Ilkogretim Online - Elementary Education Online, 2021; Vol 20 (Issue 3): pp. 3517-3521
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.03.368

Rainwater Harvesting An Emerging Technology For Water Management In Hilly Region

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ABSTRACT

Rainwater plays a very vital role in the development of any country. With the sufficient rainwater, the production of crops increases with which the farmers are benefitted. But the rainwater gets wasted in hilly region due to insufficient storage and very high runoff. Rainwater harvesting is an important technique for making use of rain water. According to the survey, the major problem of the farmer was how to use rainwater. Thus, because of insufficient storage and high runoff, the rainwater which is not harvested is a wastage of water and this waste water drains through surface flow. The wastage of rainwater must be harvested, and this runoff water must be taken to reservoirs made for storage water and further be passed to the pipelines laid for domestic demand and other utilization keeping in mind, to minimize the delivery losses. This kind of rainwater harvesting could lead to an increment in the production of underground vegetables. This harvested water could also be utilized for the domestic use and could be consumed by animals too. In the hilly regions the roofs of the houses are provided with a slope followed by a roof water harvesting system. This roof water harvesting system is attached to a drainage pipeline. The disposal of this drainage pipe line is in the reservoir tank which was made for the storage of rainwater. This paper comprises of the various methods to be undertaken for the harvesting of Rainwater.

Key words: Rainwater, Rainwater harvesting, hilly region, storage.

1. INTRODUCTION

Production is the backbone of any nation. Food production contributes much in the development of any nation. In India most of the production comes from the planes, but hilly region also contributes much in running the economy. In planes, ground water can be another source of recharging the crops, but in the hilly regions rainwater is one of the major source. But due to very high runoff and high slope rainwater gets wasted. Due to this production level reduces to much extent. There were many problems that were noticed by the hilly farmers. Some of the major problems are given below. Availability of water for recharging there crops soil degradation due to which top fertile layer get removed Migration Illiteracy etc. Bringing in the example of Himachal Pradesh. As we, all know Himachal Pradesh is a hilly state. This state has plethora of problems regarding the conservation of water resources. It has average annual rainfall of 1670mm and most of which is received in the months of June-September. As the district is located in the hilly region most of the water gets wasted as runoff during this time. Due to this water scarcity is common phenomenon. Due to the scarcity of water, sufficient amount of water that was needed by the crops was not available, due to which the production rate falls. Another major problem was soil degradation due to which the top fertile layer was losting regularly.

So to overcome these problems watershed approach was adopted. The main objective of this program was the development of natural resources.

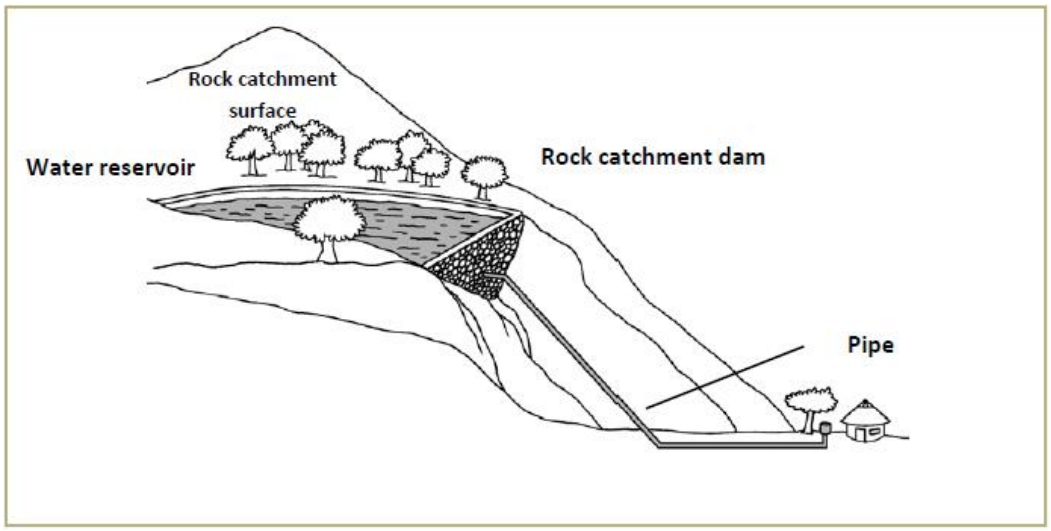
2. COMMUNITY ORGANIZATION

Any program needs some groups to run. Since watershed program is a huge program so it needs a huge group formation. In this program farmers were grouped together and each member of the group . Watershed management essentially requires community participation. Development and management (Natural resources) faces a lot of problems because of involvement of local civilians. An appropriate importance must be given to the peoples and wildlife because they under come this community. The involvement of these animals and peoples is essential for the accomplishment and succession of watershed program. Some subgroups are also divided for an involvement in entry point and other social activities.

