

# 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

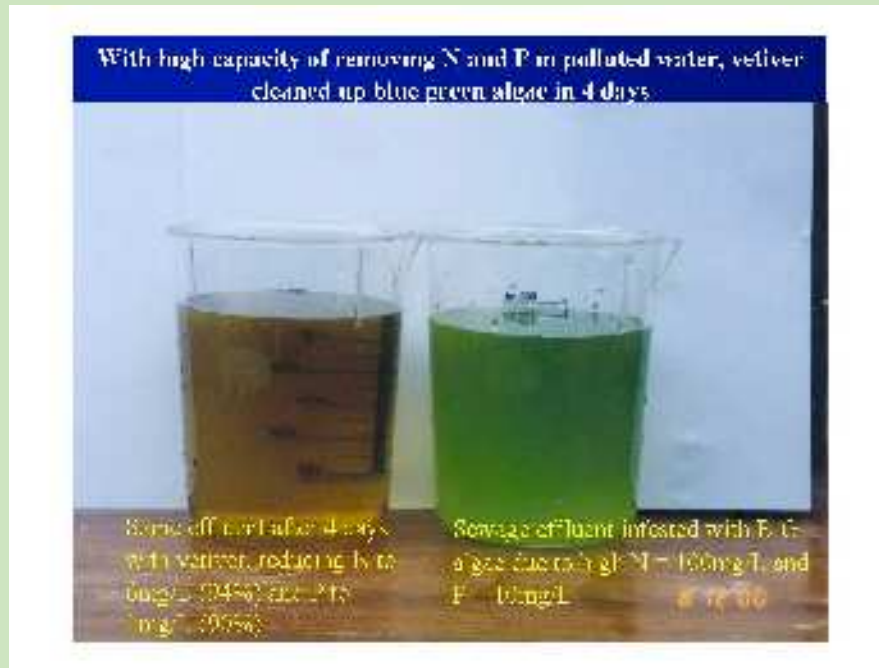


Australia - Stone quarry rehabilitation using Vetiver System

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 breaching, and other damage due to heavy rains and flood.





# VETIVER SYTSTEM 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

