agMOOCs
Land Degradation: Soil Salinity
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What is happening is in the name of development in the name of more production what we try to do is we put more resources into the system, into the cropping system, either the cropping system is not able to consume all and it creates some amount of emissions or omissions. So that leads to some land degradation over a period of time. And that is what the land degradation means, the existing fertility condition are poor and that is what we are trying to see here.

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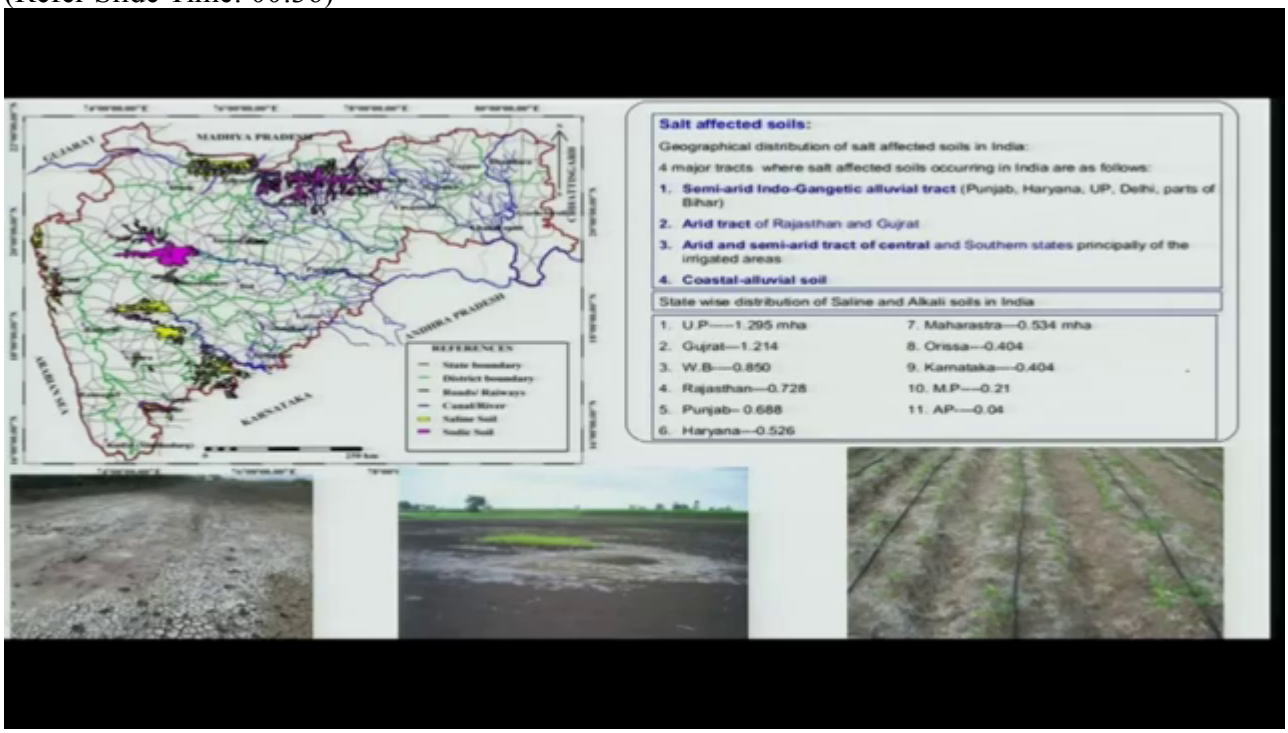

One such land degradation process is the soil salinity. The soil salinity, there are two types of -- these are all the soil encrustations which you are seeing, able to see, which are surfaced out on the land and this is the salt encrustation which you see it in the sugarcane area. And this is the area where the salt encrustations are seen even along the drip irrigation kit. Now what you are able to see if this is the salt encrustation. They are the salt encrustation, either the soil itself is bad are the water quality which they use it is bad or there is a totally irrigation that means totally saturated amount of water is given so that the salt from the subsurface they come on to this area.