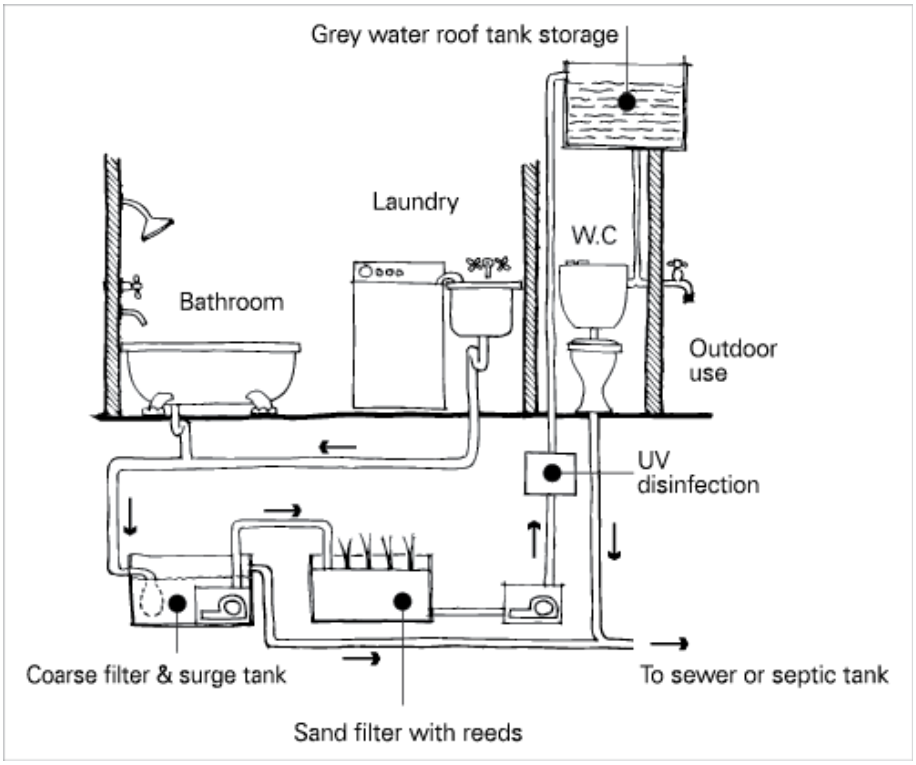
People who plays a major part must be aware of this watershed programme must be involved. To increase the involvement of farmers and peoples in this programme, they were motivated and were cleared about the facts and misconceptions running in their minds and were asked to join the programme.

So different water harvesting modules were developed for different sites after discussions with farmers as follows.

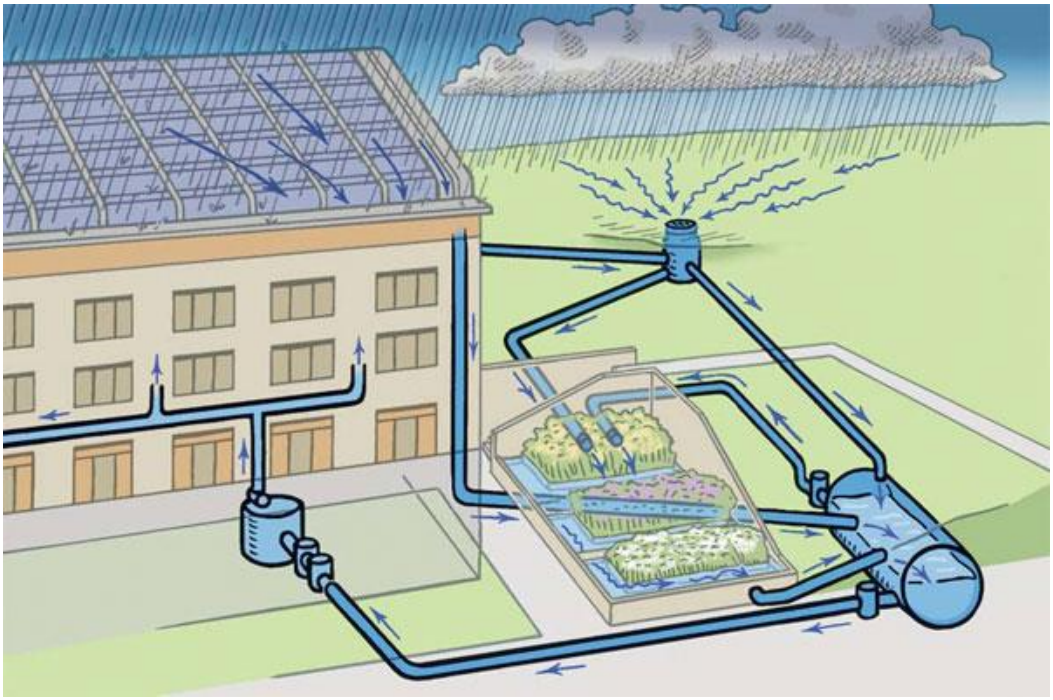
Module.1 Water Conveyance system (Base flow/Surface runoff**)**



