



*Beautification with a Purpose*



*Hillside Farming*



*Complementing Green Engineering*

Vetiver System as a Green Engineering Tool in

Dominica



Point of reflection- Our realities.....









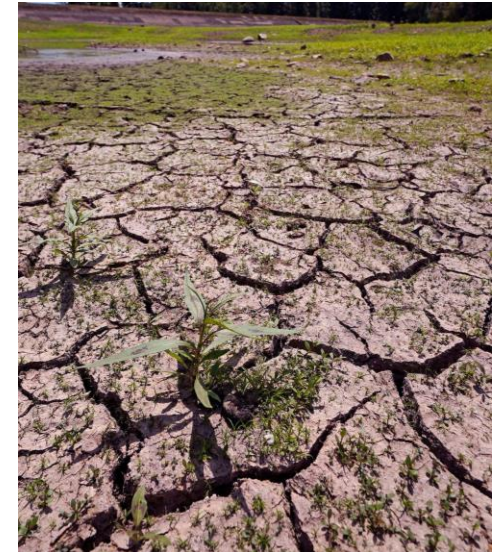
# Climate Action using Green Engineering with Vetiver



- *Soil erosion control*



- *Slope stabilization*



- *Soil water management*

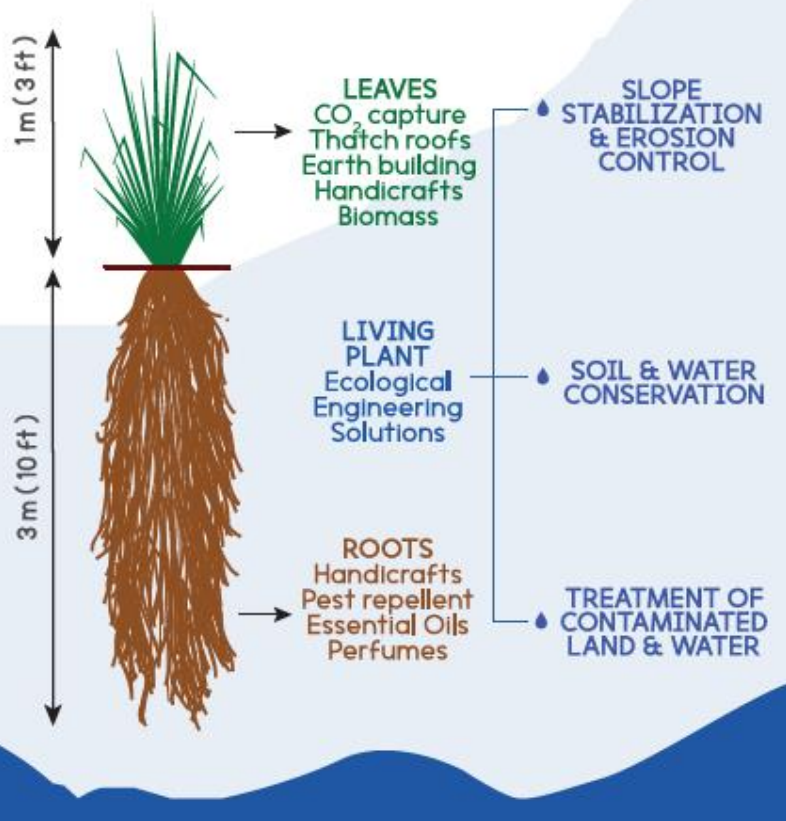


## WHAT IS VETIVER GRASS ?



**Vetiver grass** is a tropical and sub-tropical plant which grows best in sunny conditions and has a deep fibrous root system that extends up to 10 ft deep, making it a very effective tool for slope stabilization & erosion control.

**Vetiver leaves** and **roots** can also be used in many ways to make different types of handicrafts.



## Common Names for Vetiver

- Khus
- Metiver
- Bedding Grass
- Sweet Root

Any other names?



