops, horticulture, fruits.

So, all of this has to be managed at a small nursery level first, remember the seeds into a good sapling or a plant and then they give it as an asset, how is this tied with water conservation, this small plants it is tight because unless a farm has access to it, they may grow only the

crops that they have access and may be taking too much water out which is against water management. Let us take eucalyptus for example.

Eucalyptus is a tree which is used mostly in hilly areas where water is more if you are using it in more flatland, like Bangalore, then eventually to pull all the water because it drinks or consumes a lot of water that has to be avoided. So, this kind of activity where native plants and trees are given with less water consumption should be encouraged. So, that water management activities get a pass mark in the Indian MGNREG system. Both small and large water bodies, infrastructures have been created under this MGNREGA scheme not only created but managed also.

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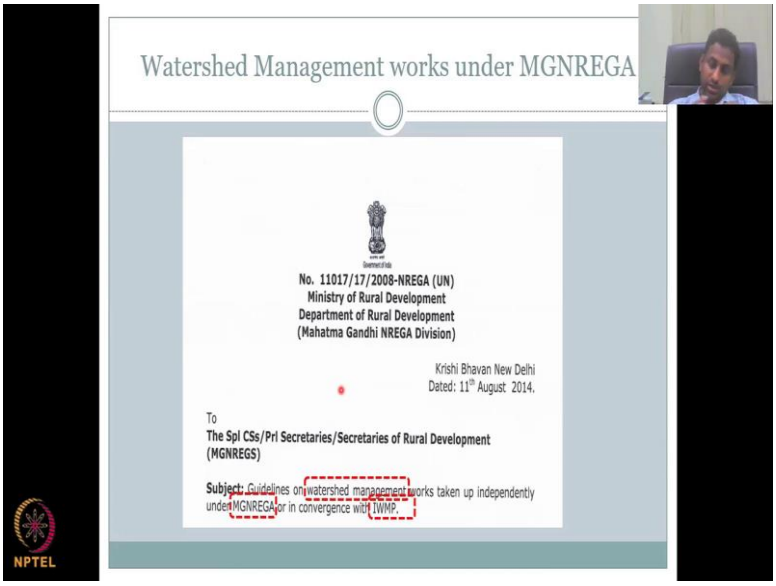

So, the guideline says on water watershed management works taken up independently under the MGNREG or in convergence with IWMP you can Google this document it is available. All these letters are available which determines and also gives us an order to all the high dignitaries and policy makers and the bureaucrats. For example, secretaries, IAS officers to use the MGNREGA budget for watershed management work either independently, which they may not have capacity in some access or some regions or in convergence with the IWMP integrated Watershed Management Plan.

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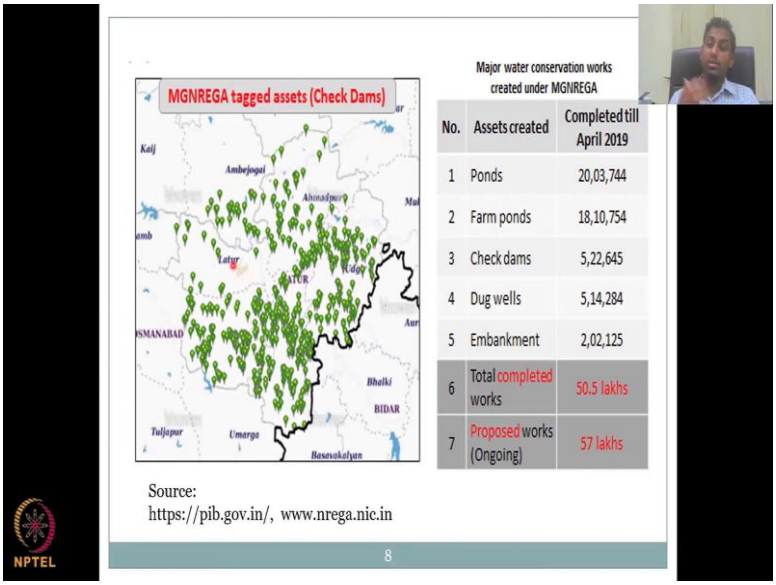

Because in the integral watershed management, there is water also it is not only cropping not tilling the sand, sorry, tilling the soil, making the land slopes, gentler those kind of things, but there is also water component. Let us look at the assets tagged by MGNREGA. So, one good thing about the MGNREGA asset so, what is an asset is one of these infrastructures that are created using the budget.

