

Research Paper :

Evaluation of soil conservation structure in Shamwadi watershed

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ABSTRACT

Shamwadi watershed is located in Aurangabad district of Maharashtra. This watershed was developed by 'Dilasa Janvikas Pratishthan', Aurangabad. In silt deposition study, the data on the depth of silt deposited were collected. Small pits were made in impounding area of structure up to a depth of original ground surface at different location and average depth of silt deposited was measured. Area of silt deposited in regular triangles and rectangles. Volume of silt deposited at each structure was estimated by multiplying the area of silt deposition and depth of silt deposited. Weight of silt deposited was calculated by multiplying the volume of silt and bulk density of silt. The bulk density of silt is 1.3 g/cc. The total silt deposited in all 12 lines of continuous contour trenches was found to be 599.765 tonnes. Total silt deposited in all 12 loose boulders structures was found to be 30.99 tonnes, over the period of 6 years after the construction. Silt deposited in all the cement nala bunds was found to be 1190.01 tonnes, over the period of three years after their construction. The total silt deposited in all five earthen nala bunds was found to be 1880.90 tonnes over the period of 6 years after their construction.

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Soil and water are the basic resources essential for the survival of human kind. In India out of total geographical area 326.8mha, about 81 million hectare land is affected by erosion, in other terms, Out of net cultivated area of 185.8mha, 56.7mha land is suffering from erosion, either due to water or wind. out of these (56.7mha) 40mha, land is severely affected and needed immediate control measures. On an average soil due to erosion in the country is 16.4tonnes per hectare per year (Mittal *et al.*, 1986).

Watershed management is a single window integrated participatory and sustainable area development programme of a geophysical defined natural drainage unit of land. Soil and water conservation is a very important aspect of watershed management but in order to realize the highest benefits for the people, the other aspect like socio-economic situation should not be neglected. Watershed management indicates the wise use of natural resources within given geographical area so as to enable sustainable production with minimum hazards.

Therefore, watershed management is a holistic approach arrived at optimizing the use of land, water and vegetation in an area and thus providing solution to alleviate drought, moderate floods, prevent soil erosion, improve water availability and increase fuel, fodder and agriculture production on sustained basis. A watershed is the total land area above a given point on a water way that contributes a runoff to the flow at that point. In planning watershed development programme various types

of soil and water conservation works such as bunding, terracing, nala bunding, underground diaphragms, diversion ditches, vegetative waterways are taken according to the availability of site, location and land capability classification.

The conservation structures are an integral part of soil and water conservation programmes and important component of the watershed development and management programme. Conservation structures not only control the erosion and conserve water but also help in meeting the socio-economic demand in various ways. It is therefore, important to plan the watershed on sound technical knowledge to save the land from erosion and degradation, to conserve water and improve soil for maximum production in the interest of the nation as well as individual farmer.

METHODOLOGY

Shamwadi village is a part of Bakapur Gram Panchayat, located in Aurangabad District of Marathwada region 15km away from Aurangabad city.

Watershed development programme was implemented by Dilasa Janvikas Pratishthan, (NGO) Aurangabad and District Rural Development Agency (DRDA) under Drought Prone Area Programme (DPAP) a scheme of Central Government. Shamwadi watershed covered the area comprising of three hamlets of different communities with 800 population. The geographical area