Municipal Solid Waste Management
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Lecture - 41
Finance and PPP in MSWM Projects

Today, we will start the last module of this course, module 14, finance and PPP in municipal solid waste management projects. So, earlier I was not thinking about floating this particular module. Still, when you talk about an entire solid waste management plan or whatever project in any city in any country, the most crucial factor is financing. And also, in the last module, I talked about PPP, the public-private partnership.

What precisely the meaning of these PPP projects and also need to know whether these PPP projects are more beneficial or some failures or some following projects under the PPP mode, that also need to know that before finalising any or plan for any country. So, for today's lecture, I will talk about financing in municipal solid waste management project. This is also a critical discussion on the funding because they will complain to the local bodies of MSWM if they are not collecting the waste every time.

If they are not treating the waste or proper disposal if they are not finalizing, so, will constantly complain to the local body and always were thinking that the corporation a lot of money, why still they are not able to proper 100% collection or proper disposal and especially when you see that, if there is no cleaning of the street every day or maybe two times in a day. So will constantly complain to the local body saying that they have a lot of money, but why they can not have the proper collection system in the city.

But also need to know whether this local corporation has the proper funding available for them or otherwise, they have a lot of money available. Still, they are not able to utilize that, or there could be some other issues regarding the fund of the local body that today will go and also need to know that rather than just complaining the local body also need to know that in particular, which particular functional element is essential, not only the technical way but also for management also you will be required a lot of funds.

So, even though there are risks of the plan, whether you will be required money for the planned change, we also need to know what we will discuss today.

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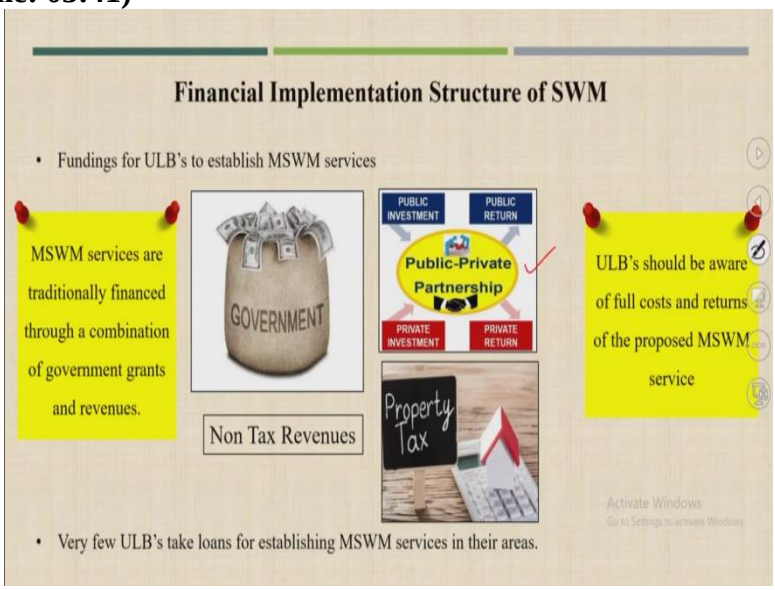

So, when you say the financing implementation structure of solid waste management traditionally is a combination of government grant and revenues. I think this is what the traditionally will say that is a government fund will be available or maybe mostly the capital fund like recently you know that in Swachh Bharat mission a lot of funds has been received by the local corporations or for you ULB's that tender revenue also from revenue, but revenue also from where the payment could be possible.

That need to know that under ULB should be aware of the total cost and return of the proposal of MSWM services. This is a thing I found in this particular sentence that ULB should be mindful of, whatever the price is required, even not only the capital costs; they should also know how much the maintaining cost or operation cost will be required. And also, in the last module, we talked about now sustainability of financial sustainability.

This has to know correctly because when you are going for landfill sanitary, a landfill and design period is 15 years or 20 years, you need to see that how much cost will be required for operation and maintenance of that particular sanitary landfill or if you are going for treatment composting plan, which design period is 20 years 25 year, so, how much is the manpower cost will be required, how much amount of energy cost will be required for the running of instruments of that particular project.

That local Corporation should be well aware of that, and when you talk about the funding, the government and usually this revenue will come up from the property tax. So, I think we typically do not know that from where they are getting the revenue. Still, most of the corporation they include these cost of collections are a solid waste management revenue that they will collect from the property tax and they the normally.

If you ask the local people to pay maybe 30 rupees per month, they are not ready to pay because they would not consider that the collection is one kind of service. So, it is good to collect from the property tax. And suppose that, because the government cannot run the entire plan, it cannot operate the whole plan they can go for public-private partnership. So, this private company will invest the money and get some kind of return out of that and that the local Corporation.

Will benefit the collection and treatment or disposal under there are very few ULB's make loans to establish an MSWM service in their area where the loans are also available. Still, very few you will be taking a loan for that, primarily other than loans, will talk about public-private partnership so that they do not take any loan.

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And also, you see, this is one of the news that lack of access to the finance key hurdle in municipal solid waste management, there is one of the city says that the lack of access to the financial keys.

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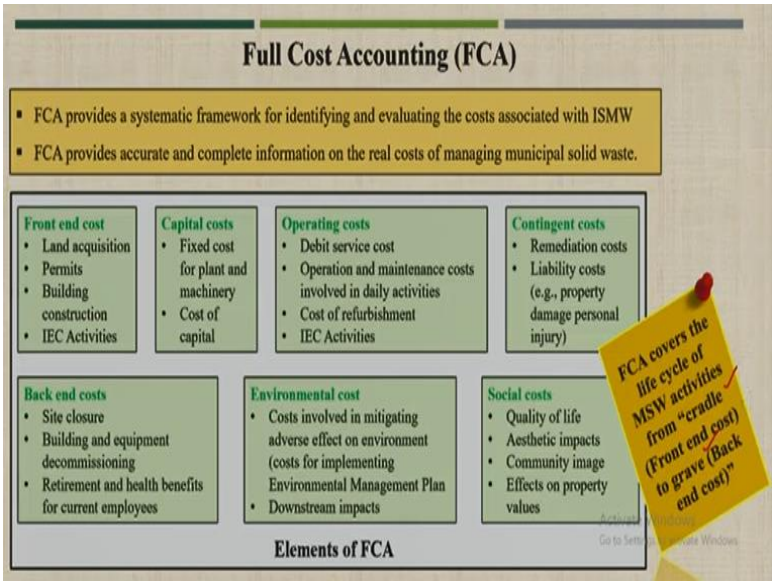

Now, when you say that, what precisely a Full Cost Accounting for the MSWM project. So, it will provide the systematic provider framework for identifying and evolving the cost associated with the Integrated Solid Waste Management Plan. Also, this FCA that is Full Cost Accounting provided accurate and complete information on the actual cost of managing municipal solid waste management. So, this essential detail is given in the Solid Waste Management Manual.

Also, you can go through that manual read on to that. It says that full cost accounting says that the solid waste management plan or integrated solid waste man will need to be discussed about these all kinds of costs is an actual cost like front end costs, capital costs, operating costs, contingent costs, back end cost also need to know that environmental cost and special costs like aesthetic, the quality of life, that cost also need to be finalized before going for a solid waste management plan.

So we will go one by one already. I put some essential points under each cost, like for front end costs will be required. We have to calculate the price for land permissions building constructions in that particular location: the high front end cost and the capital cost like how much-fixed fees will be required for plant suppose if you purchase machines or manufacturing. So, you need to know how much the capital cost will be needed for the particular plant.

So we will go one by one likewise, and also the FCA covers the lifecycle of the MSW activities from the cradle to the grave. So means is a front end cost to the back end cost. So, the complete lifecycle of the entire project cost will be calculated by the total cost accounting.

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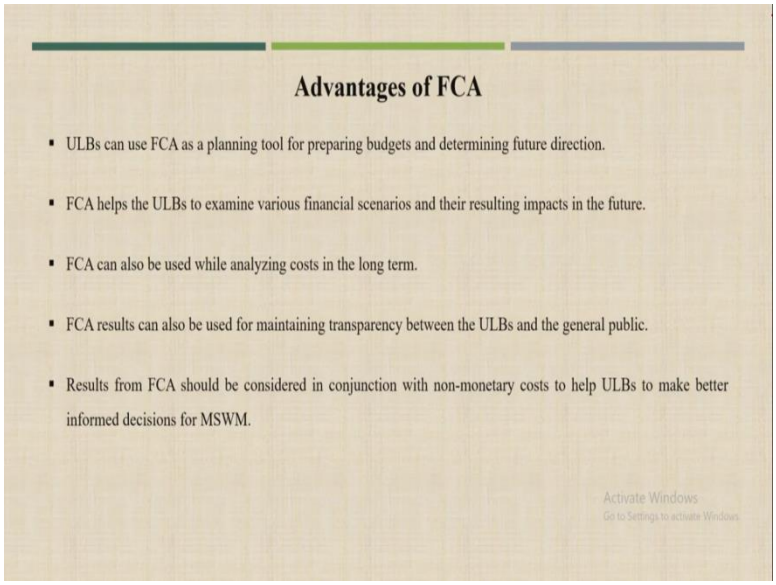

Now, the advantage of FCA is that once the ULB how the particular FCA is created, it can use the FCA for planning tools for the preparation budget and determine future direction so they can quickly finalize once they know the entire cost of the project. FCA helps the ULB examine various financial scenarios and their resulting impact in the future; they can also see that and FCA can also be used while analyzing cost in the long term.

FCA result can also be used to maintaining transparency between the ULB's and the general public. Even though while making the PPP projects, these FCA will be essential from where you will be required, a private corporation will participate in that particular cost. FCA would be considered in conjunction with the non-monetary expenses to help the ULB make better-informed decisions for MSWM.

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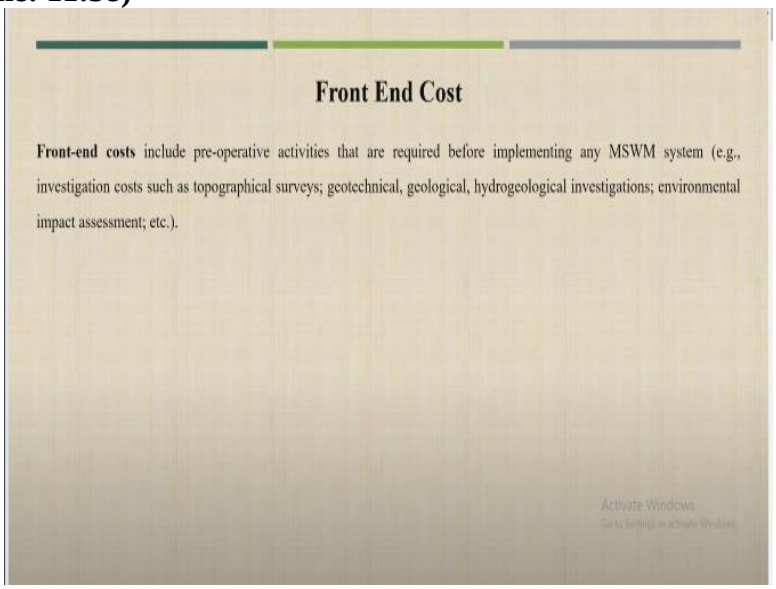

So we will go for one by one the front end cost, like front end costs, including the pre-operative fees required before implementing any MSWM system investigating costs such as topographic survey, geological survey, geotechnical survey hydrogeological investigation or environmental impact assessment. So, like when I say that is a before starting the before implementing the MSWM plan or MSWM system.

