

Watershed Management

[UPSC Notes]

What is Watershed Management?

Watershed Management is the rationalization of the water soil resources, which can be used in the future for our future generation; Watershed Management is the best way which can help to protect our environment and help to meet our environmental goal to meet our end future needs.

- It is an independent drainage unit for surface water that got affected vertically by humans and horizontally by water; It is a biological, economic, and social system separated by a water divide.
- Watershed Management is the best way to use water and other resources correctly. Watershed is the best way to secure the resources in the best possible way for future use and helps improve the quality of the resources.

The principle behind Watershed Management

- To utilize the land to its highest possibility and capacity for various resource management.
- To conserve rainwater and make the best use of it as possible.
- Draining excessive water from the surface area to divert it to other sources of water like the river, ocean, and ponds.
- To identify the suitable cropping pattern for agriculture, which can increase the efficacy of agricultural land to crop a wide variety of crops and maximize productivity.

Objective Of Watershed Management

Nothing is done without a purpose; the same way Watershed Management is adopted to accomplish some objective had its objective which authorities want to accomplish through Watershed Management.

Soil and Water Conservation

- The Main objective of Watershed Management is to conserve soil, water, and other resources and use the systems for groundwater recharge.

Stabilize the Economy

- Another goal is to stabilize the economy by adopting various agricultural methods to improve the chance of creating multiple sources of income from one field.
- More methods in agriculture and cropping can give more chances to farmers to build multiple sources of income from one domain.

Support to Farmers

- To improve the income by providing support, Watershed Management is the type of support to farmers' communities funded by the government to support their income and make livelihood easy.

Ecological Balance

- The Most important reason is ecological balance; it is the best way to maintain the right ecological balance in the environment through the right use of resources.
- It also gives chances to discover various land systems which can be used for the safe use of land.

Develop Infrastructure

- It helps to improve the infrastructure of agriculture with the improved way of marketing, storage, and transportation. It can contribute a lot to improving the overall infrastructure and boosting productivity.

Types of Watershed Management

There are many types of watershed systems, but the main 5 are mini, micro, milli, Sub-watershed, and Macro watershed; Watershed system is distinguished based on drainage, shape, and land.

- Macro watershed (> 50,000 Ha)
- Sub-watershed (10,000 to 50,000 Ha)
- Milli-watershed (1000 to 10,000 Ha)
- Micro watershed (100 to 1000 Ha)
- Mini watershed (1-100 Ha)

Integrated Watershed Management Programme(IWMP)

The government of India has played a very important role in promoting Watershed Management in India, as its benefits are endless; here, we'll talk about IWMP, which the government of India implemented to promote Watershed Management.

The ministry of rural development implements this program to cover the huge area under Watershed Management, around 55 million of land, by 2027; this program was implemented in 2009-10.

- It is considered the second largest water management program by the government of India after China; this program is confined to India and many other regions and countries.
- This program is implemented in all the states of India and is funded by both center and state governments. Both governments have promoted the program extensively in various parts of India with the active participation of the people.

As a result: It can prevent soil runoff due to rain or other issues and regenerate the soil for wide cropping; it also promotes harvesting and recharging groundwater. Watershed systems provide opportunities to practice a wide variety of cropping practices.

Other Initiatives By The Government for Watershed Management

Some other initiatives taken by the government are as follows:

Haryali

- It is executed by the gram panchayat, which the central government supports; through this program, the government tries to conserve water for rural people and their future use.

Sansad

This scheme is related to the construction of multiple water harvesting structures.

- Another initiative was taken by the Tamil government, which made it compulsory for everyone to do water harvesting, the best step towards water management, and to make people aware of such a scheme.

Importance of Watershed Management

Watershed Management in India is the best way to use the water and land resources; there is no doubt that such a system is a boon for our society; it can be proven in the following ways :

Improved water Quality:

- Water directly collected from rain is contaminated, which is of no use; hence, Watershed Management can help improve water quality, which can be further used in households, agriculture, and industry.

