

Vertisol Watershed Research in the Semi-Arid Tropics: Directions for Impact Assessment

P K Joshi *

M C S Bantilan *

The application of watershed management research in semi-arid tropics of India has been well researched at International Crop Research Institute for Semi-Arid Tropics (ICRISAT). The present paper is a review of watershed development technology and its benefits accrued to the farmers in the semi-arid tropics as reflected in the research work of ICRISAT. The paper focuses on the technology, as well as, the benefits flowing from the watershed technology as visualised in various ICRISAT studies. Apart from the analysis the paper draws a few lessons from the experiences gathered from the studies conducted by ICRISAT.

Rainfed agriculture in semi-arid tropics faces two major constraints for sustainable growth. These are: (i) water and nutrient stress, and (ii) degradation of natural resources. These problems are further aggravated with decline in the size of holding for crop production. Farmers of the Semi-Arid Tropics (SAT) dependent on rainfall are lagging far behind than those who enjoy irrigation. During the process of agricultural development in India, the dryland regions were virtually bypassed in planned development (Rajgopalan, 1991 pp. 242). These regions need special attention to: (i) improve the welfare of people dependent on rainfed agriculture, and (ii) conserve land and water resources in these regions which are highly prone to degradation. Another argument in favour of these regions is that contribution of irrigation as a source of growth in irrigated regions is now stagnating, and rainfed regions have considerable potential to increase agricultural production. To meet all these objectives the concept of watershed was introduced.

This paper is a review on watershed development technology and its benefits to the SAT. More specifically, the objectives of the paper are to (i) review the ICRISAT's efforts in developing the watershed technology in vertisols of the SAT, (ii) review the benefits of watershed technology, (iii) develop a framework in assessing the impact of watershed, and (iv) list some of the lessons from past experiences. The paper is divided into five sections. The first section briefly defines the watershed concept. The second presents the history of ICRISAT Vertisol Watershed research. Third section addresses some issues on impact assessment and discusses some benefits derived from watershed technology. The fourth section develops a framework for impact assessment of watershed technology. The paper concludes with some lessons and feedback for research and policy consideration.

Watershed

The concept of watershed approach is not new. It nearly has 50 years long history. In the past, watershed development programme was concentrated mainly as a treatment of preventing siltation in reservoir. The coverage has widened with the aim of improving

* International Crops Research Institute for the Semi-Arid Tropics, Patancheru, Andhra Pradesh, India.