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So the under the data will collect like this like in some indicative front end cost is given for the typical Solid Waste Management System like obtaining permitting for the land topographic survey. So, like waste characterization also waste quantification environmental impact assessment, likewise, and you put the special rate and how much amount will be required for that suppose like for ecological impact assessment need to be done first before finalizing think if you finish one particular disposal site.

So, you have to get permission from the local pollution control board. So, Pollution Control Board will ask the environment back assessment report, EIA report will be requested, and the meaning of the EIA report, like suppose if you are disposing the waste in a particular area, what could be the local climate because of disposing of that impact? So, what these local or corporation can ask some academic institute is several private companies doing the environment factor assessment.

So, they have to pay for that. So, likewise, we can also include that cost like waste characterization, waste quantification, and essential data before finalizing the MSWM plan.

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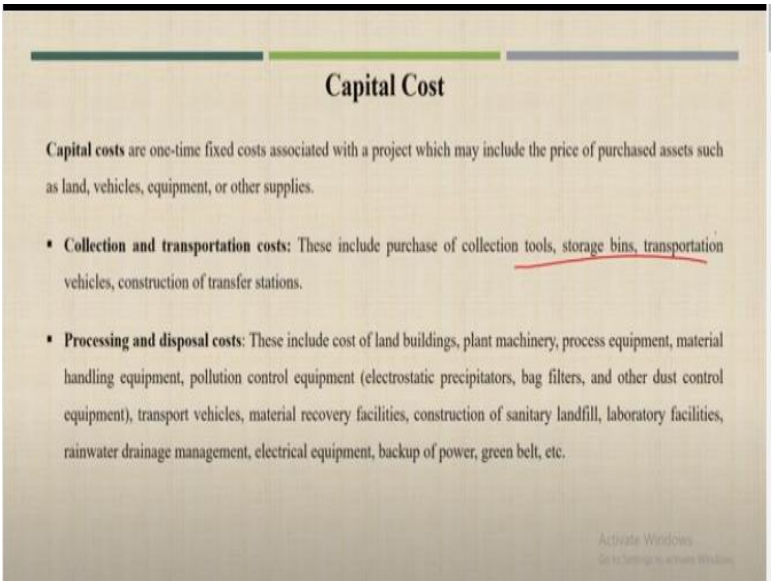

Now, next is the capital cost. So, capital costs are one-time fixed cost because the capital costs one time you have to purchase some kind of vehicles or some kind of machines. So, that is a capital cost associated with the project, which may include the price of buying assets, such as land vehicle equipment, or other supplies like this; this cost will be majorly required while collection and transportation costs like you will be required collection tools storage been vehicle construction of transferred stations, this cost will be included here.

Like for processing this whole side, it will include the cost of land building plan machines. So, suppose trommel you want to go for trommel segregation so that trommel cost will consist of the capital cost.

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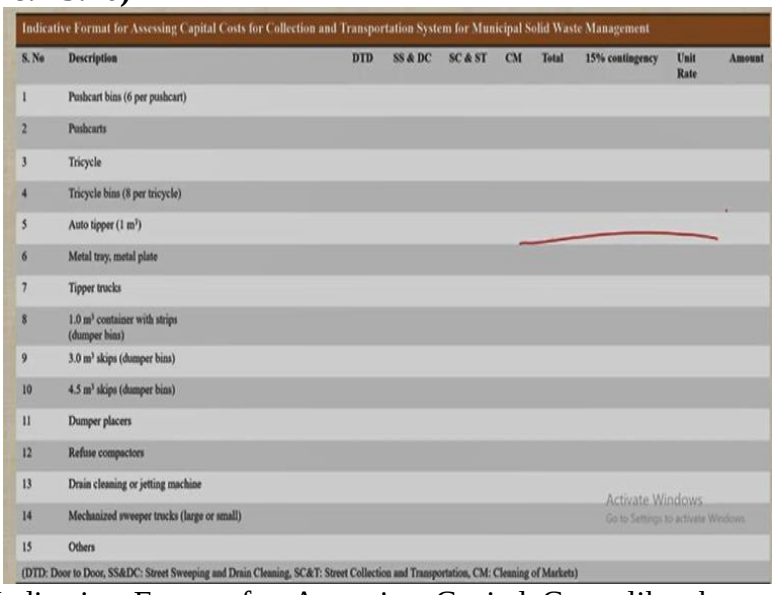

Indicative Format for Assessing Capital Costs for Collection and Transportation System for Municipal Solid Waste Management

S. No	Description	DTD	SS & DC	SC & ST	CM	Total	15% contingency	Unit Rate	Amount
1	Pushcart bins (6 per pushcart)								
2	Pushcarts								
3	Tricycle								
4	Tricycle bins (8 per tricycle)								
5	Auto tipper (1 m^3)								
6	Metal tray, metal plate								
7	Tipper trucks								
8	1.0 m^3 container with strips (dumper bins)								
9	3.0 m^3 skips (dumper bins)								
10	4.5 m^3 skips (dumper bins)								
11	Dumper placers								
12	Refuse compactors								
13	Drain cleaning or jetting machine								
14	Mechanized sweeper trucks (large or small)								
15	Others								

(DTD: Door to Door, SS&DC: Street Sweeping and Drain Cleaning, SC&T: Street Collection and Transportation, CM: Cleaning of Markets)

So, this is the Indicative Format for Assessing Capital Costs like the equipment will be required, like try cycle rickshaw tipper trucks dumper placers compactors. So, likewise, we can

see how much the numbers will be necessary and based on that, we can calculate how much total capital costs will be required.

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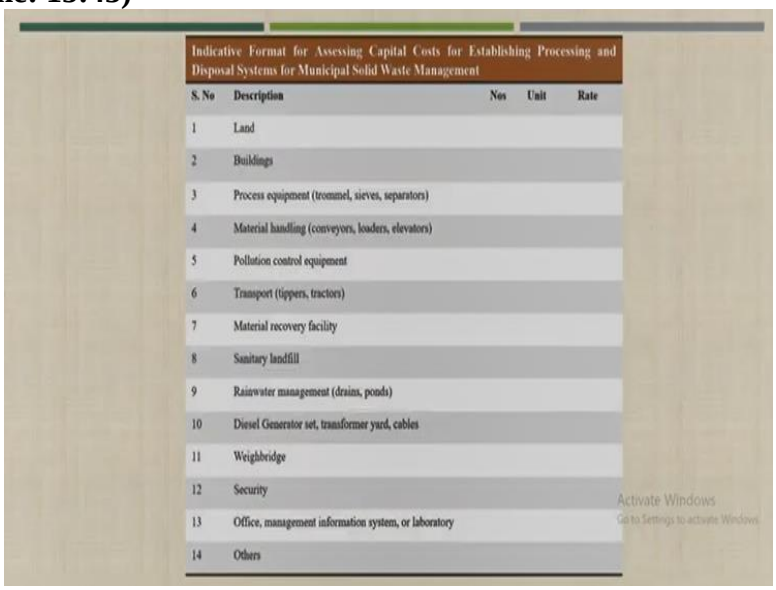

So, this is another Indicative Format for the Assessing Capital Cost for Processing and Disposal. So, like in the processing land costs building costs, that deeper tractor costs sanitary landfill costs entire construction costs of that the weighbridge you will be required one particular office one laboratory construction will be required. So, that is under the capital cost.

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Now, this is. I think my photographs I am showing it here like for collection.

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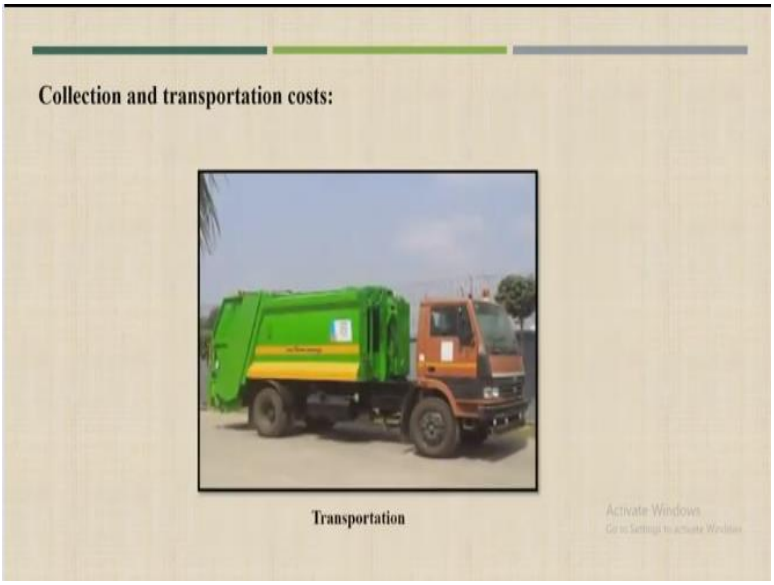

And transportation costs for storage beans for a vehicle.

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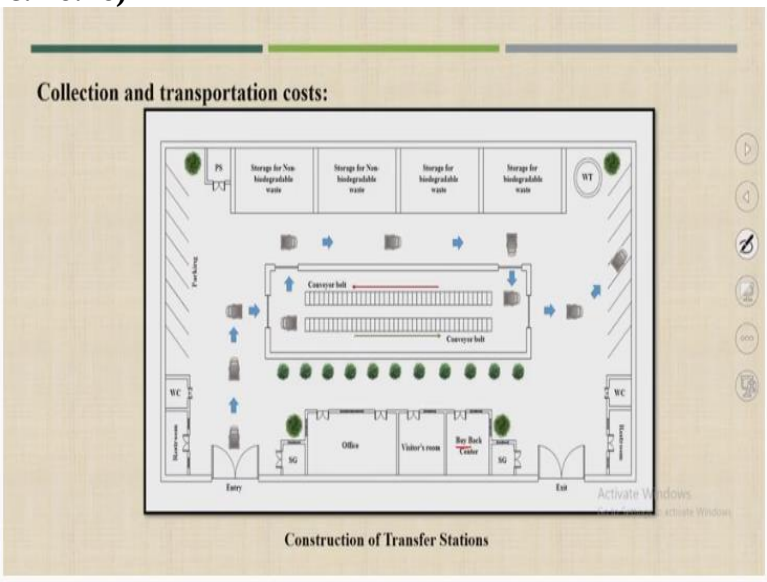

So, the entire construction of this is the construction of transportation. So, we will fill required offices will be needed storage for different ways like non-biodegradable, biodegradable waste and conveyor belts. So, likewise, the facility will be required.