# Green Engineering with Vetiver



- ✓ *Powerful phytoremediator for treatment of contaminated water/soil (heavy metals, excess nutrients, etc.)*
- ✓ *It is a C4 plant - it doesn't compete with food crop plants for water (water and photosynthetic efficient); absorbs CO2 from the atmosphere and fixes it into the soil*
- ✓ *Replenishment of the water table*



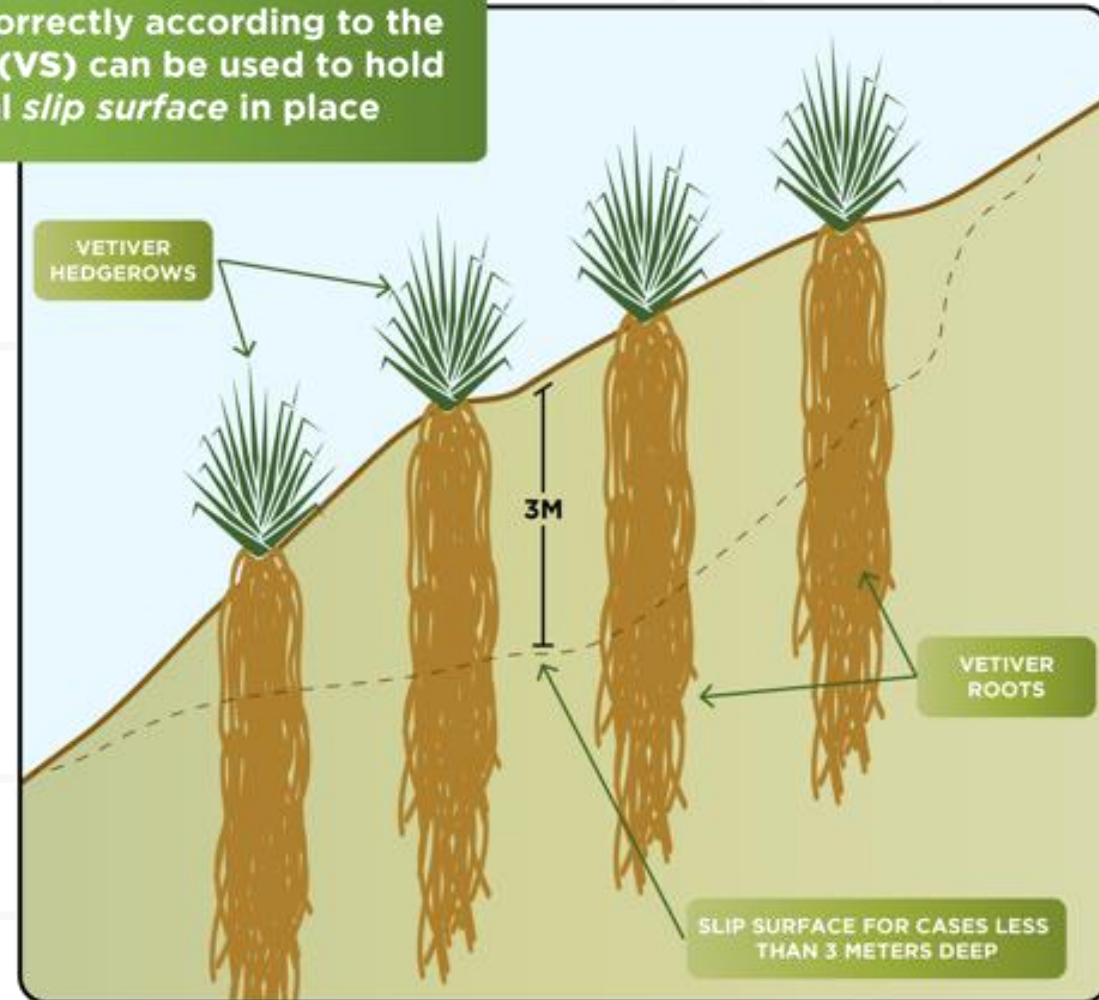


# Green Engineering with Vetiver

Most landslides occur with a slip surface of less than 3 meters deep. Vetiver Grass when planted correctly according to the Vetiver System (VS) can be used to hold the potential *slip surface* in place



