

## REPORT ON EXPOSURE VISIT FOR FIELD STAFF TO UDHAGAMANDALAM

We have visited ICAR-Central Soil and Water Conservation Research and Training Institute at Ooty. Mrs. A. Selvi, Senior Scientist CSWCRTI, explained about the research station and museum. Its Headquarters was established in Dehradun (Uttarakhand). The institute were established at Vasad, Ooty, Agra, Chandigarh, Bellary and Kota. The Institute undertakes many researches related to Erosion control, Waste/degraded land development, Rain water management, Watershed management, Training in soil and water conservation and watershed management.



**Major constraints of hilly highly rainfall regions are**

- Flood
- Landslides and Land slips.

**Land Capability Class (LCC)**

LCC is created based on soil depth, soil erosion and soil moisture.

**Bench Terracing for Southern Hilly - High rainfall region**

Types and specification of bench terraces as recommended by CSWCRTI, Research centre, Udhagamandalam.

1. Inward Terraces
2. Outward Terraces

Land slope limit for adoption – 33 %

Bench Slope - 2.5 %

Longitudinal gradient – 1 %

Riser Slope – 0.5 : 1 or 1 : 1



## **INWARD BENCH TRENCH WITH TEA PLANTATION ON THE RISER**

### **Puertorican Terraces**

- ✓ It can be developed by establishing a mechanical (Earthen bunds or stone walls) or vegetative barrier at the desired vertical interval along contour or graded line and then moving the soil against the barrier year after year.
- ✓ Regular bench terraces can be developed by this method over a period of 3 to 5 years (Steeper the slope, shorter the duration).
- ✓ Guatemala gram, Pine apple and Guatemala grass and scented geranium.

### **Universal Soil Loss Equation (USLE)**

$$A = RKLSCP$$

A = Average annual soil loss (ton/acre)

R = Rainfall Erodivity

K = Soil erodibility factor

LS = Topographic factor- L is slope length and S is for slope

C = Cropping factor

P = Conservation practice factor

## **Water balance**

Monthly water balance was computed based on climatic data of 20 years recorded at Research farm. Water balance lasts during the period from July to November and water deficit or moisture stress can be noticed during the rain starved months from December to march.

Length of Growing Period was determined by taking into account the monthly rainfall at 50% probability and PET computed by Penmann's method.

## **Erosion Susceptibility Index (ESI)**

For given climatic and soil condition the major guiding criteria, considered are based on present land use, land slope, land management and crop/vegetation, management conditions.

Land use system of the watershed was divided into 4 major categories viz annual crop, tea plantation, forest land, grassland,

Relationship between ESI and Potential soil loss as per USLE was established and its critical limits were fixed.

<b>Criticalness of Area</b>	<b>Soil loss class (t ha year)</b>	<b>ESI classes</b>
Non critical(NC)	<5	<0.33
Slightly critical (SC)	5-10	0.34-0.47
Moderately Critical(MC)	10-20	0.48-0.62
Critical(C)	20-40	0.63-0.79
Very Critical(VC)	>40	>0.79

Technological Intervention in Thambatti Watershed, The Nilgris

1. Reintroduction of wheat cultivation
2. Introduction of high yielding potato variety
3. Low cost poly house for cut flower cultivation

#### 4. Crop diversification in existing tea area.



### SOIL EROSION TEST FOR DIFFERENT SLOPES

#### Meteorological station

We have visited meteorological station where we have seen various instrument such as Automatic rain gauge, Anemometer, Wind Vane, Automatic Weather Station, Temperature Sensor at various depth, Sun shine recorder, Open pan evporimeter etc., We have visited the field to observe inward and outward bench terraces.



As part of exposure visit we have also visited HADP garden developed by AED, Dhotapatta and Kodanadu view point.