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So, for construction of that and processing and disposal. So, for MRF processing cost so, for the entire structure of construction of that particular plant.

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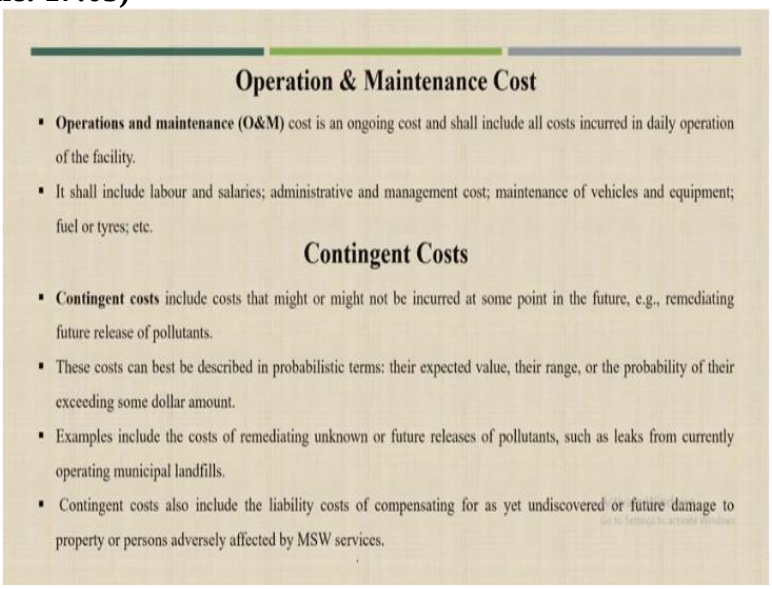

Now, next is the operation in maintenance cost third is the operation maintenance costs. So, these costs are the ongoing cost and shall include all expenses incurred in the daily process of the facility; it shall consist of labour and salary costs, administrative and management costs, maintenance of vehicle equipment, fuel cost, so this was the operation and maintenance costs, this is what I was talking about that what is happening there is most of the schemes are coming from the central government is beneficial for the local authorities like JnNURM program even Swachh Bharat Mission.

Also, other schemes are also available from where the capital funds are getting from these kinds of projects. Still, we have to will be required the excellent quantity of operation and

maintenance costs because a lot of manpower is needed to have to pay salary for that even whatever the equipment's or machines we had been purchased for their maintenance also you will be required money a lot of collection vehicles is having the problem while hauling the waste.

So, like corrosion will be the sometimes issue and their diesel will be required diesel or petrol that fuel will be necessary that cost will come under the operation costs and this is a good amount of money is needed per day. So, they should have some revenue from the collection to get the operation and maintenance cost. Next is the Contingency Cost. So the Contingent costs include costs that might or might not be incurred at some point in the future.

And these costs can best be described in the probabilistic term like they are expected value they range a probability of their exceeding some dollar amount, like in the example include the cost of remediating unknown or future release of pollutants such as leaks from the currently operating mean municipal landfills. So suppose this contains a fee. I think 1 example like this is 1 example for landfill. Now, in the current running landfill, there is no gas release.

The gases do coming out even leach it is not going to the create any problem, but in future, it is possible after five years after ten years of operation, it is possible. So, you need to have some contingency money with you. So, wherever it is required, you can use it again for one composting plant is not that the entire composting plants will construct in there one time only; you will increase the capacity from time to time.

So, suppose you will construct a small compost plant like 50 tons per day capacity plan now after five years or after ten years you see that you have to extend the capacity of that compost plan maybe 50 tons 100 tons per day capacity. So, for that, you will be required this contingency money to extend the facility in the future. When you prepare any plan, you will also have to discuss the project because see in for particular city every five years every ten years with the sensors.

We know that population is increasing every ten years sensor after sensors and these population also is increasing by 5 to 7 per cent every year generally in India, so, the not only people, but now industrialization also is coming every five years every ten years there are a lot of changes in the infrastructure of the city. So, because of that, your wage generation also will increase.

So, when you do the waste characterization or the wage generation data, always see that after five years after ten years, how we will get changed and how this quantity is increasing.

So that you will you are ready because whatever facility you are designing, whether it is a treatment facility, whether it is a collection facility, you are planning for next 20 years, you should be ready for next 20 years. So you know that if the waist characteristics will get changed. Change so suppose now; you are thinking about one particular biological treatment facility because currently, you are getting 60% of physical matter.

So one compost plant you are planning, but after five years after ten years, you see that your biological waste has been reduced and a lot of dry waste has been increased. So maybe you are currently not thinking about how the one waste to energy plant or one incineration plant facility, but after ten years you have to ready for these kinds of insulation plant you have to see that. Still, it is not only the contingency cost that will help into that but you will be required another Capital Fund.

So, by having the capital fund for another treatment facility and the contingency cost, you can have another facility in the future.

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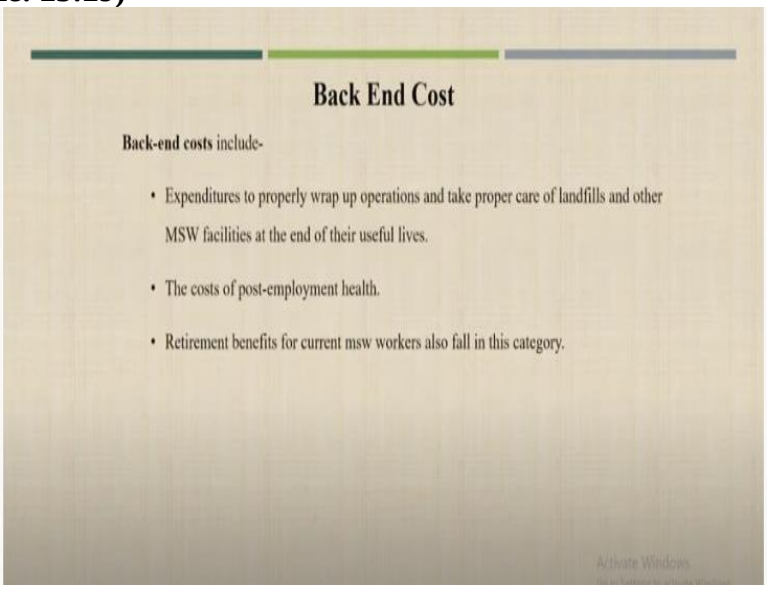

Next is the Back end cost. So, Back end cost is essential; this is the cost of post-employment health. So is a retirement benefit for current MSW workers shall also fall in this category and properly wrap the operation and take proper care of landfill other MSW facility at the end of

their useful life, so this is the Back end cost. So Back end cost-wise such example like the 20 years landfill, landfill time, and landfill design period is over.

Now, how much will be required to maintain after 20 years also though everything has been over, many mentors will be necessary to see that after 20 years where these man powers will go. I think you also need to know whether they can join in somewhere else or somebody is getting retired. So that cost also needs to be no.

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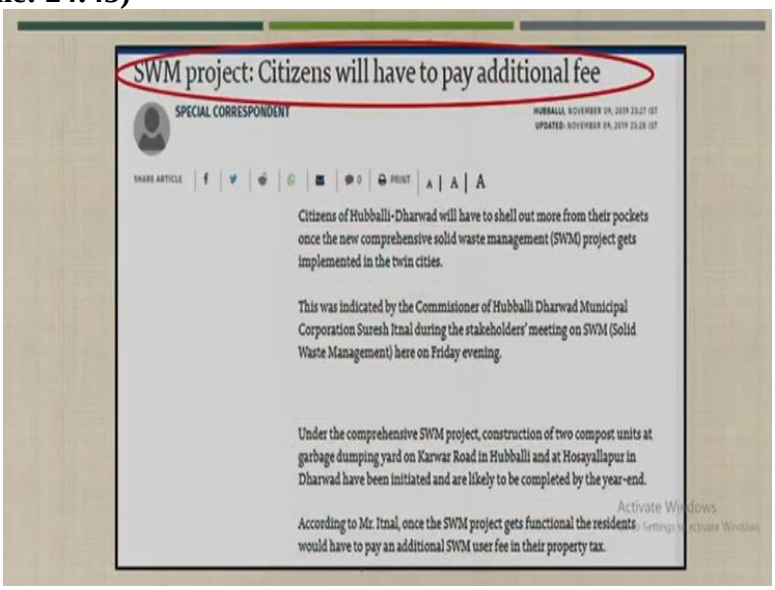

So this is one of the articles like MSW project citizens will have pay, we have to pay an additional fee. So the back end costs also need to be calculated.

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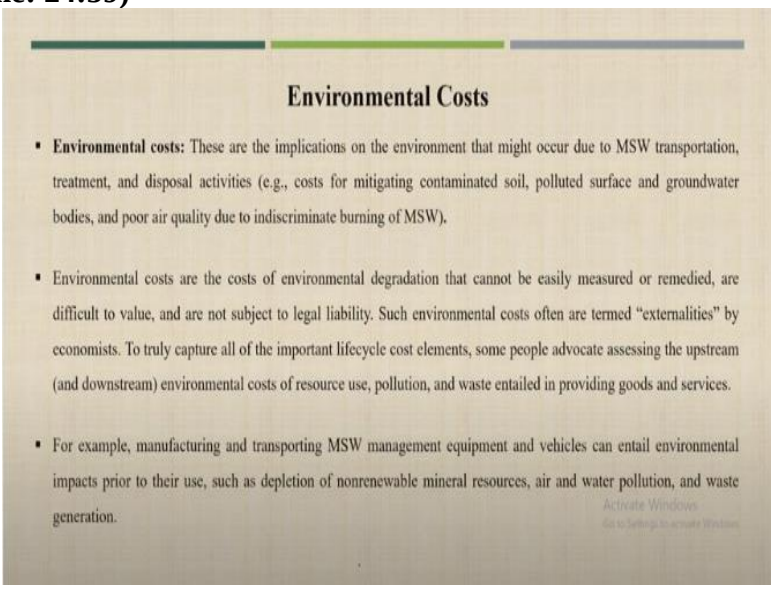

Next is the environmental cost. So, these are the implications on the environment that might occur due to the MSW transportation, treatment disposal activity like the cost of price for

mitigating contaminated soil pollutants surface and groundwater bodies poor air quality due to burning of MSW. So, these data will come up very simply by EIA. In the EIA report, all data will get collected by whomever is doing the EIA, whether it is an academic institution is a private Institute.