So now, where are these salt affected areas, which are available is one thing is if it is a irrigation is more and the salt has to come up when the soil is in a good quality. That means that is what is called as a irrigation induced soil salinity, whereas in other areas where the soil itself because of the natural formation itself where the soil quantity is more that is the natural system. And there are areas where irrigated water quality is different. So they have got a different varieties where the salt encrustation can happen. But in total the salt encrustation make the land not productive that much productive when compared to the without a salt encrustation and they are all found in places indo-gangetic plain, coastal alluvial plain then central southern area, central southern state, Rajasthan and Gujarat and these are all the

number of hectors wherein they are affected. And many of them in this Maharashtra area, they say it is a irrigation induced to salt salinity because of sugarcane activity. Now, so these are all the soil salinity affected areas in the Maharashtra state which we will be able to see.
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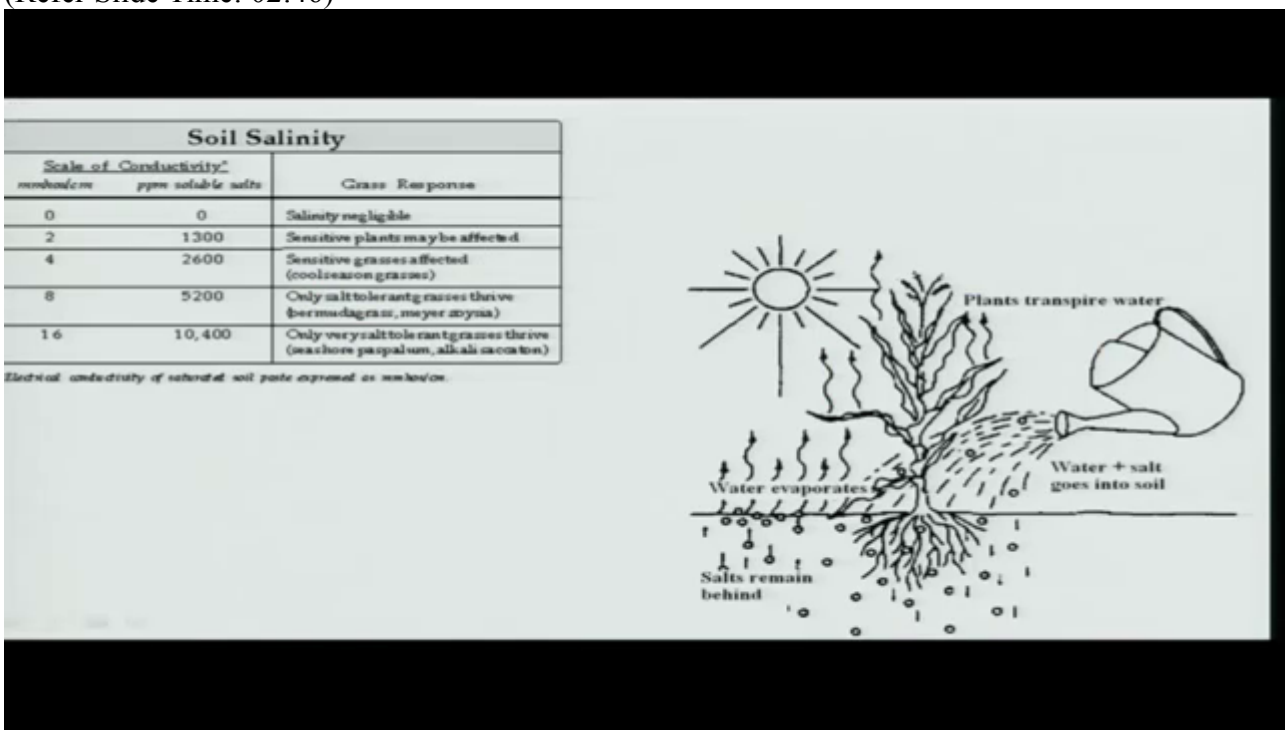