So, one good thing is the government has given the sources where it is located in your village, the geotag locations of the village and when the pond or what the asset has been created. So, if you look at here, major water conservation works created under the MGNREGA. This is a 2019 report, you could see that ponds around 20,000 bonds have been created ponds are much bigger than form ponds, which are smaller in size.

So, there is no 18,000 I am sorry 20 lakh ponds and then formed ponds around 18 lakhs whereas we have checked dams 5,000 sorry 5 lakhs and dug wells around 5 lakhs 14. So, there are some differences that and then embankments which have been strengthened the ponds around 2 lakh. So, total completed work is around 50 lakh and think about the budget how much budget goes in.

And if you look at the water component water management under the NRM under the MGNREGA it is almost around 30,000 40,000 crores. So, it is still good money that can be spent on these 50 lakh projects. So, a lot of money and a lot of projects have been built. And the proposed works going on is 57 lakhs. Not all these projects are up to date, the dashboard that they have created here in REGA or pib dot gov dot in you would see all these locations

and where they have been done individual asset properties may take some time for the database you created.

Like for example, how much each budget is what is the characteristics of each of them that data is still taking time. So, what are the issues in this? Now, I have a map I can I can easily tell a village I can take out a village let us say Latur and I will say so, this is Latur in Maharashtra I will say go there and then look into these assets and tell me how it is a sustaining the rural water management.

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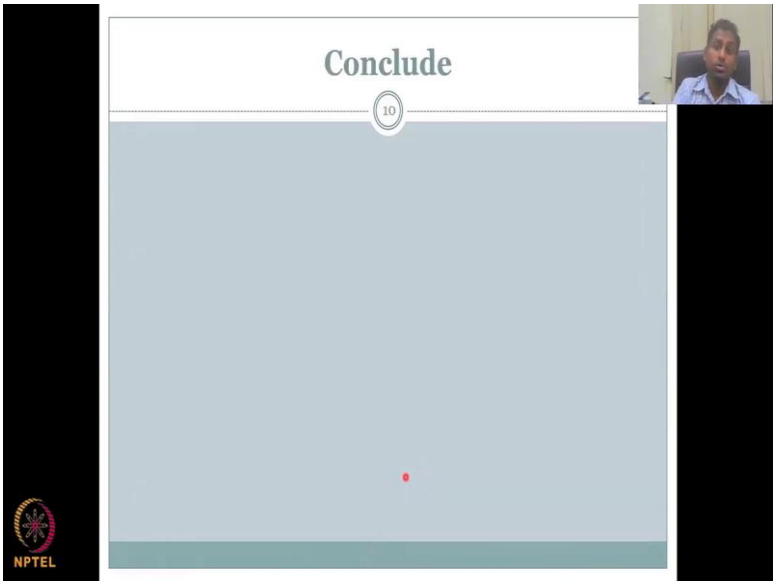

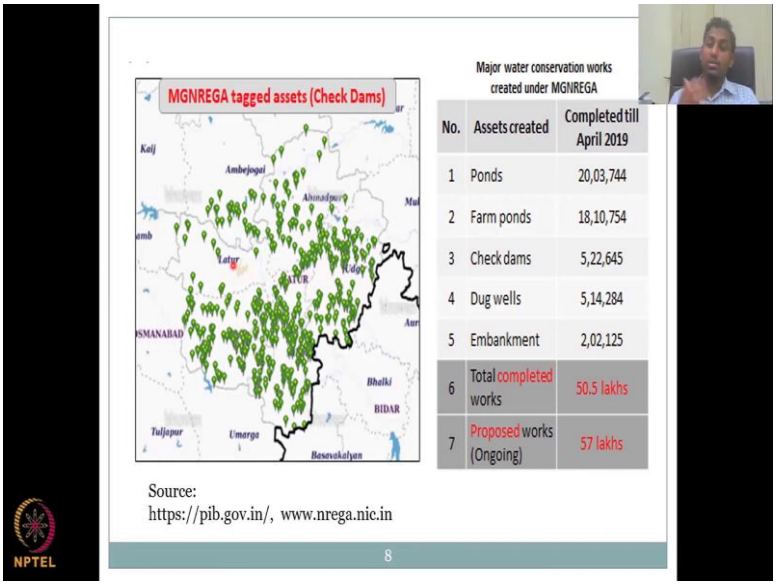

What is the reality of these assets? Not all some, some assets is, it is not, properly managed or is it short term? For example, let us take the tanks, these tanks are there in Coimbatore and other regions of South India, in districts in Tamil Nadu. What do you see is you have a tank which has been given MGNREG money or some budgets from the government to clear however, the budget is not enough the asset is there.