And also, they will show you the complete data key once the plant is getting constructed and getting operated for 15 years 20 years. What kind of pollution will come up and it will also share what kind of mitigations has to be done. So, that mitigation also has to be calculated on to the cost, how much cost will be required into that maybe the suppose there are a lot of our politicians are coming after five years.

So, maybe you had to go for large plantations in the local area, maybe in the mitigation, this is a good idea of how many farms are in that area. Now, suppose the groundwater has been polluted. So, you had to create one facility to treat the groundwater. So, that kind of cost also need to be looked upon, and also the similar sort of thing like one example is given here the manufacturing.

And transporting MSW management equipment vehicles can entail environmental impact before their use, such as depletion of the nonrenewable mineral resource, air and water pollution in waste generation.

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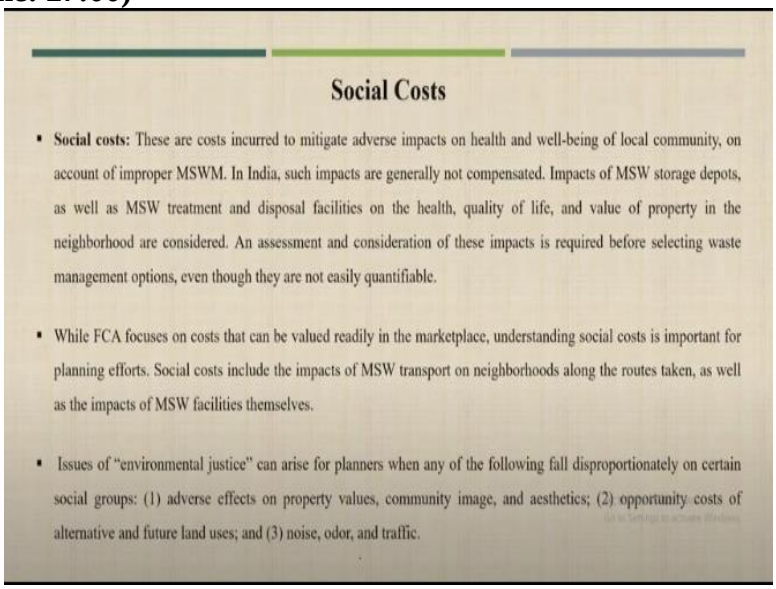

Next is the social cost; these are the costs incurred for the mitigation of adverse impacts on the health well being of the local community on account of improper MSWM in India. Such results

are generally not compensated, and this is the issue in India. So, here the social cause is not the first year has to be calculated for the manpower's, how they are the life has been changed because of walking into working for the solidus management projects, even the residents near to the disposal site, how their lives had been changed, that impact has to be calculated.

Undersee there are a lot of rag pickers have worked into the land field. I think you also need to see how best you can benefit them, how they live, and the life you can change. So, maybe you can have one foot like the 1 example could be like that, you can create one pair we can construct one particular school or whatever the girls or by boys are working for the waste collection in the landfill, maybe you can provide them one specific school admission and because they are not able to pay the fees and all.

So, maybe the local authority can pay their fees or whatever things are required for the schools. So, that is one kind of social. So, social benefit, we can do it further. So under the solid waste management projects. So, this is one crucial point here, like environmental justice issues can arise for planners when any of the following fall disproportionately on certain social groups like adverse impact on property value, community image, and study.

This is also important because wherever I think the location you are finalizing for land filling, the property value in the local area will get reduced. And also the nobody their local image, even aesthetics in that particular area is getting issue and the opportunity cost of alternative and future land use noise odour traffic. I think this is this current comes under environmental justice. So this is also a high cost.

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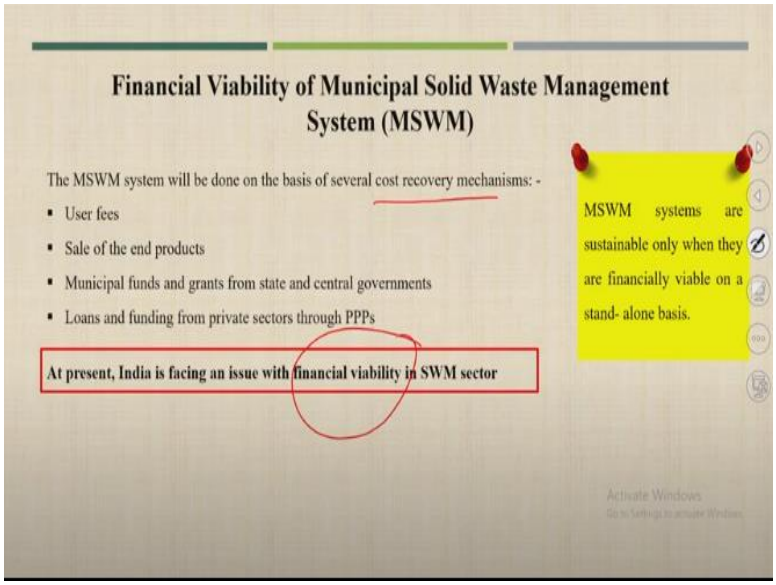

Now, the financial viability of the MSWM system, like how it could be any corporation, could be a viable financial viable. So, because of these cost recovery mechanisms, every corporation without cost recovery is complicated to likely, like this cost recovery could be possible from the user fee. The sale of end product means people fund our grant from the state and central government loan or funding from the private sector through PPP.

So, these are essential points based on only any local authority could be viable, under MSWM star sustainable only and when they are financially feasible on a standalone basis. So, that is why this user fee is significant. And the sale of the end product is very, very important. So, when we say we have the proper composting facility, compost has to be will sell or has to get some kind of money, our energy production units.

That energy you can get some return for or some cost recovery should be from such facilities. So, at present, India is facing an issue with financial viability, so this is the I think that is why when you talk about waste management in India, I think we should ask the question of whether such kind of plants are financially viable and is possible to run for next 20 years.

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So, this was the one of the news like a waste to energy by rupees 10,000 crores industry is facing the issue. So, we are putting a lot of fund into any projects, but big companies are still facing problem because it is not sustainable.

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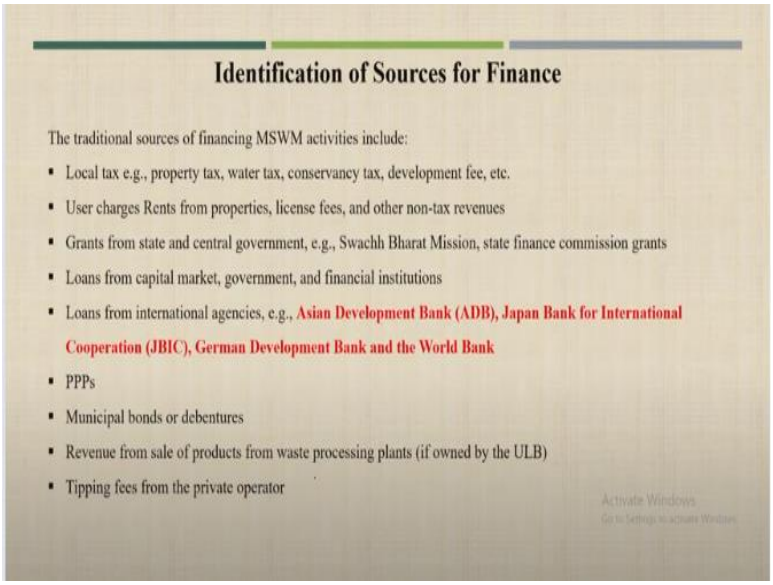

So, now identifying sources of finance, sources could be the sources of financing MSWM projects or activities like local tax and property water tax. We will mostly take that end-user fee through the property tax user charges rent from the property grant from the state and central government like Swachh Bharat Mission. There is also a state finance commission grant local authority.

Will get loans from the capital market government of financial institutions loan from an international agency like (ADB) Asian Development Bank (JBIC) Japan Bank for International

Corporation. They also fund under the PPP and from the TP tipping fee from the private operator under the PPP more.

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So, this was also news that Garbage management is about fighting corruption.

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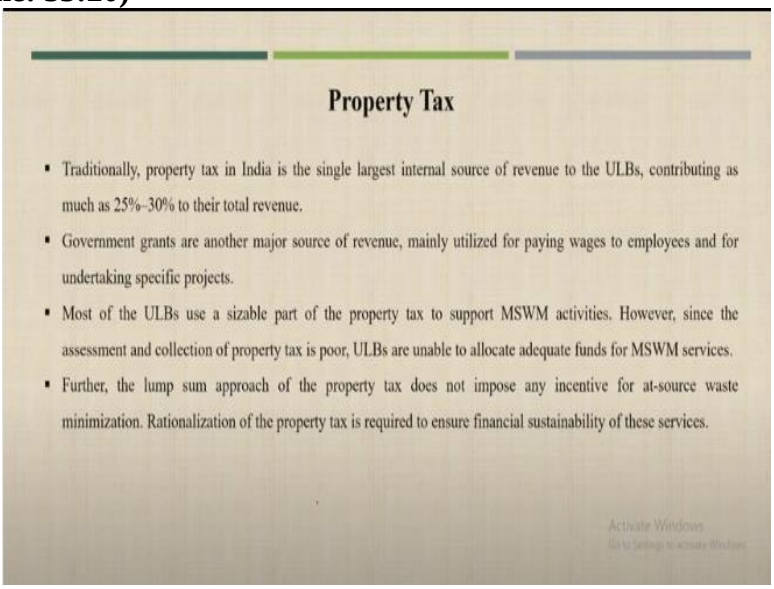

Now for property tax, I think through that, we get some kind of user fee from the local people like traditionally property tax in India is a single largest internal source of revenue to the ULBs, contributing as much as like 25%-30% to their total revenue. So, this property tax is significant finance of the local authorities. And these government grants are another vital source of income mainly utilized for paying wages to the employee and undertaking specific projects.

So, most of the ULBs use a sizable part of the property tax to support MSWM activities. However, since the assessment and collection of property taxes poor, you will be unable to

allocate adequate funds for MSWM services. And usually, it is calculated by lump sum approach property tax.

