APPROVED ON-GOING PROJECTS 8

P-1 : Water Erosion Appraisal in Different Agro-Ecological Regions

1.1 : *Inventory and Database of Erosion Status Using Modern Tools and Procedures*

1. Mapping and characterization of Jhola land areas in Koraput districts.
2. Developing methodological framework for delineating and characterization of Chambal and Yammuna ravines.

1.2: *Soil Erosion Process Modeling and Climate Change Studies*

3. The assessment of soil erosion through re-distribution analysis of ^{137}Cs fallout in humid subtropical region of India.
4. Application of dynamic simulation models to establish erosion-productivity relationships and soil organic carbon sequestration potential for a future changing climate.

1.3: *Soil Carbon Dynamics and Erosion Productivity Studies*

5. Erosion-productivity relationships for evaluating vulnerability and resiliency of soils under different agro-climatic regions of India.
6. Assessment of soil organic carbon in transit under erosion processes: A source or sink for atmospheric CO_2.
7. Development and validation of a spatially explicit simulation framework to quantify runoff-erosion-carbon flux at watershed scale.
8. Effect of slope and land uses on soil carbon stock and soil quality in the Nilgiris.

P-2: Conservation Measures for Sustainable Production Systems

2.1: *Resource Conservation Measures for Arable Lands*

9. Evaluation of organic farming vis-à-vis inorganic farming for resource conservation and sustained productivity under prominent cropping system.
10. Integrated rain water management for enhancing rain water productivity in maize based cropping system.
11. Evaluating productivity potential of *bhimal* (*Grewia optiva*) along with field crops.
12. Productivity enhancement in fruit and flower based two tier horticulture system through integrated nutrient management and mulching.
13. Performance of Tamarind near S&WC structures with different mulches in vertisols of SAT region.
14. Evaluating the effect of organic amendments on resource conservation and productivity of rainfed semi-arid vertisols.
15. Conservation tillage for resource management and higher production from Shiwaliks.
16. Adaptation potential and productivity of organic vis-à-vis conventional farming system under rainfed conditions of Shiwaliks region.
17. *In situ* moisture conservation practices under *aonla* based agro-forestry system for sustainable production in red soils of Bundelkhand.
18. Developing strip cropping system for sloppy uplands: A measure to cope up with monsoon vagaries and resource conservation in Bundelkhand region.
19. Impact assessment of soil and water conservation measures and land use changes on sustainability of soil health under watershed development projects.

20. Cover crops and reduced tillage for enhancing productivity and soil health in rainfed farming system in the hilly areas.

2.2: *Resource Conservation Measures for Non-Arable Lands*

21. Evaluating the performance and developing techniques for enhancing growth and seed yield of *Jatropha curcas* in degraded lands of sub-humid Himalayas.
22. Enhancement of guava productivity through canopy management and mulching in rainfed bouldery riverbed lands.
23. Evaluation of traditional minor millet based agro-forestry systems under recommended agri-silvicultural practices of North-Western Himalayas.
24. Effect of degradation on conservation and production attributes of Sal forests in Uttarakhand.
25. Influence of aromatic grasses and tree management on soil moisture and health under silvo-aromatic grass systems on bouldery land of Doon Valley.
26. Efficacy of different soil and water conservation measures on bamboo productivity and resource conservation in Himalayan foothills.
27. Canopy management in *Morus alba* for enhancing productivity and resource conservation.
28. Development and characterization of quality planting material of important MPT's for degraded lands of North-West Himalayas.
29. Peach based agri-horticulture land use system for degraded Shiwaliks.
30. Resource budgeting in agro-forestry for livelihood security by applying WANulCAS model under Indian condition.
31. Evaluation of moisture conservation techniques for sustainable production of Tree Borne Oil Seeds (TBOS) in Bundelkhand.
32. Bio-engineering measures for resource conservation and management in red sloping lateritic soils of Orissa.
33. Evaluation of different underutilized fruit species with varying inter-space managements in Chambal ravines.
34. Evaluation of promising oilseed tree species under silvi-pastoral system for rehabilitation of Chamba ravines.
35. Evaluation of carbon sequestration potential of different tree based production systems in South-eastern Rajasthan.
36. Effect of shade trees on productivity and soil health in rejuvenated tea plantations in Nilgiris.

P-3: Watershed Hydrology for Conservation Planning

3.1: *Hydrological Behaviour of Landuses and Management Practices*

37. Hydrological evaluation of recommended forest grasses in Himalayan foothills.
38. Evaluation of hydrological behaviour and production potential of recommended landuse system / practices under different agro-ecological regions of India.
39. Hydrological implication of sequential alternation of land use covers in a ravine catchment.
51. Hydrologic and economic evaluation of Bamboo plantations in gullied lands under major ravines of India.

3.2: *Water Harvesting, Groundwater Recharge and Management*

40. Conservation Bench Terrace (CBT) based integrated farming system in Himalayan foothills.
41. Water budgeting of a ravine watershed pond for optimum crop planning under semi-arid region.
42. Socio-economic implication and vulnerability of farmers to ground water exploitation in hard rock region of the Deccan.

43. Developing SALT (Sloping Agricultural Land Technology) for resource conservation and economic upliftment in Shiwaliks.
44. Estimation of water budget components for predominant land uses of south-eastern Rajasthan for conservation planning.
45. Enhancement in land productivity and livelihood security of small farmers of Nilgiris through multiple use of harvested water.
46. Development of efficient and innovative blue and green water harvesting techniques for enhancing the land and water productivity of semi-arid districts of Gujarat.

3.3: *Decision Support Systems (DSS)*

47. Development of a user friendly Decision Support System application for planning of watershed development project.

P-4 : Rehabilitation of Areas Affected by Mass Erosion

4.1: *Development and Refinement of Technologies for Rehabilitation of Ravines, Landslides, Mine spoils, Riverbed Mining, Strem Banks, Torrents etc.*

48. Assessment of impact of extraction of RBM (River bed material) on physiography of stream flow courses of Himalayan foot hill streams.
49. Cost effective conservation measures for management of medium and deep ravine lands.
50. Prototype field study on application of potentially important jute geo-textiles for hill slope stabilization.
51. Field evaluation of design of trenches under different agro-climatic regions.
52. Enhancing productivity of ravine lands by plantation of *A. sapota* with intercropping systems.

P-5: Integrated Watershed Management for Socio-Economic Growth and Policy Advocacy

5.1: *Participatory Watershed Management and Integrated Farming System (IFS)*

53. Multiple criteria decision for identifying suitable Integrated Farming Systems in different agro-ecological regions for optimizing resource conservation and productivity.

5.2 : *Common Property Resource Management*

54. Evaluation of institutional arrangements and impact of community based water storage structures in different agro-climatic zones of India.

P-6: Human Resource Development and Technology Transfer

6.2: *Participatory Technology Dissemination and Adoption*

55. Role of soil and water conservation technologies for climate resilient agriculture in Himalayan ecosystem - An action research.
56. Post-adoption behaviour of farmers towards soil and water conservation technologies of watershed management.