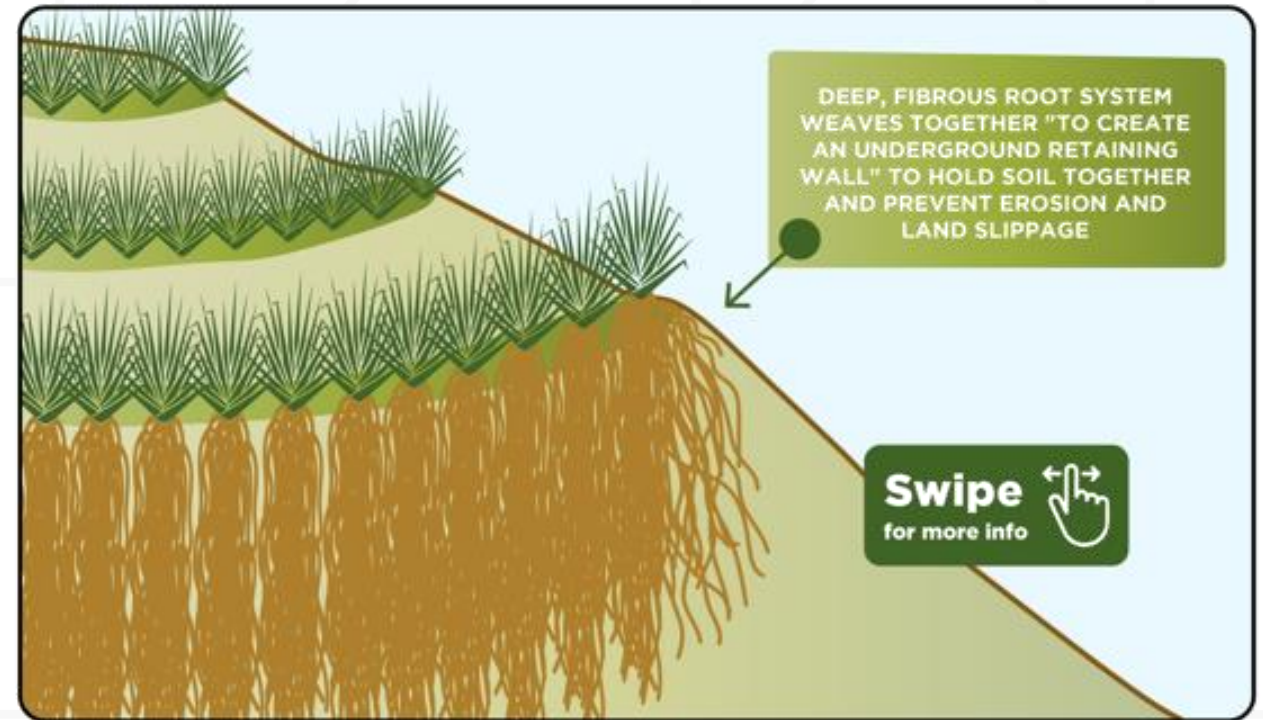
- ✓ *Vetiver roots can grow up to 10-ft deep in first 2 years*
- ✓ *Deep and fibrous root system make for powerful soil stabilization tool, proven to increase shear strength by up to 40%*
- ✓ *Grows in clumps, bunchgrass*



# Green Engineering with Vetiver

- ✓ *vetiver can complement traditional grey engineering (retaining walls, rock/gabion baskets etc) Cost effective - estimated savings \$\$\$ of 80%*
- ✓ *Vetiver grass certified non-invasive by USDA (must be propagated and installed manually and maintained during establishment)*
- ✓ *Well-suited to our climate and geography*