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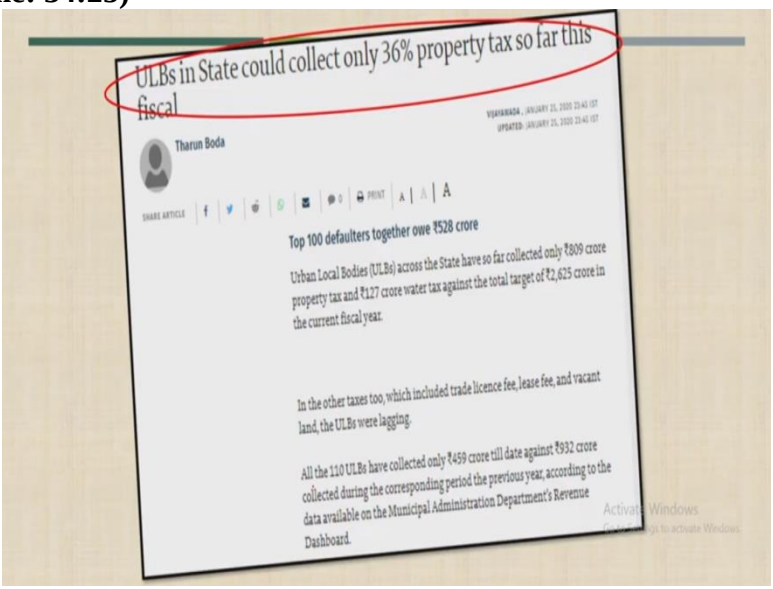

And ULBs in State could collect only 36% property tag as far as this fiscal. So, this is the major one from which that operation and maintenance cost the ULBs are taking.

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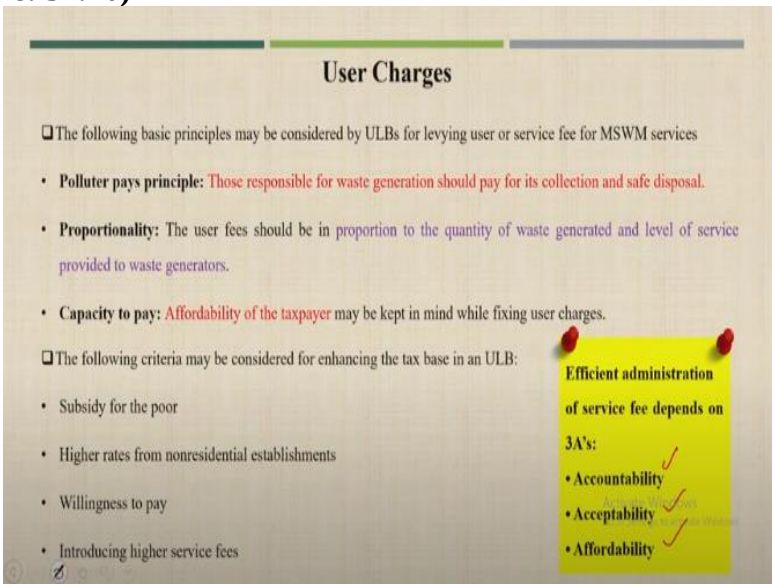

User charges like I think I found these were these crucial points that need to be considered by you will be for to finalize the living users or service fee like polluter pays principle based on polluters to pay because if you are generating waste, this waste will and once it gets disposed, the pollution will come. So, paying for pollution pay based on pollution pays principle like those responsible for regeneration should pay for its collection.

And safe disposal proportionality, the user fee should be in proportion to the quality of wage generated and level of service provided to the wage generator and especially. So, when I talked about the housetops collection system, I was only sharing about user fee because I think one particular person is coming to your house and collecting how so is their service. So, you have to pay for that and capacities to produce; you have to check that taxpayer's affordability kept in mind while fixing the user charges.

But, see, the affordability of 30 rupees a month is not that that large, but maybe I think some of the locations in the city you can make it accessible. Still, most of the city people will pay 30 rupees or 50 rupees in a month, and the following criteria may be considered. Enhancing the tax base in the ULB will be like a subsidy for the pure poor higher rates for a non-residential establishment like the commercial facilities. You can ask them to pay more and see that willingness to pay and introduce a higher service fee.

This is also essential criteria under usually for the efficient administration of the service fee depends on three years like accountability, acceptability affordability; I think we can finalize the user fee.

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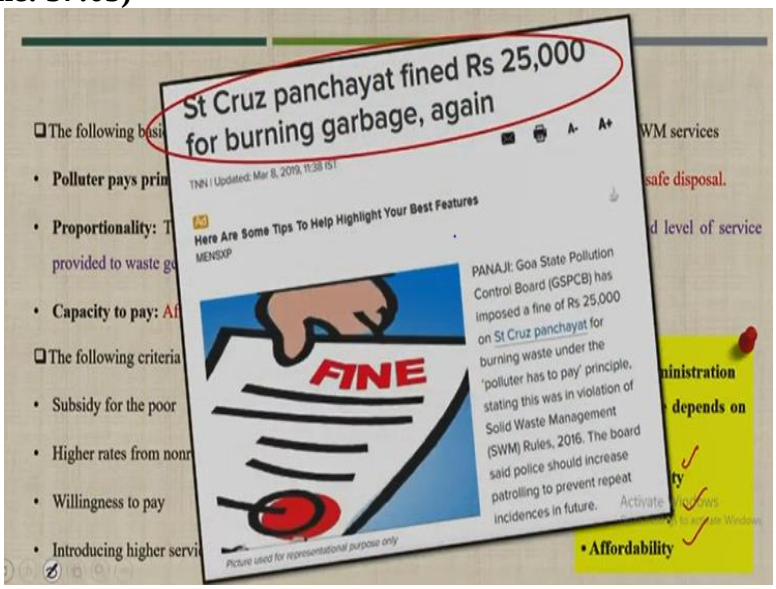

So, like this, one of the panchayat in Goa has fines of 25,000 for burning garbage. So, this comes under the polluter pay principle. So, we can generate these kinds of revenue by creating some bylaws for your particular city.

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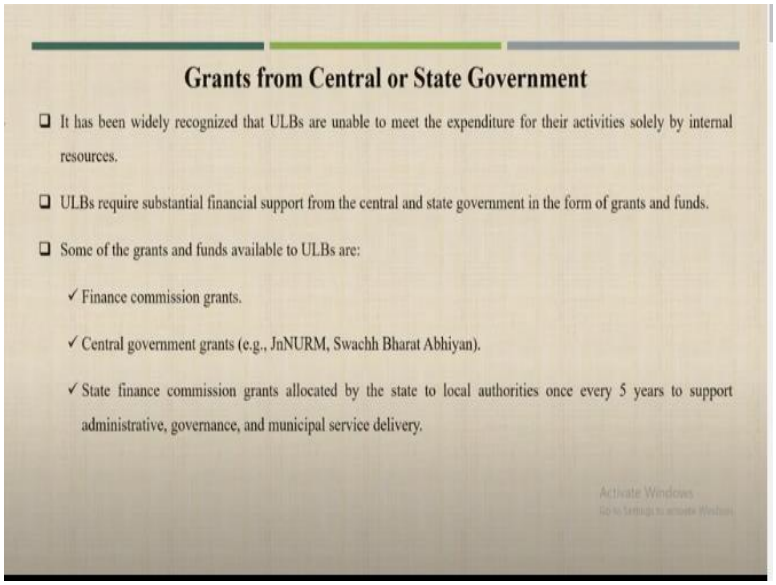

Now, grants from the central or state government like so, because most of the ULBs they cannot manage by their whatever the cost is of funds available with them. So, they always have to depend on the grant from some central or state government, and from time to time, the substantial financial support will come from central or state government like some of the grants from the ULBs like finance commission grants.

I think the JnNURM program scheme also the fund has come from finance commission grants central government funds like similar JnNURM Swachh Bharat Mission under like similarly. The state finance commission grants also available to run the particular authority once every five years to support their administration governance or mean civil service deliveries.

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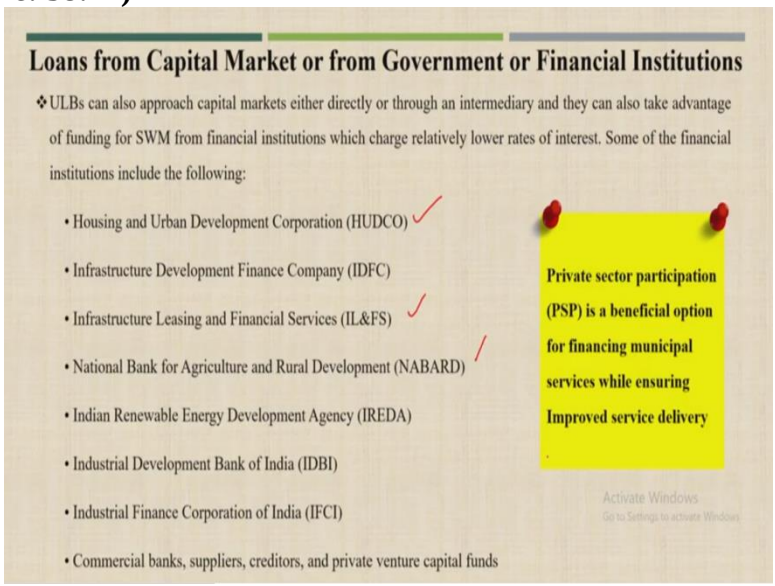

These are other loans available from the capital market from the government or financial institutions. Some organizations are government, or some are private from there they can get

the loan like this known is HUDCO. This is a well-known organization where these ULB'S can take the loan even from IL&FS like infrastructure leasing financial services NABARD these also I think, a lot of projects are under the NABARD or HUDCO.

So, private sector participation is a beneficial option for municipal financing service while ensuring improved service delivery. So, the discussion came like if you ask the private sector participation that is more beneficial.

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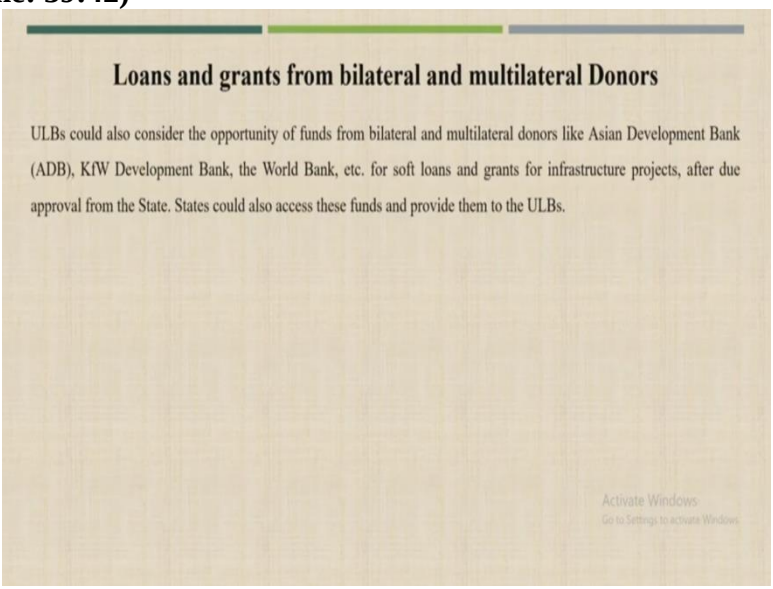

Are loans or grants from bilateral and multilateral donors like Asian Development Bank, or World Bank, World Bank will get some soft loans to run the solid waste management programs for the city.