Now what is the soil salinity is? Suppose if the salt content is more than like this which will be conductivity that is the way we will be able to assess and then if it is more and it is salt affected and salinity negligible zero, if only salt (inaudible 00:03:08) it's very high only few things can survey over there. How the soil salinity develop? Now you give water. Water per salt goes into the soil. Salt becomes – it get stayed back in the subsurface, because of the evaporation all these salts are there taken up and they get encrustation and after the water gets evaporated salt get encrustation on these sides. That is how salt salinity gets developed in a sense.
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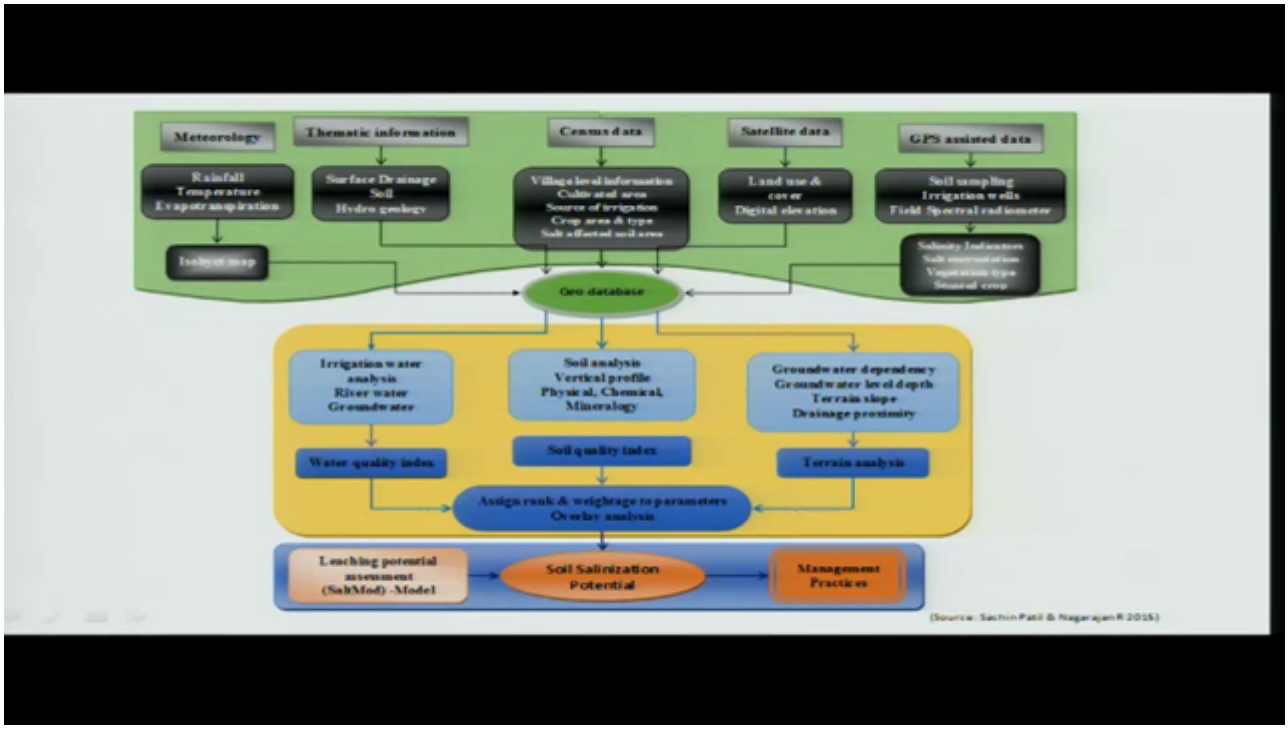

Now, how do we do this type of study is; first to identify the different conditions; meteorological, thematic conditions and other information. Then you try to create a database using the JAS mode. Then you try to find out about the irrigation water quality, then you try to talk about the soil analysis in a particular area vertically as well as horizontally, then you test the groundwater quality and the groundwater amount dependency; that is nothing but how much ground water they use it for the cultivation purposes.