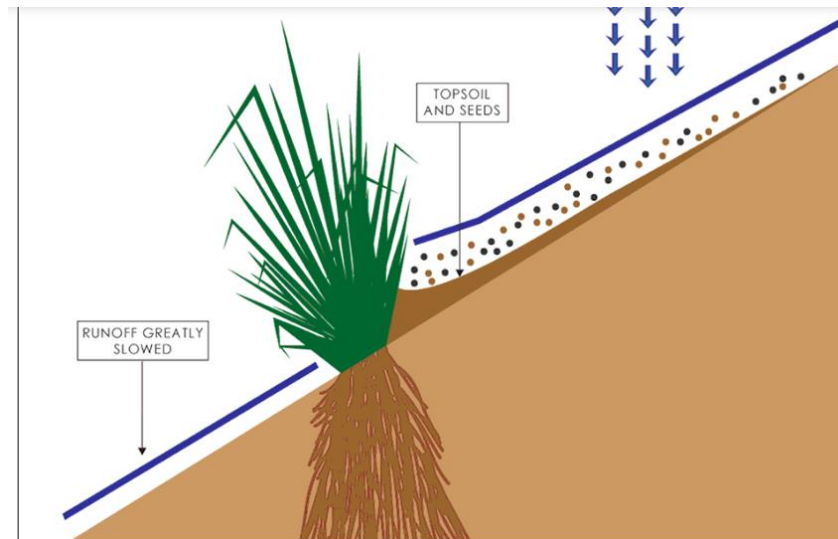
**Vetiver Grass** when implemented according to the **Vetiver System (VS)** best practices can in some instances be used instead of a retaining wall due to its unique deep and fibrous root system