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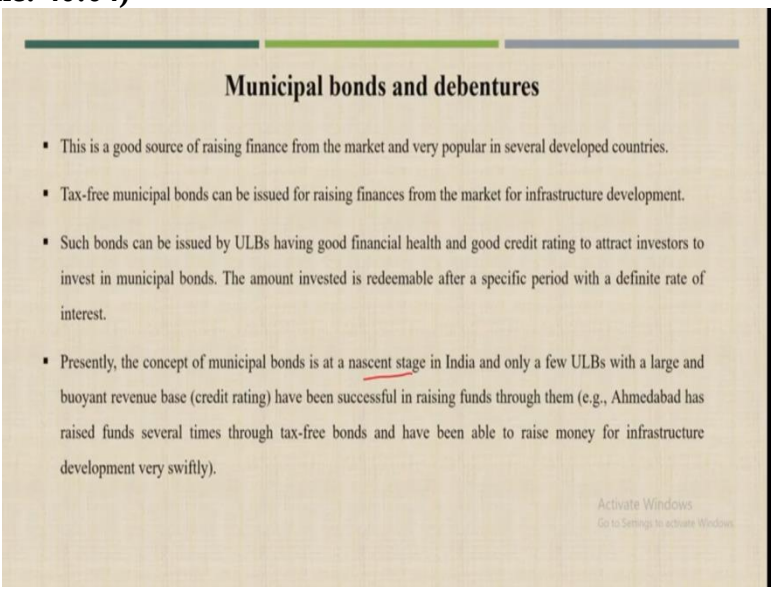

And also the municipal bonds are a good source of raising finance from the market and are very popular in several developed countries. In India, the city bonds just started in the nascent stage, and only a few ULB's with a large end and bond revenue basis have successfully raised funds through them like Ahmedabad has raised funds several times through the tax-free bonds. Have been able to raise money for infrastructure development.

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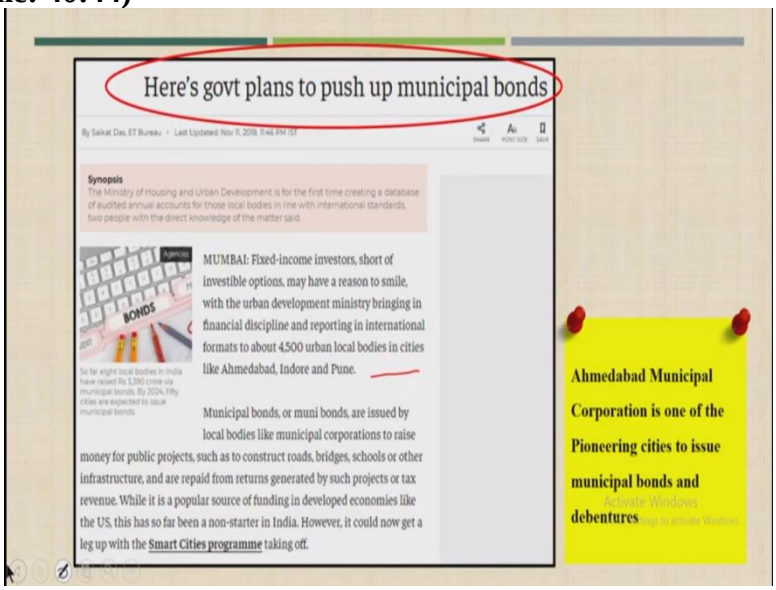

And also is proposing now, the government plans to push up the municipal bonds so that the local authorities will be beneficial.

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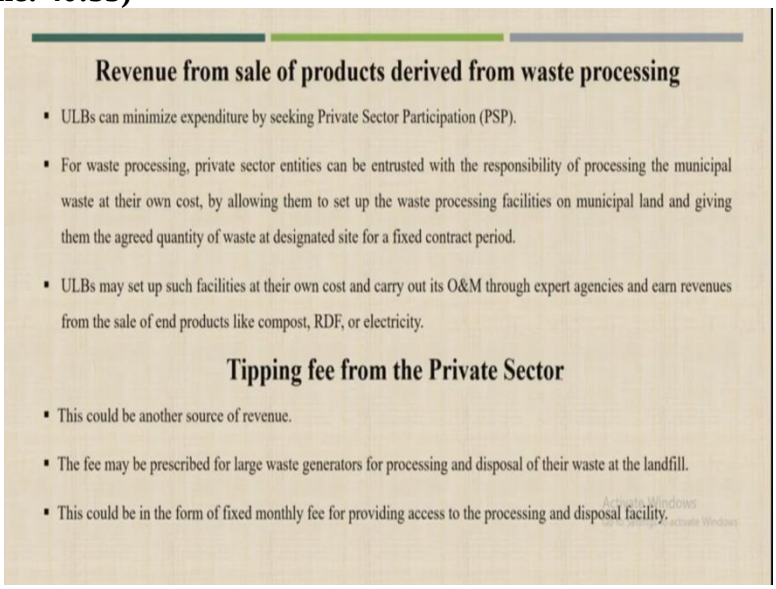

Also, the revenues from the sale of products derived from waste processing. So, when I discussed the composting facility, biogas facility a lot of products even incineration lot of product heat gas, power, steam, compost, biogas all the project products are there, these products also we can get a lot of revenue by producing. These kinds of projects product like

RDF is also one of the product but, now see, remember that because these also a perfect amount of fund is possible to generate.

So, we need to have correctly technically designed these treatment processes. So, whatever the product is getting generated, that could be sold into the industries or in the local areas and get a lot of revenue from that. Also, they can get the tipping fee from the private sector as another source of income, and this fee may be prescribed for large waste generation for processing and disposal of their waste at the landfill.

So I think this kind of tipping fee they will get it from only those generated will reduce a large amount of wastage getting generated like infrastructure company lot of c and d wastage even industries are under and were they are disposing the waste so on that way even these tipping fee can be generated in the festival season in India also like there are several marriages here in India and in that case also they can get the tipping fee. So, I will give one example like to book one particular marriage hall you are paying 50,000 rupees.

So, a lot of waste is getting generated, and this waste has to be collected by the local authority. So, what we can do here like rather than 50,000 that, this particular marriage hall will take 60,000 rupees charged and that 10,000 is for waste management. So, likewise, that 10,000 will get it to the local authorities now, as a tipping fee because then some amount of the fund will be required to collect waste and disposal. So, by that way, we can get some money or some kind of revenue. We can get it for the Solid Waste Management Program.

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So, this was one of the news like trash collection to cost more from September 1.

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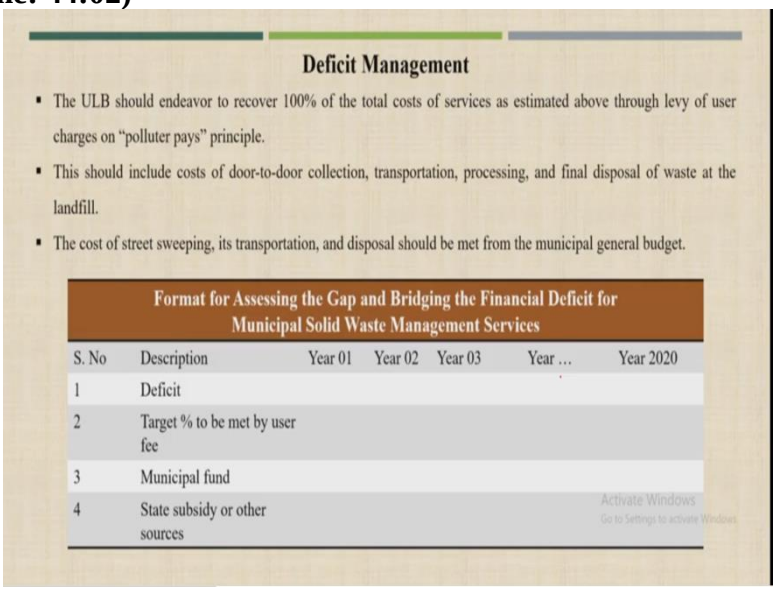

Deficit management is also essential like you should endeavour to record 100% of total cost of service through levy of user charges and polluter pay principle. This should include the cost of door to door collection, transportation, and cost of street sweeping. So, we can calculate the gap and bridge the fiscal deficit for the solid waste project so; once you know the proper depreciation. We can consider, or you can extend the revenue generation for the project.

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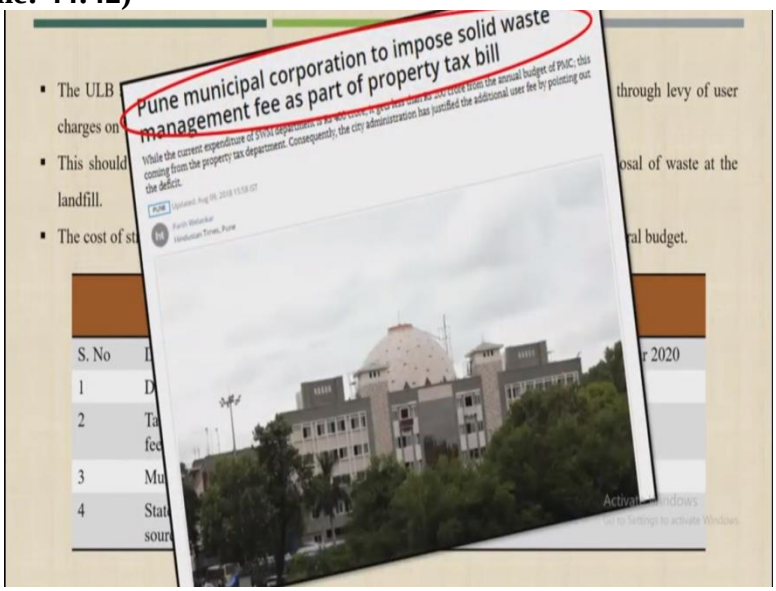

So, like Pune municipal corporation to impose solid waste management fee as part of a property tax bill, I think this is what I believe when calculating the deficit and managing it. So, they started the impose the solid waste management fee in the property tax.