Then second thing is how much is the salt leaching potential assessment method which will tell you suppose if you over irrigate like flashing of salt, so which water is there, what do you give and how much it will be the salt which will be removed from a particular place that is what this leach assessment is done. Then what are the management practices which you should do that either how do you reduce the salt concentration is mix it at some other material where it is without any salt salinity, that is one way. Or flush it out is another way and allow things to do it natural way or leave it as it is. That is how it is done.

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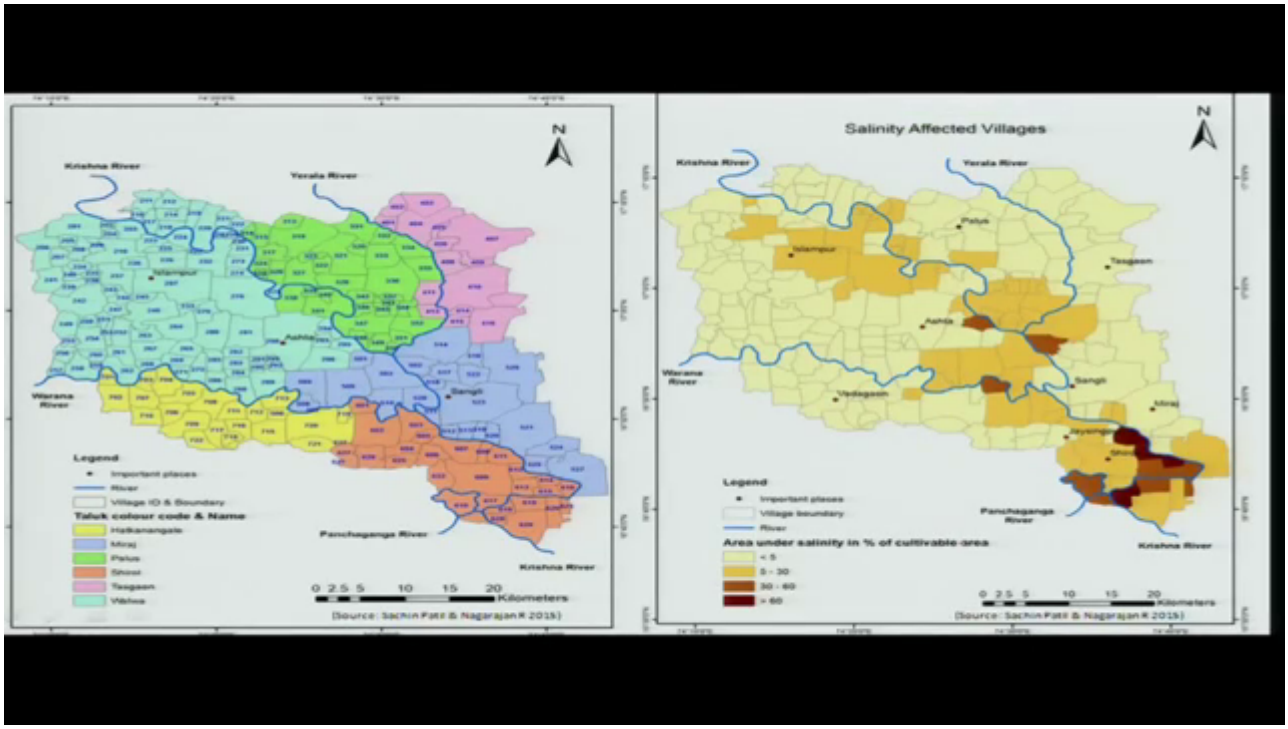

And this is one such situation where see there are three or four rivers, these are all the rivers; Krishna, then these are all the rivers and these are all the villages; and these villages have developed some salt salinity in this village 60 -- more than 60 percentage of the cultivated lands are affected by salt salinity, whereas this is also salt salinity. Whereas in this case what is happening is and this is in a moderate scale; in this area what has happened is sugarcane is the major criteria and irrigation water is good because of they use the river water and still further the practices that has made the soil to be to undergo create soil salinity situations. So now as it is a sugarcane and nobody wants to leave it up and everything it goes on continuity.

