

## **Sustainable spring watershed management system in the Indo- Himalayan Region: Village community challenges and its planning approaches**



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## **Purpose of Sustainable spring watershed management system:-**

- I. Ensuring Sustainable spring water supply system in Indo- Himalayan Region.
- II. To ensure water security in the villages of the Indo- Himalayan Region.
- III. To enhance the livelihood standard of village areas of Indo- Himalayan Region

## **Challenges:-**

- I.The water source is located a little far from the settlement
- II.Discharge of spring is low during the lean period
- III.Spring is not easily accessible
- IV.No government water supply scheme
- V.Low agricultural output and income opportunity
- VI.Constant extinction of springs and spring fed sources
- VII.Drop in stream flow
- VIII.Increasing risk to Water Security with rising demand

## Structural Measures

- Spring Chamber :- It helps to store the water and discharge the surplus water in the nearest paddy field



- Dug out:- Surface runoff water store and percolates in to the Ground.



- Roof Top Recharge Pit :- If the recharge area fall under habitant area then roof top recharge pit is one of the alternative to infiltrate the rain water in to the ground .



- Contour Trench
- Afforestation :- Planting more sapling in recharge area increase the water holding capacity of the soil. Sapling of fruit tress , high value forest tree may encourage the local people to do more afforestation in the recharge area.



#### Non Structural Measures :-

- Awareness Generation Programme
- Formation of Water user groups (Spring Shed Committee)
- Livelihood Activities
- Employment Generation
- Operation maintenance plan .

## Approach used to address the issues:-

- ❖ Science-based assessment of springs and identification of recharge areas
- ❖ Community participation
- ❖ Good quality of work
- ❖ Good management and supervision of work done
- ❖ Transparency in project implementation and financial matters
- ❖ Support from external government and other agencies

## **A spring shed or spring catchment usually comprises**

- Several gully effected streams of different orders
- Forest and rangelands destroyed or in good condition
- Hillside farming area
- Low croplands
- Habitation areas (villages)

## Roof top recharge pit:-

- ✓ Roof top rain water harvesting is a technology for infiltrating roof top water into aquifers (before it is lost as surface runoff), and it is being used in houses within the recharge region.
- ✓ Because most corrugated roofs are sloping, gutters connected to the edges can catch water draining from the sloping roof.
- ✓ The PVC pipes function as a gutter.
- ✓ The PVC pipes are installed in the pit.
- ✓ The rain water may be simply conveyed into the recharge pit using these PVC pipes.
- ✓ Incorporating roof-top water into subterranean aquifers is a technological breakthrough.
- ✓ A pipe is also linked to the gutter so that beneficiaries can collect rainwater into their collecting chambers during the rainy season.
- ✓ And when their chambers are full, the beneficiaries fold and knot the pipe so that all rainwater collects straight into the recharging pit.

## Interventions:-

- Geological mapping of the village
- Recharge area demarcation
- Water discharge data collection monthly basis
- Water quality sampling and analysis of Water Quality data
- Formation of Water management committee and Water user groups
- Estimation and planning for recharge activities
- Recharge structures (earth works) construction and vegetative measures (plantation)
- Social fencing for recharge area

## Crop weather calendars:-

- ❖ Almost two decades ago, The India Meteorological Department (IMD) created district-level crop weather calendars based on typical weather and crop water requirements for key cereals, pulses, and oilseed crops.
- ❖ Later, IMD amended them by including current cropping patterns, soil types, and pest and disease growth conditions.

## Community based capacity building on water budgeting and water security planning:-

- The major goal of the water budgeting exercise is to urge the community to create their own localized water budget in order to achieve water security.
- Institutions must be allocated a clear role and duty for capacity building at the grass roots level.
- The most effective option is micro level planning through water budgeting, which will lead to water security.
- Water reserves must be planned for the long term in order to ensure sustainability through recharging.
- Ensuring availability from surface sources during times of water scarcity.
- Bottom- up strategy (responding to stakeholder thinking processes) – essential for gathering local knowledge

## Takeaways:-

- Public engagement will foster ownership and contribute to the long-term viability of the initiatives.
- Water resource restoration and maintenance should be an ongoing process, and local people should be taught to manage their resources.
- Water body restoration and repair can lead to increased water efficiency.
- Optimal use of the spring shed resources
- Strict surveillance and devoted agencies were critical to the program's success.
- Water storage and management are equally crucial, as is water availability.
- It has aided in the provision of food security.
- Bottom-up institutional framework aids in resource management that is long-term and successful.

## Conclusion:

- Significant rise in agricultural productivity, enhancing local revenue.
- Such practice brought water closer to the settlement and made it available when it was most needed.
- Reducing the amount of time it takes to get water reduces reliance on already scarce natural resources.
- Climate change adaptation and increased sustainability
- Provide additional time and better income opportunity for poultry farming, animal husbandry and fishery activities.
- Overall, the watershed's water availability has improved.
- The community was also encouraged to make better use of its water resources.
- This type of intervention and community engagement highlights the power of collective action and also serves as a template for future interventions and policies.
- The integration of ancient methods and current technologies aids in the alignment of technology to local requirements.
- Government schemes and training programs bridge the knowledge and funding gap for farmers, assisting them in achieving success.
- The backbone of every program is community engagement.