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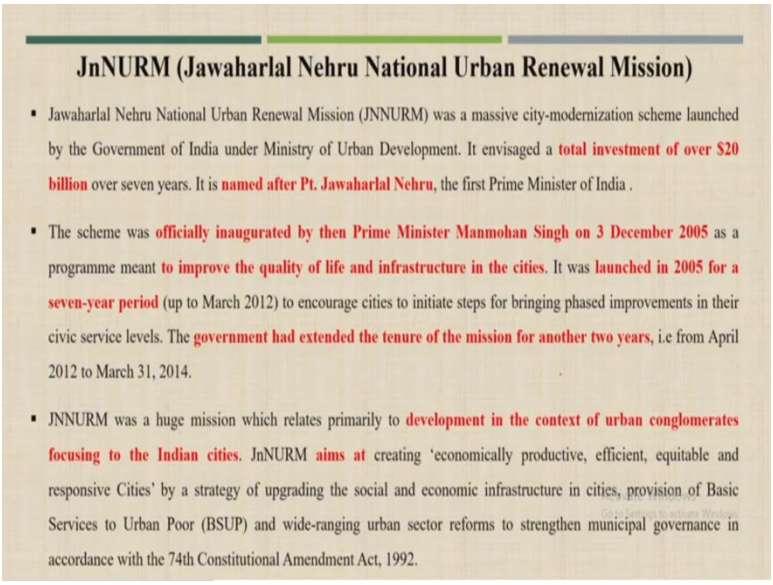

And also, think just a few slides I put in for the JnNURM program Jawaharlal Nehru National Urban Renewal Mission. So, this is their massive city-modernization scheme launched by the Government of India; it envisaged a total investment of about $20 billion or seven years. I named as a pt. The previous Prime Minister officially inaugurated Jawaharlal Nehru, the first prime minister, and the scheme and in 2005 to improve the quality of light in life and infrastructure in the city.

So, history started in 2005 for seven years; we are up to march 2012. And also, it is extended tenure admission for another two years up to 2014. This was the development for the context of urban conglomerates focusing on the Indian city

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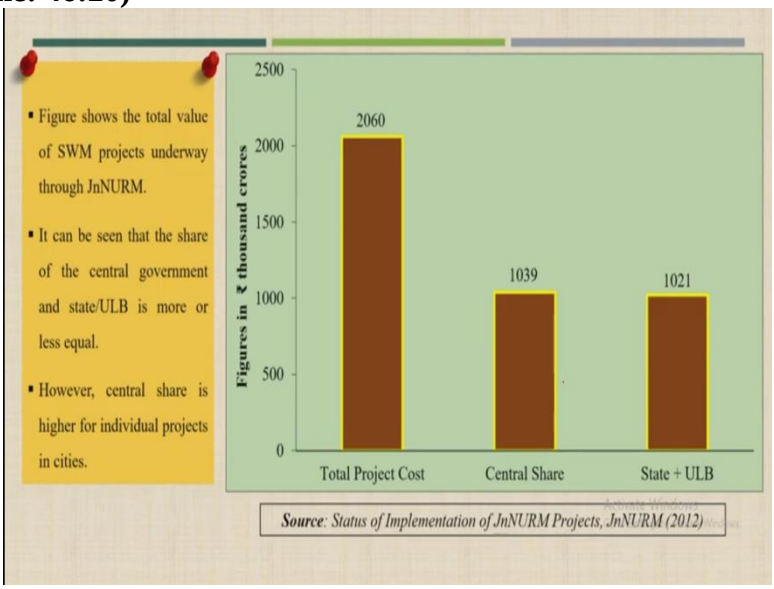

And this was the fund like total project costs was this is 1000 crores like 2060 1000 crores. So, this was the share like 1039 was the central share on state and local authority was 1021crores. So, it can be seen that share of the central government state a state you will be is more or less equal almost; however, the significant percentage is higher for individual projects in the city.

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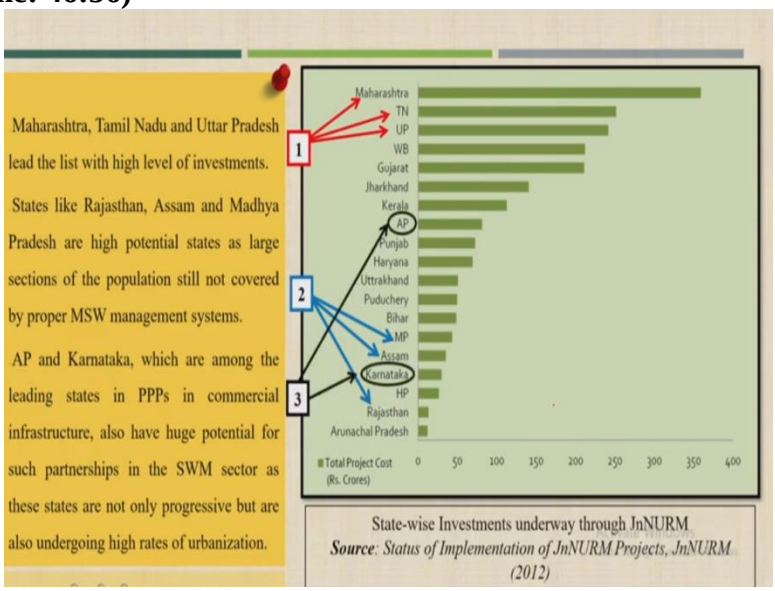

And this was the few data like Maharashtra, Tamil Nadu, Uttar Pradesh was the significant states which have a higher level of investment under the scheme and states like Rajasthan, Assam, Madhya Pradesh, high potential state at a large section of the population still not covered and AP Karnataka, which are among the leading state in PPP in the commercial infrastructure, the and also massive potential for such partnership as SWM sector as these states are not only progressive but are undergoing a high rate of urbanization. So, you see here; these are less amount of investigation in less amount of investment.

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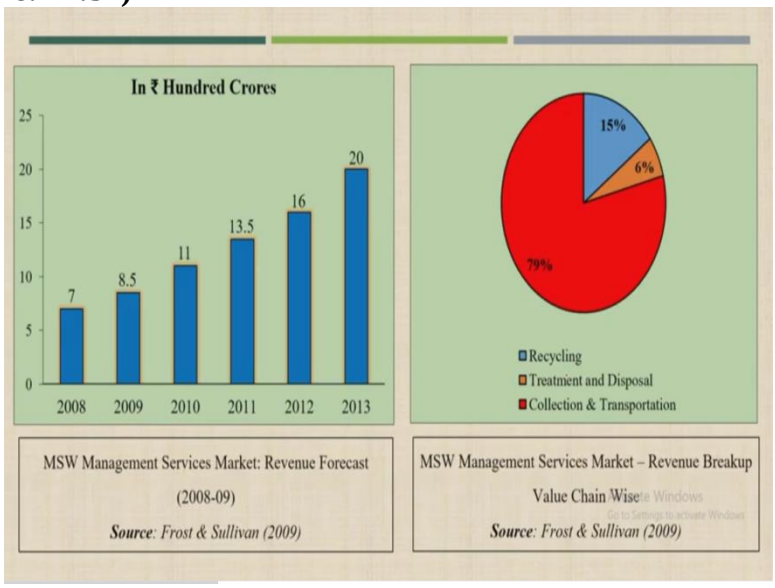

And this also by a yearly how much 100 crores was put it for the projects. So, mostly the 79% for the collection and transportation into mobile 79% of cost only 6% for treatment and disposal and 15% for recycling. Because see, that was in 2005 our collection was very poor. So, there are a lot of funds has been utilized for the collection transportation.

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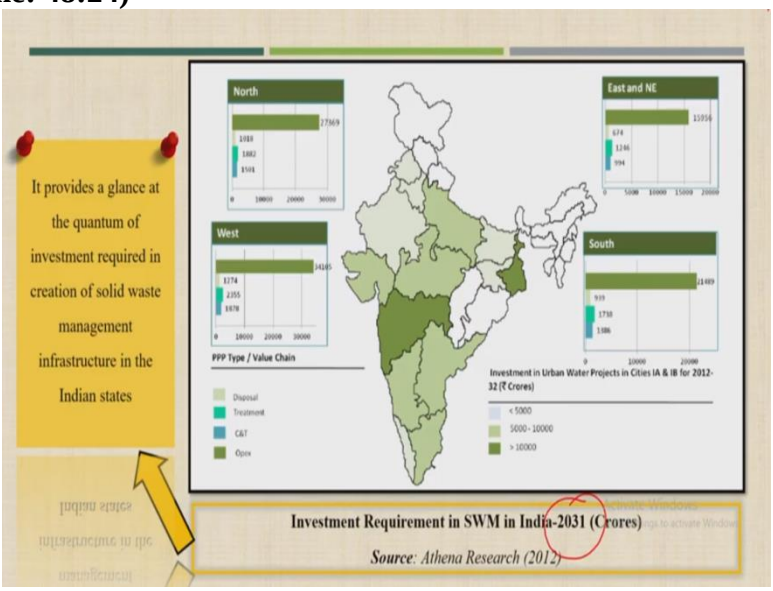

And this is what now, one particular slide you can see here, is the investment required for the SWM projects in India by 2031. So, you can see here that the north part of India requires a huge amount of money like similarly waste east and northeast and south. So, how much crew amount of crores. So, take the example of North like 27,369 crores will be required amount of money will be required for epics cost and similarly for the treatment disposal will be required huge amount of money.

It provides a glance at the quantum of investment required in creating solid waste management infrastructure in Indian cities. So, this Swachh Bharat Mission also need to be extended, and every year, you have to create a particular kind of fund, whether from the Central or state government and create the facilities in the each you will be of the country.

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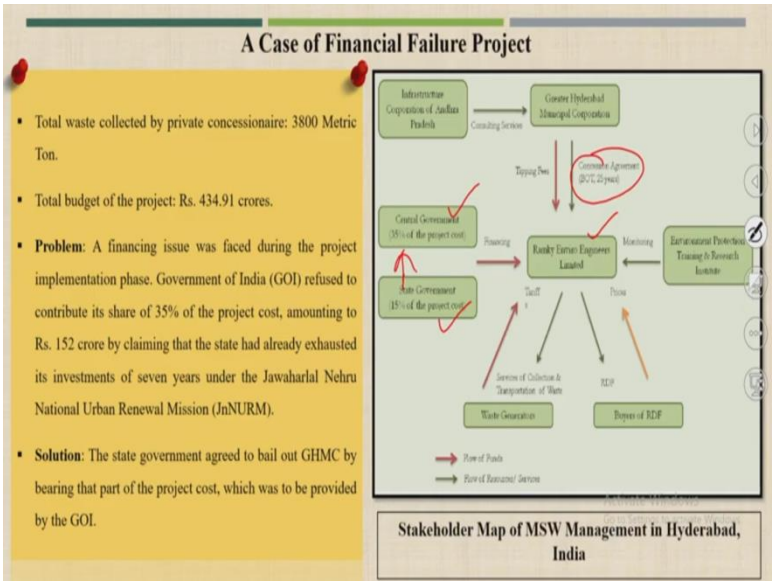

This is one case of financial failure projects. So, this was for Hyderabad because Hyderabad, as I was telling in this slide, like Andhra Pradesh, was among the leading state in PPP projects. So, I think you can see this particular flowchart; this was the 1 private company working along with the more excellent Hyderabad Municipal Corporation. This was a PPP project under the beauty mode and concession agreement for 25 years.