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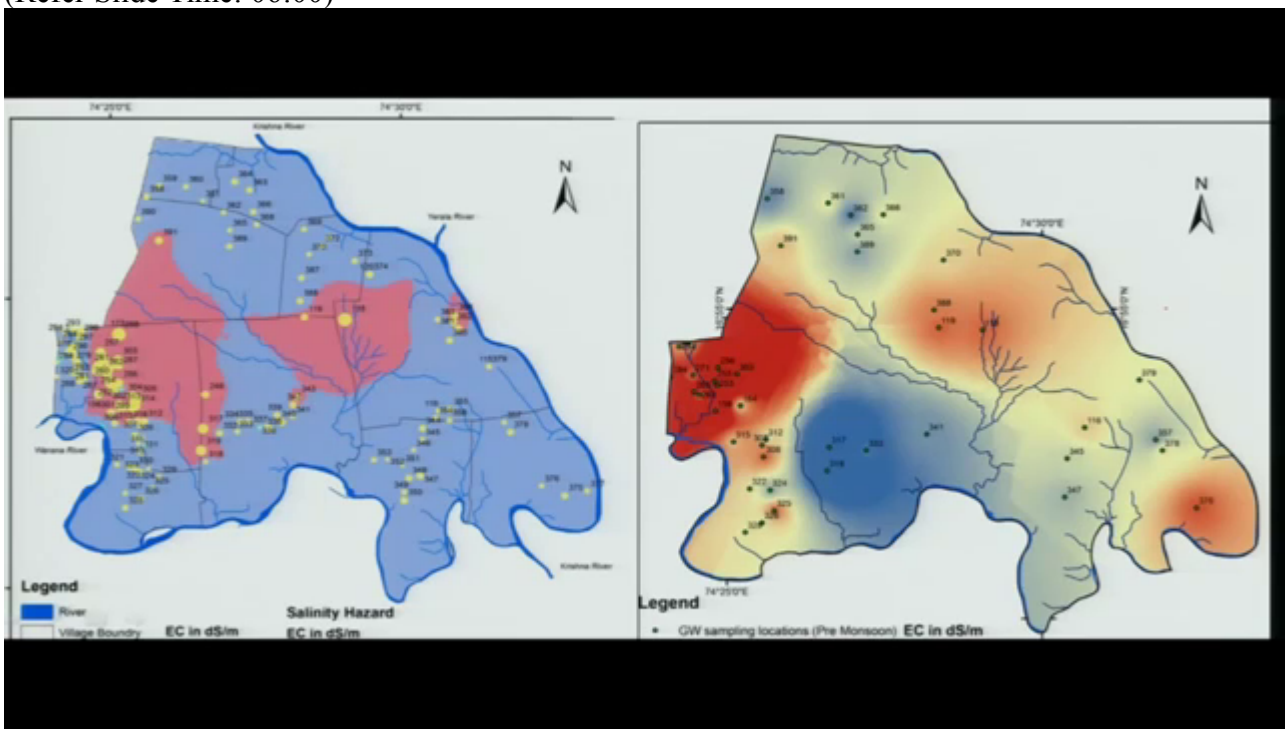

Now what is done here is there are points, the soil is taken surface as well as subsurface areas and what is the electrical conductivity which is measured, how the electrical conductivity is spread out and they are concentrated in this type of activity very high, whereas the rest of the area conducted soil salinity is less.

