

VETIVER HEDGEROW FOR ENVIRONMENTAL PROTECTION AND LANDSCAPING

Paul Truong, DNR, Brisbane, Australia and Mike Pease, EMVN, Lagos, Portugal

The Vetiver Grass System (VS) was first developed by the World Bank for soil and water conservation in agricultural lands in the 1980's. The Vetiver Network (www.vetiver.org) with the support of the World Bank, the King of Thailand, the Royal Danish Government and several Foundations, has encouraged, supported the R&D and promoted the application of VS world wide through its global network. One of the outstanding successes of its R&D is the applications of VS in environmental protection.



Deep and extensive vetiver roots, equivalent to 1/6 of mild steel reinforcement, provide necessary structural strength to prevent this earthen wall from collapsing



Extensive, deep and penetrating root, Thailand

Tolerance range of vetiver grass	
Adverse Soil Conditions	Levels (Available)
Acidity	pH 3.0
Aluminum level (Al Sat. %)	Between 80% - 92%
Manganese level	< 5.78 mg/kg
Alkalinity (pHly 10.0)	pH 11
Saltinity (EC _{1:5} and reduction)	17.5 dS/m
Saltinity (saturated)	47.5 mS/cm
Sodicity	48% (exchange Na)
Magnesium	2,400 mg/kg (Mg)
Heavy Metals	
Arsenic	100 - 250 mg/kg
Cadmium	22 mg/kg
Copper	174 mg/kg
Chromium	200 - 600 mg/kg
Nickel	60 - 100 mg/kg
Mercury	< 8 mg/kg
Lead	< 1,500 mg/kg (Total)
Selenium	< 74 mg/kg
Zinc	< 750 mg/kg (Total 3418)
Location	
Latitude	Equator to 41°
Altitude	< 1,000m
Climate	
Annual rainfall	250 - 5,000mm
Frost (Ground temperature)	14 C
Heat wave	45 C
Drought (No effective rain)	15 months



Erect, stiff stems and thick growth. The dense base is essential for reducing flow velocity and trapping sediment



Queen Mother garden, Thailand



Road batter stabilisation trial, Australia



Soil and water conservation practice on sloping land, Thailand



Flood erosion control on the floodplain, Australia



Living filter traps sediment in a waterway on a sugarcane farm, Australia



Trapping sediment and debris on a farm pond, Thailand



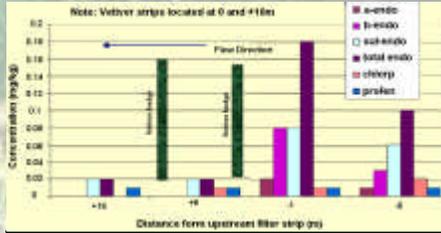
Stabilisation of mine tailings dam, Australia



Sediment built up above the contour hedge after 5 years, India



Effective windbreak in orchard, China



Trapping pesticides on a cotton farm, Australia



Borders of vegetable beds, Thailand



Stabilisation of highway batter, El Salvador



Hedgerows for soil and water conservation in orchard, Thailand



Coal mine waste rehabilitation, Australia



Runoff control, Australia



Erosion and sediment control, Australia