- *Recapture valuable topsoil*

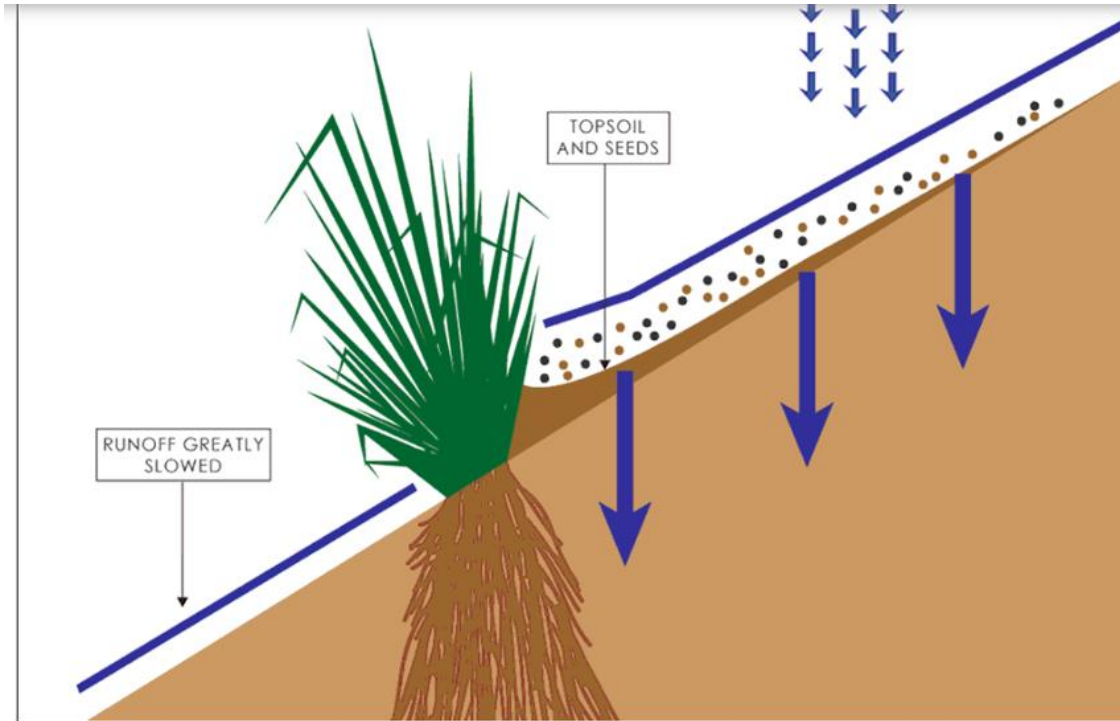


- *Creation of safer walking pathways on hillsides*





- *Replenish water table (percolation)*







# VETIVER SYSTEM INSTALLATION

- *Planning and Designing*





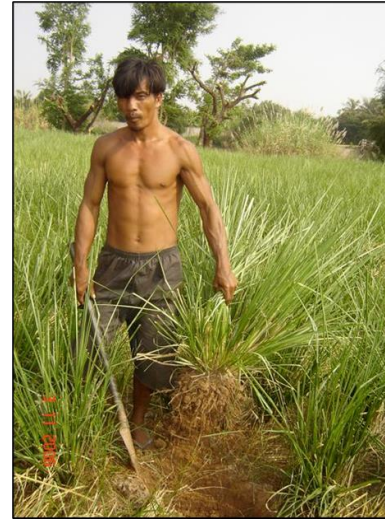
# Nursery establishment



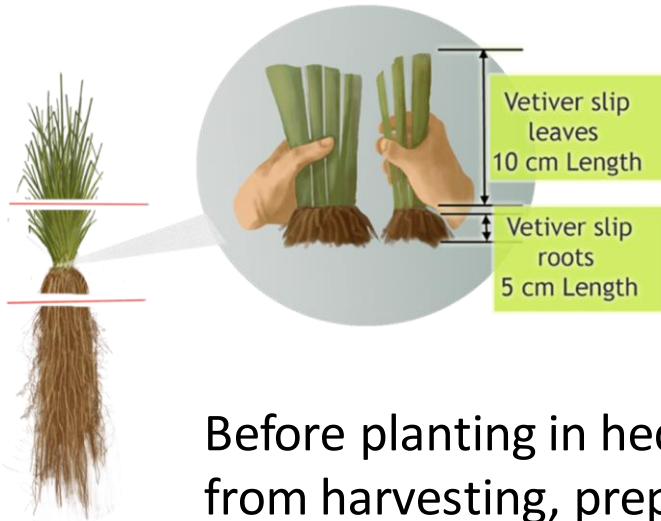


# VETIVER SYSTEM INSTALLATION

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## *Plant Preparation*



Before planting in hedgerows, plants take **3 to 4 days** from harvesting, preparing and soaking.

**Vetiver clumps must not be removed from vulnerable areas!!!!**



# Preparation of slips





# VETIVER SYSTEM INSTALLATION

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- *Land Preparation*

- *Chop or weed-wack to the ground and remove cut bush*
- *Use shovel or hoe to remove top vegetation where plants will be installed*
- *Clearing: Vetiver does not grow well in shade – need to remove competition for young plants*

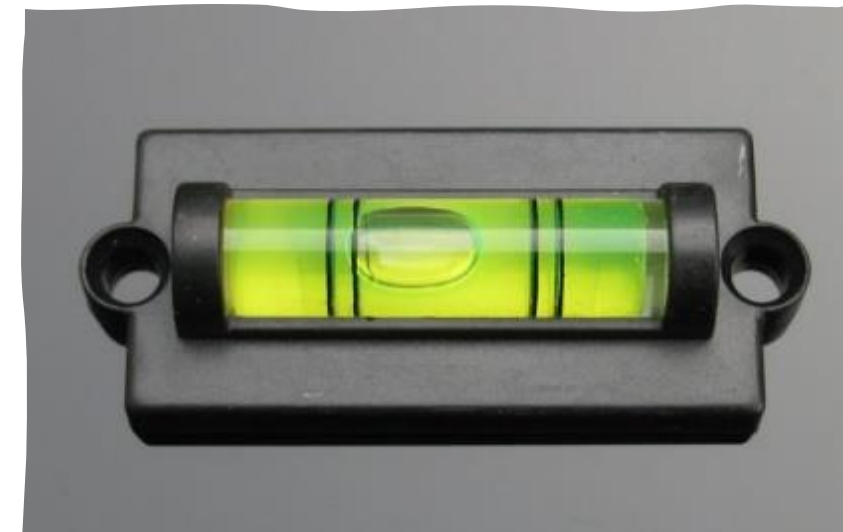




# VETIVER SYSTEM INSTALLATION

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- *Planting on Contour Using an A-Frame*