Managed and Increased Water Resources:

- Watersheds will help to enhance our water resources as rainwater is used properly, and going to the right place might add to the water sources.
- Many activities can contaminate the water and make it useless; this activity could be from humans, machines, or animals, so watersheds can help to identify such sources which are diluting water and making it worthless, while it also recommends how to tackle such sources.

Enhance Agriculture Productivity:

- Watershed Management increases agricultural productivity; it provides more choice to farmers by providing a variety of cropping systems which ultimately can increase the income of rural farmers and make the land suitable for further agriculture.
- It also helps to improve agriculture in drought-prone areas, where there are fewer chances of rain; in such cases, land can make use of the rain in another region and hence support the farmers in their livelihood, making their life easy.

Improve Economic Growth:

- Promoting agriculture helps to improve economic growth and help in sustainable growth; an increase in overall agriculture productivity means an increase in national income, 70% of income is generated from agriculture.
- It also helps to enhance the partnership among the stakeholders holding the Watershed Management project; Good partnership leads to better water and soil management.

Optimal Use of Waste Forest Land:

- It is the best way to optimistically use the waste forest land to generate livelihood, income, and jobs for many. Through this method, we can make use of land for various purposes, which can add to the country's economy.

Issues Related To Watershed Management

Although Watershed Management has many benefits and advantages due to some issues, it gives lesser benefits, and to gain huge profits; we need to tackle the issues to make these the best scheme.

- Firstly it has a very outdated approach accompanied by poor project design; due to lack of awareness and knowledge, many people do not know how they can make the best use of Watershed Management techniques, due to which we get lesser benefits from such best techniques.
- Due to a lack of awareness and knowledge, less attention is given to such a project, and the detailed work makes it an underachiever.
- Thirdly, due to government disinterest in such activities, they end up providing fewer strategies, plans, and policies, hampering the country's development.
- In this project, self-help groups are also less sustained, which gives another challenge.
- Although it is said that Watershed Management will make the best use of waste forest land, the process has not been initiated, and no forestland has been used for such a process which puts the question of government commitments to the environmental issues.

Future Of Watershed Management in India

To enhance awareness, we need to improve local partnerships and alliances with the government and people; proper knowledge and awareness is the best way to motivate people to participate in these techniques; People support will strengthen the capability and benefits from such management techniques.

- Aware citizens will contribute with huge public support to help improve the conflicts and increase the commitments toward environmental responsibility and projects by the government; it will also encourage people and the government to initiate more such projects in the future.
- Awareness and education are a must, but the question is how to do so, so the best possible way is through running various programs, forming advising groups, and awareness campaigns to increase the participation of people.
- Watershed Management helps to deal with the issue causing pollution and also addresses environmental issues; It is good to find what issues are causing the problem and how to take action; the pollution tackling technique within the particular time frame is

a must. In this way, it can help to reduce pollution effects on humans and other living species like plants, animals, etc.

- Another important thing to consider is its implementation; The way policies are implemented matters a lot, So it is important to implement such a program in a very dynamic and adaptive manner to make it easier for all types of people to adjust to it.

How To Plan The Water Management System?

It is very important to plan the water management shed before establishing it, and it requires some tricks and steps which need to follow to prepare for installment.

- It is very important to first familiarize yourself with the watershed system or type of system you want to deploy according to your suitability.
- Then establish a proper baseline of overall nature; when you know what you are establishing and why you can easily figure out the best place.
- Quality of the watershed matter a lot, especially if it is on a large scale, so quality is important for the improvement of resources, while after improvement, it is also important to measure the improvement to get a clear idea.

Steps To Follow While Planning Water Management System

- Invent and map the resources in the watershed
- Invent and map the natural drainage system
- Invent and map the land use & cover and map the soils
- Identifying the area of erosion, including farming and construction sites
- Identify the quality of resources in the baseline

Planning requires a partner, which helps to increase the support, and awareness among people, which will ultimately help to increase the likelihood among the people and increase the contribution in decision making; having more partners will help in improving the community and reduce conflict, increase the commitment to meet the environmental goals.