In the next class, the beauty I will explain, like build, operate and transport these that one kind of particular program under the PPP. Under was the crucial central point was that the funding was 35% from the central government and 15% from the state government. But what has happened? This was a thoroughly very good flowchart; you will see that even the sustainability and tariffs for RDF the I think that money is getting generated.

Now, our revenue was getting generated under the project, but, what has happened as a total waste collection was 3,800 metric tons total budget of the project was 434.91 crores, the problem was that a financial issue was failed during the project light implementation phase government of India refused to contribute its share of 35% of the project costs are counting to rupees 152 crores by claiming that the state had already exhausted its investment of 7 years under the JnNURM scheme, see, which I was sharing that the actual money has been utilizing under the JnNURM scheme by the state.

So, then why this particular state is required the why they needed money from the central government? Because of that, around 152 crores rupees, they are not ready to pay. So, because

of what the local authority or state has adopted solution, the state government agrees to bail out the greater Hyderabad Municipal Corporation by bearing that part of India's projects.

So, these state government paid this 35% of total costs. So, altogether 45% of the total project cost was taken up by the state government. In that way, it was run the entire project. Now, that was actually of someone of the failure. But after that is one of the successful projects has been done in Hyderabad.

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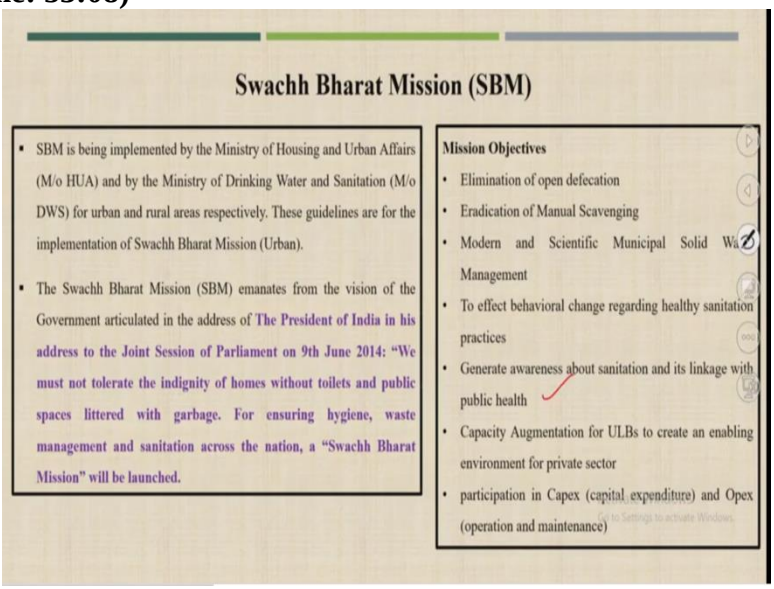

And now for Swachh Bharat Mission. There are some data about that like this has been launched in June 1914. The objective was not only the Solid Waste Management but also the elimination of open defecation eradication of manual scavenging to currently open defecation. Many states announced that they are free from open defecation, and the human manual scavenging has also been removed. And they are one of the tasks was modern scientific municipal solid waste management generator awareness was that one of the missions of this particular scheme.

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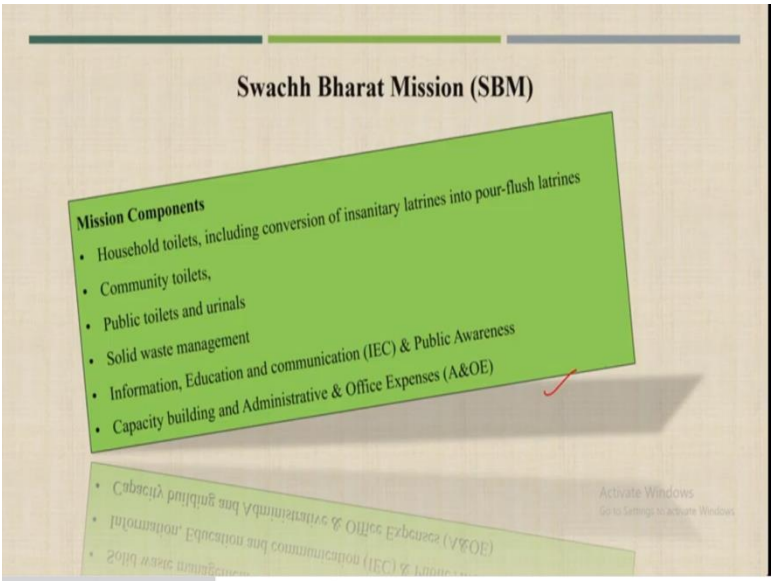

So, mission components were constructing household toilets, community toilets, public toilet Solid Waste Management, and capacity building.

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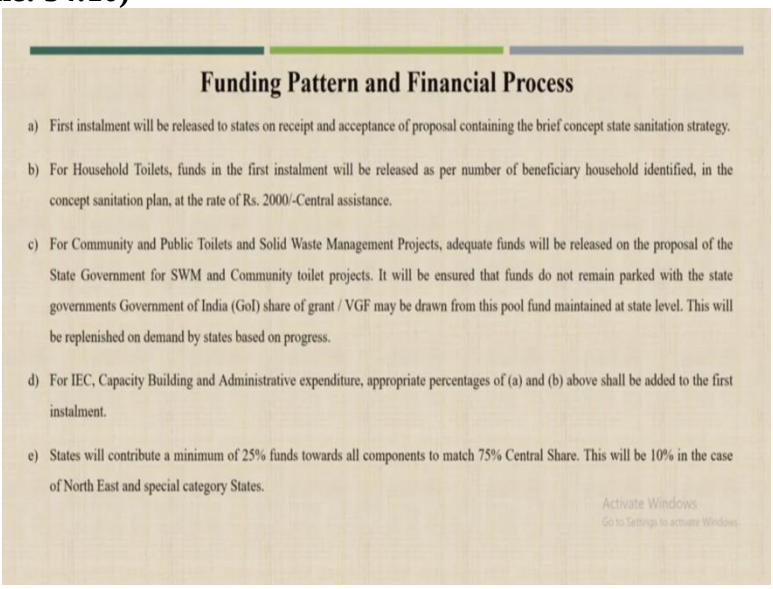

So, the funding patterns like the first installation will have released to the state and constructed many toilets under conditions is typically contributed 25% of fund towards all components to match 75% from the foreign central chair. So, under Swachh Bharat Mission.

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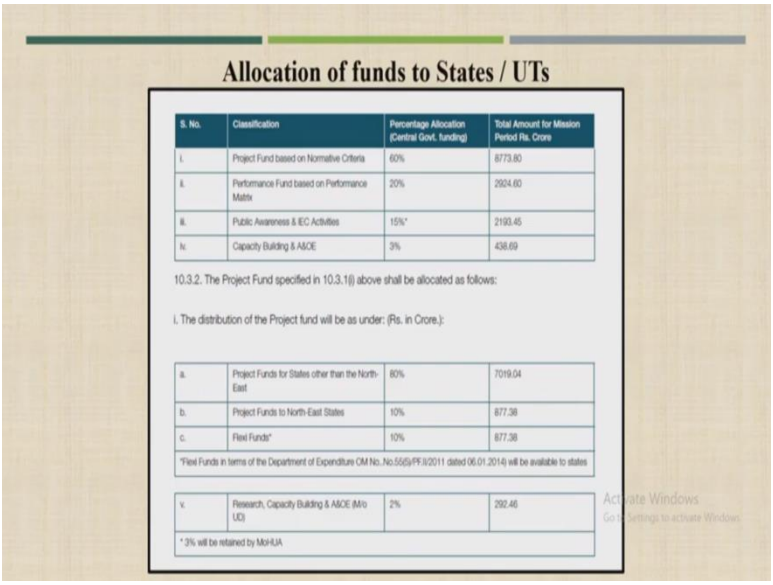

Now allocation of funds to state typically for to the states or union territories from the central government like for project fund based on normality criteria performance fund based on performance matrix, public awareness for a capacity-building like 60% 3% is for capacity building these the crores of fund I think based on this particular classification, the allocation of funds to the different state states or union territories the central government will provide.

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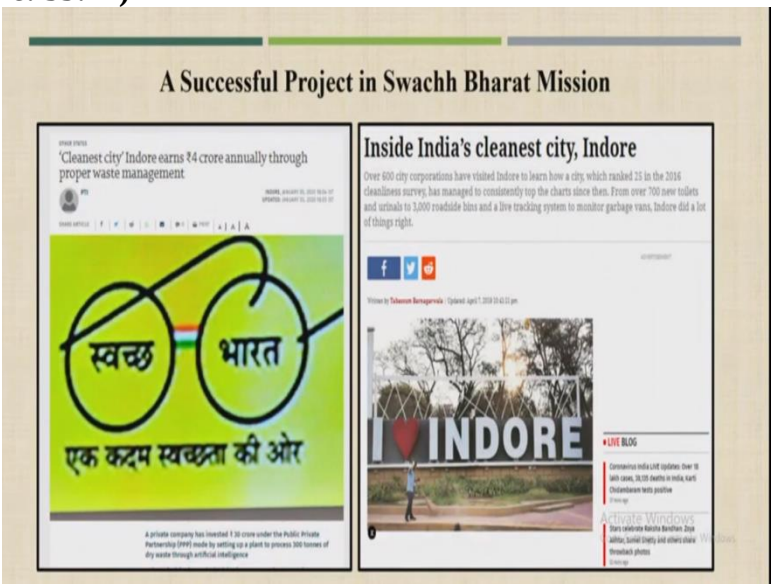

One of the successful projects you know is Indore, a successful project under the Swachh Bharat Mission. So, in one of the modules, we have seen what exactly has been done to clean the particular city. Even in 2020, also successive fourth year, it comes up to the cleanest city in India. So, I think their financial sustainability also needs to be checked so that any city can be a successive without finance, so it is an important one. So, here do you understand how the corporation the local authorities could be financially sustainable.

Now, one significant discretion because, of all the discussion, it has come out that the centre of state government cannot fund the particular projects for the entire design period for 20 years or in the future. So, it is good to have private participation. So, this private participation is for the funding and delivery because we believe that product delivery is far better than the person from the remote participation.

So, now these PPP projects need to be discussed. So from the following lecture, I will talk about public-private partnership. First, I will discuss the basics of this PPP. I will give some particular case studies from PPP projects, whether they are success or failure projects. Thank you.