VETIVER SYSTEM

PROVEN AND GREEN ENVIRONMENTAL SOLUTIONS

An Overview
THE VETIVER SYSTEM

A “green” technology that is low cost, easy to use, and it works

Used for:

• Soil and Water Conservation
• Infrastructure Stabilization
• Flood Control
• Water Quality Improvement
• Pollution Control
• Land Rehabilitation
• Disaster Mitigation
• Handicrafts
• Many other uses
THE PLANT - *Chrysopogon zizanioides*

Australia - Queensland

Malaysia - close up Clump grass

Costa Rica
THE ROOT

China - excavated root

Malaysia - longitudinal section through hedge note the root mass in the top meter of the soil profile
THE VETIVER GRASS SPECIAL CHARACTERISTICS

- Grows under extreme and wide range of conditions:
- Long Living Perennial Grass
- Temperatures: -12 °C to >55° C
- Soil pH from <3 to >10
- Annual Rainfall <300 mm to > 5,000 mm
- Tolerant to all heavy metals
- Saline tolerant
- Fire tolerant
- Few Pests and diseases
- Powerful (75 Mpa root strength) and deep root system
- Non competitive and non invasive
THE VETIVER GRASS TECHNOLOGY

The basic technology comprises a hedgerow of vetiver grass planted on the contour

Malaysia - 30 month hedgerow planted on the contour

Malaysia - close up hedge cross section
PROPAGATION

Vetiver grass from South India is a sterile and a non invasive polyploid variety of *Chrysopogon zizanioides*. Cultivars of this variety are used and promoted under the Vetiver System.

Vetiver is propagated by root division. If large quantities of plant material are required nurseries need to be established.

China - 20 ha nursery - bare rooted plants

Malaysia - containerized vetiver nursery
PLANTING

Mexico - Planting by hand

India - Preparing planting material

Australia - machine planting
VETIVER SYSTEMS FOR ON FARM SOIL AND WATER CONSERVATION

Columbia - CIAT vetiver
- cassava trial on 12% slope

El Salvador - hillside conservation

Costa Rica - vetiver protecting tobacco crop

Malawi - Erosion control on maize field
VETIVER SYSTEMS FOR SOIL AND WATER CONSERVATION

Panama - Vetiver hedge on a steep slope in Chiriqui

Mexico - Oaxaca. Stabilizing a cliff with vetiver
VETIVER SYSTEMS FOR SOIL AND WATER CONSERVATION

China - VS for wind erosion control and protection of young trees from wind damage

Costa Rica - VS for erosion on a steep slope coffee farm

Congo (DRC) - A reshaped urban gully being stabilized with vetiver grass
VETIVER SYSTEMS FOR INFRASTRUCTURE STABILIZATION

El Salvador - VS for bridge/culvert protection. Newly planted vetiver hedgerow

Extreme slope stabilization Ho Chi Minh Highway - Vietnam

El Salvador - mature vetiver hedge protecting road embankment
VETIVER SYSTEMS FOR RIVER BANK AND IRRIGATION CHANNEL PROTECTION

Thailand - River bank protected with Vetiver

Madagascar - Vetiver stabilizing irrigation canal
VETIVER SYSTEMS FOR FLOOD CONTROL

Australia - Even on flat land there can be serious erosion. Here, on black cotton soil, a long vetiver hedgerow protects a field from flood damage.
VETIVER SYSTEMS FOR SOIL AND WATER CONSERVATION

Australia - Stone quarry rehabilitation using Vetiver System

Venezuela - Rehabilitation of bauxite mine using Vetiver Systems
VETIVER SYSTEM FOR POLLUTION CONTROL

Vetiver was grown in the left hand beaker. After 4 days it reduced nitrates by 94% and Phosphates by 90%.

In Vietnam and China floating rafts of vetiver have been used to clean piggery effluent ponds.
VETIVER SYSTEM FOR DISASTER MITIGATION

- Disasters caused by flooding create havoc for communities, and most often results in loss of life and income. The Vetiver System can prevent such disasters and also help stabilize landscapes and infrastructure after disasters.

- Vetiver System is particularly good in reducing incidence of landslides, highway collapse, building collapse, river levee breeching, and other damage due to heavy rains and flood.
VETIVER SYSTSEM FOR LANDSCAPING

Portugal - Lagos. VS used to prevent head light glare from traffic on a divided road.

El Salvador - Landscaping and slope stabilization at an urban gas station.
VETIVER SYSTEM FOR OTHER USES

Handicrafts
Building materials
Medicinal
Fuel
Ethanol
Aromatic oil
Water purification
Paper
Mulch
Insect Control
Forage