

# **THE FOURTH INTERNATIONAL CONFERENCE ON VETIVER - ICV4**

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## **Vetiver System - A Green Investment for Sustainable Development.**

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# 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

## Vetiveria 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**

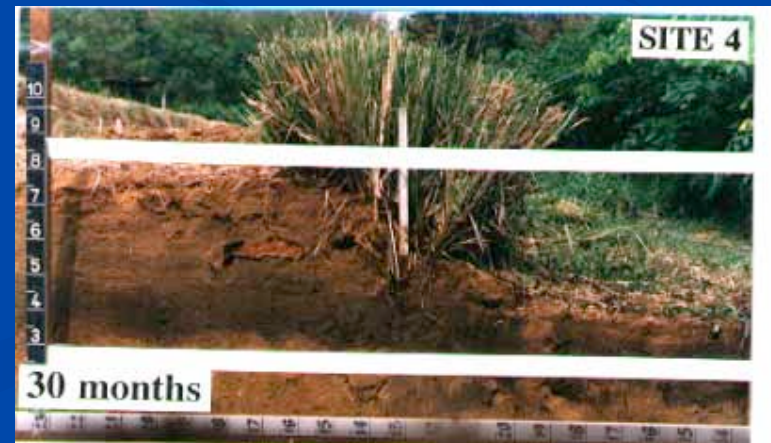
# THE VETIVER GRASS TECHNOLOGY

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 sterile and non invasive.  
It is this type that is used by the Vetiver System.**

**Vetiver is propagated by root division.  
If large quantities of plant material is required nurseries have 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 SOIL AND WATER CONSERVATION



**Columbia - CIAT vetiver  
- cassava trial on  
12% slope**

**El Salvador  
- Hillside  
conservation**



**Costa Rica - vetiver  
used to protect  
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**

**Costa Rica - VS for erosion on a steep 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**

**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 stabilizes this irrigation canal**

# VETIVER SYSTEMS FOR FLOOD CONTROL



**Australia - Even on flat land there can be serious erosion.  
Here a long vetiver hedgerow protects a field from flood damage.**

# VETIVER SYSTEMS FOR LAND REHABILITATION



Venezuela - Rehabilitation of bauxite mine using Vetiver Systems

Australia - Stone quarry rehabilitation using Vetiver System



# VETIVER SYSTEM FOR POLLUTION CONTROL

With high capacity of removing N and P in polluted water, vetiver cleaned up blue green algae in 4 days



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 help clean piggery effluent ponds

On a piggery effluent pond in Vietnam





# **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 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**

# **VETIVER SYSTEM**

**Thank You**

**<http://www.vetiver.org>**