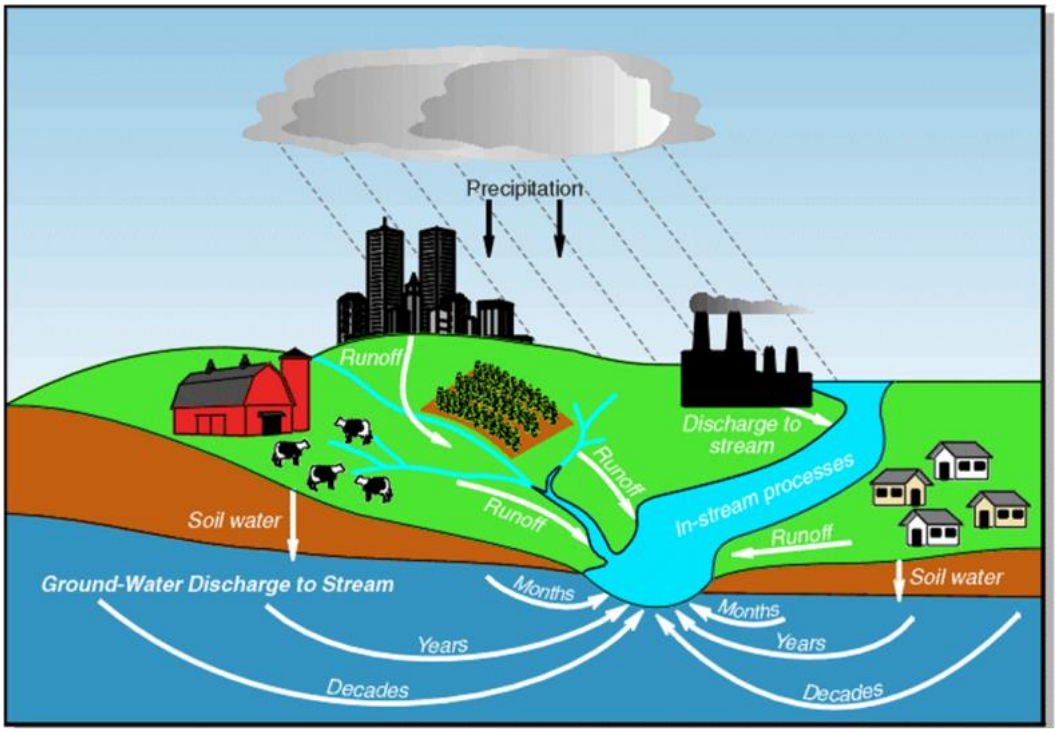
Module.2 Water Storage and Recycling system



Module.3 Rain Water harvesting and recycling system



Module.4 Runoff water storage and recycling system (Oozing water source)



Courtesy: http://md.water.usgs.gov

3. RESULT

The new techniques are brought in practices by the farmers and now they can utilize the irrigated water completely and it is also assumed that there is no loss of water. According

to human nature, everyone protects the things on which one has financed or invested. The farmers of the region charged their labor, their time for the construction of the project and the maintenance of the system. Everyone played a vital role and was equally important for the accomplishment of the project. The farmers developed their own water distribution system also, The tanks will be filled with storage water when it is suitable or mainly in the night hours. As per the irrigation requirement, every farmer will use their own plastic pipes for their field irrigation. To reduce the losses flood irrigation is brushed-aside. An appropriate amount is setup as the fee or operator charge. Fines are to be taken for the inconvenience caused from the members.

4. CONCLUSION

From the above paper a brief result is obtained that the rain water when harvested could lead to an increment in the cultivation of crops and an increment in the production of vegetables. It was also in sight that the harvesting of rain water either way will help the farmers and per individual too. By keeping in minds the aspects of water source , total area span , average discharge , families living in the area , working mode , material which was used in the project, estimated cost of project , time required for completion and share of each farmer the project could be started . These project details will help in the completion of project and the results in the production of vegetables and cultivation will satisfy the cause for the harvesting of rainwater.

Thus, a conclusion is made that the rainwater harvesting is a tremendous technique for the welfare of farmers and every individual either directly or any other way.

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