# VETIVER SYSTEM INSTALLATION

*Install plants:*

- *10-12 cm apart*
- *On contour where applicable*













# VETIVER SYSTEM INSTALLATION

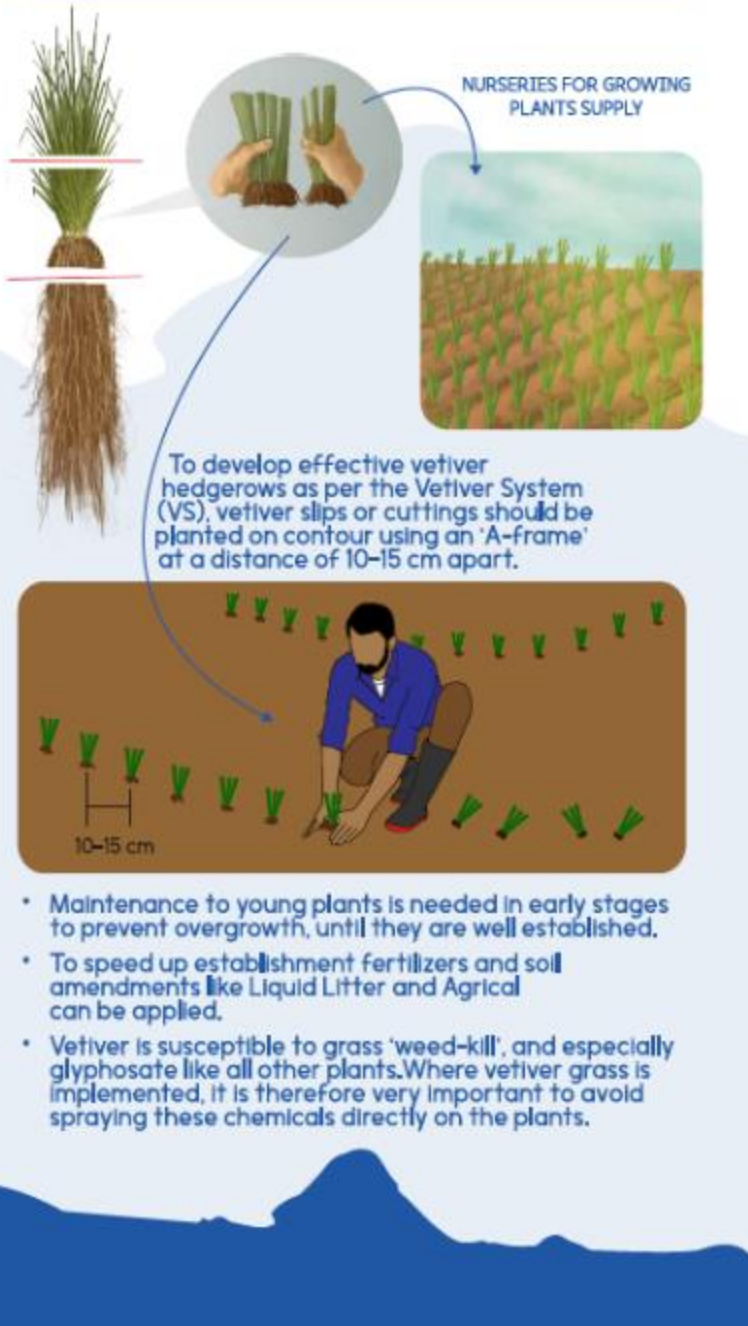
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## *Maintenance*

- *Water everyday for three weeks – plant the rainy season*
- *In the first three months **remove weeds** from one foot on either side of the hedgerow*
- *Follow a fertilizing regime as needed*
- *Prune **at least once per year** to stimulate root growth and robust leaf growth – use cuttings as **mulch***







# The Vetiver System

This entails the most effective and successful methods for:

- *Site assessment and planning*
- *Plant preparation*
- *Land preparation*
  - *Contour plotting for slopes*
- *Hedgerow installation (spacing)*
- *Maintenance*



# Application of the Vetiver System

*Residential and Commercial*





## Application of the Vetiver System in Agriculture

- *Vetiver grass used as mulch*







Application of the  
Vetiver System in  
Agriculture

*Companion Planting*





Thank You!