And the budget is given based on the assets number rather than the need, how much need what is the actual need. And sometimes budget is just given very simply I will say okay, clear all the weed, the non-native neem present in the tank that you say which is consuming a lot of water, you cannot do it by hand. So, there is a lot of public participation and NGOs. For example, Dam has worked a lot there to use machinery, high equipment to remove all these weed plants, non-native plants.

And what you see is a cleared Maruthankulam tank. But still, it is not fully operating with water, because there is more budgets needed. which can be provided through the MGNREGA assets budget and another one is the Vandiyur tank, which also had full of plants and weeds. Basically, a tank is something that stores water. And these tanks were not created by MGNREGA but much, much longer before.

So, instead of creating new assets, the MGNREGA budget, the government budget can be used to sustain the existing budgets. And that is what this example is about. And there are some budgets, for example, the well, you see here from MARVI, these are made that as an asset in the MGNREGA budget, but it is not maintained properly. So, who is questionable of these maintenance arises?

The farmers, the stakeholders have to be also accountable because they are the ones using the water. But as the government is just pushing these budgets into it. So, they have to identify the people and say, hey, I am going to put these you have to manage it properly. Another example is this check dam, check dam is built using the MGNREGA budget, but half of it is gone. Maybe a big flood came and then washed out the wall the missionary, but is not it needed to conserve it?

Is not it needed to repair, that repairing budget is not available. So, most of the assets are kind of short lived. They are there, the money has been put up in the check dam or a small structure a tank. But if there is no budget for maintenance, you cannot maintain it. But just taking a step from the government angle, how can you budget always? And what happens to the budget if it is not used?

For example, I have been there check dam. And I say that I will give you 5 lakhs for the check dams. 1 lakh manage it for 5 years. What happens if there is no big flood in the 5 years? will the money be returned? So, those things are not clarified? And for that the simple thing is I will not give you management money, I just give you the asset. Now, the proposal here through this class, I am trying to make you think is why can it not be a public and government partnership.

But government has put the initial cost to build the check dam and the public or the stakeholders who are using it have to come together and properly manage it. See the government has given the asset, if the asset works is fine, no flood fine, but if suddenly a climate change is occurring flood is hitting the area, it is the impetus of the farmers to come together and do something about it or use some other budget to sustain it.

So, that is what is the case of most of these assets not some but it is lacking the ownership from the participatory farmers. And the farmers are disconnected from this aspect that or it is the it is an asset the from MGNREGA it is government of India asset. So, I should not be the one responsible for it. And there are multiple, multiple reasons why people are separated against this. So, when these schemes are, because every year we are getting budget from MGNREGA.

And every year, there are 60 to 75 percent of money going to be put on an NRM. So, if these NRM's are not properly managed, it is a loss to the taxpayer. So, the best thing to do is to manage it properly, cautiously that I am also a stakeholder, I am also getting benefit of this and then use it. And there are other development budgets in the Panchayat, which can be used

to sustain these activities with this, I will conclude today's lecture where we discussed about one of the issue, which is the ownership of the assets and the status of these assets.

So, in the previous slides, where I showed the, the location of this, there is no status map for it, is how they operated. As I initially said, there is no data about operation, there is no data about the current status of the dams or the structures from… We need to know. Yes, putting all these in but to better manage, there should be some status report of this, then what would happen is we could create a budget out of the NRM for management.

So, let us say every year, I am going to put new dug wells or new check dams, these are 10 check dams, I can put 9 check dams, and the cost of the remaining one check them I can use to maintain the other checks, which I built 5 years ago, 4 years ago, et cetera. Because when you build a check them, let us take check them alone. As an example, when you build a check dam, it can live well for first 3-4 years, well nurseryman is there the water even though the climate change induced floods, hit the check dam, it still has the strength to manage it.

But once it gets slowly older and older, the system would fail or collapse. Sedimentation picks up and other resources are there. So, it is very important to manage also not just create the assets and also have information on the status of these assets and how they are working. I think we would be in a better way to manage rural water manage resources assets as MNGREGA budget which has put a tremendous amount of money on the farmers, 100 days scheme for NRM and part of the NRM is going into the water resource development for the village.

It is not only the village responsibility or the government responsibility, it is the responsibility of both these players, and especially the farmers to take care of the management if there is not much budgeting off with this I will conclude today's lecture, I hope this field component of how these schemes are working on paper you would see on the on the laptop on discussion, you will see all these assets are there. But are they managed well, are they long term or short term is the question. I hope this class would give like into that. Thank you I will see you in the next class.