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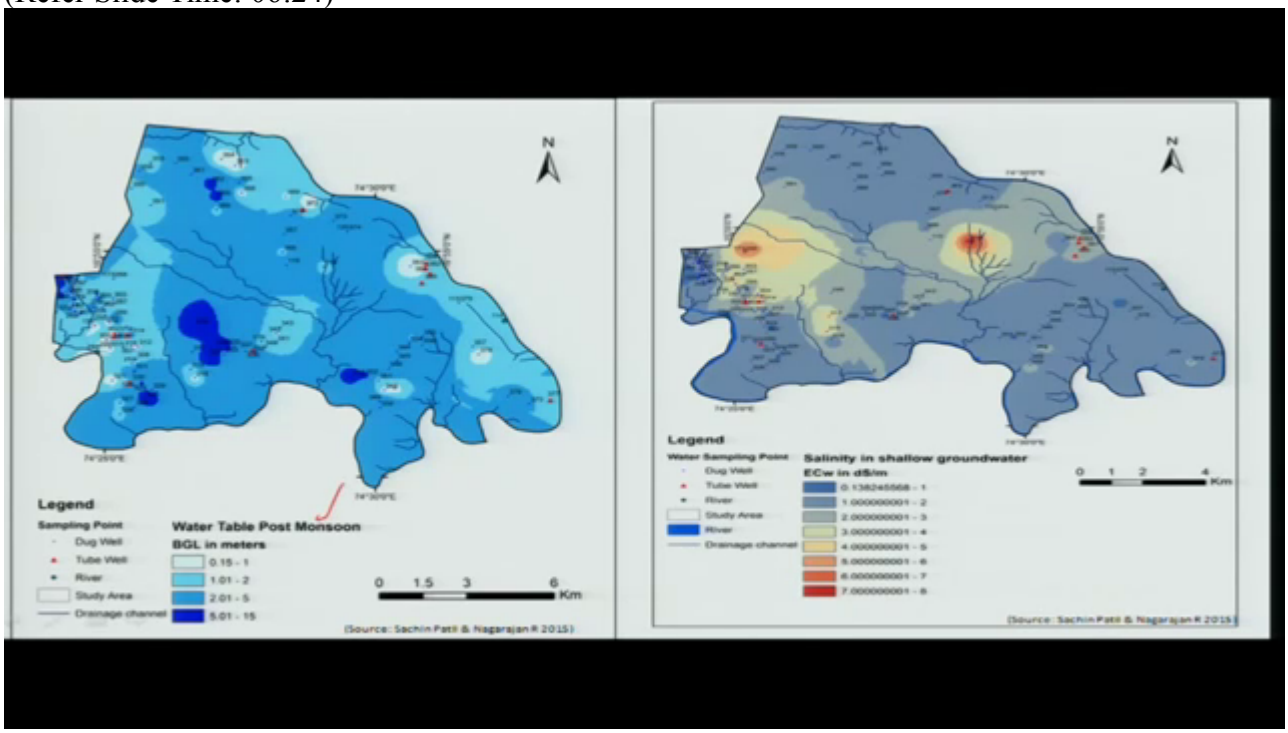

Whereas another issue which comes out with this, water-table fluctuations, say water-table when it comes up to the area, so there are places where there is going to be some water fluctuation is very high. When the water fluctuation takes place the salt mixed water, salt dissolved water, they try to come up and then it gets encrustation, that is also possible in this area. In shallow groundwater that is nothing but it is open dug well. Open dug movement of salt from the ground, from the soil towards the open dug well is possible as an infiltration like – it is like agriculture return flow activity. So then the initial stages the salinity is less whereas as you grow towards the summer then the salinity content goes on increasing. So that is another observation this has been made.

So this unless we try to take some precautions, what will happen is that entire plant area will be, the region will be affected by the salt soil salinity and which may reduce the crop production and especially if you are using a sugarcane as a cash crop area then your productivity is reduced, the land becomes useless or not useless, it is of a limited use to you. So that leads to agriculture productivity. So what is need to be done is the causes of soil salinity that is taking place in your area it could be a practice it could be materially you use or it could be a soil that is done. So identify and try to arrest it here the earliest by using different management techniques which are available, so that the land is safe for future years. Thank you.