Water Storage & Water Availability and Release
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This section talks about the storage and how best it can be incorporated in the planning of agriculture produce. So this can be done either in the form of a small watershed or it can be done in the major river basin scale and in the river basin scale what has happened is even though agro-climatic zone is same and water availability varies from one place to another place and as well as the water demand from an individual sectors varies from another place the water quality issues may be there and if it is going to be irrigation. If it is a command area where that is cash crop activities are more.

So there it is expectation from the water distribution sector is very high. So once is basin analysis is given it to you how the basin as a basin how this water availability storage information is more important this is about eight cut a proper region somewhere in the part of the Krishna River so this starts from here. This is the catchment area and this is the command area where this reservoirs; they supply to this entire cropping area. So now what is happen is we are interested in what is the rainfall distribution of this. So that how the reservoir will be filled up and if a particular given a particular rainfall how much water will be stored here and what will be the continuity of water release water release is more important for this agriculture group and depending upon that then if the supply is going to be continuous uninterrupted then there is no need for the supplement irrigation like a groundwater purposes whereas if the probability of storage is very less depending based on the rainfall data or a weather data then I may have to focus on my activities, focus on my creation of a infrastructure for a supplementary.

So this can be done by combining meteorological information, terrain information. So now the in addition to that what is happening is and our water infrastructure what is meant by water infrastructure available in these things there are reservoirs, there are ponds and lake, there are canals. This; see now depending upon the construction weather how old it is if it is a older reservoir older means maybe about 40 to 60 years old; the probability of a sedimentation is very high the storage capacity of the reservoir is less. So that they may not be able to store enough water as we anticipate and as we have planned for the agriculture down similarly the case if it is a pond or natural pond as well as lakes created and the storage volume is going to be a great importance.

Now if it is going if you are the area is going to be on a canal canals normally canal sections there is lot of seepages water losses either a man-made or man induced water losses are the physical condition based physical losses are possible the aquifers are also important the crop area and crop type so normally in a progressive area what happen is that there is a suitable crops for the particular agro-climatic zone is one thing but for us for a developmental purpose that our cash crops are there which are coming up in which there is a shift over to cash crops which are not suitable for that particular agro-climatic region that leads to certain hard woods and other certain unwanted things get happened because of the production losses.

Now what is in this areas what we are interested is we are interested is what is the water availability in a particular region then what is the groundwater fluctuations, what is the water requirement then what is the availability, what is the requirement will that be a supply deficit, supply deficit in terms of quantity supplied distribute in terms of distribution problems. So that is of a concern and this concern is of a present-day concern but if there is going to be a rainfall and temperature variations and what are the additional water requirements that are it is likely to happen and is there a need for creation of more water infrastructure or water usage facility these are of major concern and classify them based on the sub-basin wise weather is there a water infrastructure need to be improved or need to be created that is the type of things which is being done in some portions for a large-scale crop production activities we take from the rain gauge stations, we create the decent polygons and we take the rainfall uniformity purposes and the rainfall trend when these places what it does it certain areas you have the rainfall trend is increasing certain areas there is a decrease in the trend; rainfall trend is down.

Now how do you do that is you have the digital elevation model that shows about the thing what all does this slopes they will tell you about which are the areas potential areas for more agriculture when compared to the rest of the area this is about the geology that is for the aquifer purpose, this is about the soil one thing is for the infiltration studies as well as it is used for the suitability of crops. Now, the second thing is even though we have a rainfall data from 1975 to 2009 but there are certain ups and downs variations which has been recorded in the past but how best it will be able to show it in these areas is really an important question.

Now what are the different climatic zones which you will be able to say that is this is a humid region. This is drier regions, this is in between regions and now when you consider it here; you have to consider it as a humid region as a zone this is as a semi-arid to arid type of regions for our climate change. if it is here then the humid region; there is a probability that rainfall intensity short rainfall intensity may vary whereas in the other areas in the semi-arid regions there is a prediction for temperature increase. If there is going to be a temperature increase then the water demand will be more, water losses will be more. So we may have to give additional water to keep up the planned activity.

So that is this part of the region there is a lot of variations, there are lot of drought events have been predicted experience. So standardized precipitation index is one method which will tell you about what would be the potential drought conditions after three months, six months and 12 months. So there are some of them are if you look at the extreme drought conditions there is three months they do not show anything whereas over a larger a period then there is a extreme drought conditions are possible and similarly the severe drought conditions they are all in the southern portion of the basin is possible whereas the moderate conditions; they are there in the middle area range between the humid and semi-arid region. So this type of one thing is what is the probability of a drought area; drought situations is a one way which will be able to plan our activities as a standby material. Now when you are talking about agriculture production from a large basin scale the information what we are interested for the agriculture development is one thing is do we have enough the surface runoff water

availability is or first thing. Second thing is do we have if the water float happens during immediately after the monsoon do we have enough storages facilities if so what is the condition of the storage facility, how much storage facility which we can expect now onwards that means one thing then second thing is what is the groundwater potential which can be used as a supplementary irrigation then fourth one is about how much is the crop area and crop type variation which you will be able to see that.

So all these parameters and there is going to be climate change in this area what is the maximum temperature or what is the maximum rainfall which you can expect it from here. So that we will have the options for cultivating things either advancing the cultivation process or delaying the cultivation processes. So that the water is available for the crop production so whatever the cropping decision which farmers are taking it are the agencies are taking it or having the right kind of basic support. Thank you.