

1 Grass Grows 13-Foot Roots of "Steel"

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3 Watching grass grow is never boring for the staff of the Bethesda, Maryland-based Vetiver Network—**assuming** the
4 grass is vetiver. Native to India, vetiver is taking root in a growing number of tropical countries, where it is used as
5 an engineering tool to solve problems from soil erosion to **pollution** cleanup. Key to the plant's **performance**: It
6 grows a thick and seemingly impenetrable tangle of roots that plunge 13 feet (4 meters) straight into the ground. The
7 roots essentially form a wall of **steel** that prevents erosion-prone **slopes** from slipping away. Vetiver is not only cheap
8 to grow but resistant to pests and disease. The grass **soaks up** pollutants and improves crop yields. What's more, it
9 can grow in any kind of soil on any kind of slope in just about any tropical region that is free of freezing
10 temperatures.

11 "There's just no negative **aspect** to [vetiver], and we are learning more and more about the positives," said Dale
12 Rachmeler, president of the Vetiver Network. The network was formed in 1986 to **promote** the grass as a low-cost
13 and **efficient** engineering tool, especially for development projects in cash-strapped countries. Richard Grimshaw is
14 the enterprise's **founder** and chairman. He says mainstream **recognition** of the technology has been slow, but notes
15 that in the past 15 years vetiver use has spread to more than 100 countries, about 40 of which now have active
16 projects. The more people become **aware** of vetiver's many uses, Grimshaw said, the more people begin to use the
17 grass. Recently the grass received kudos for its role in **stabilizing** the slopes along a 163-kilometer railroad track that
18 winds steeply through a **dense** forest on the African island nation of Madagascar.

19 Madagascan Railroad

20 The Fianarantsoa Côte Est (FCE) Railroad serves as the only **means of transportation** for the more than a hundred
21 thousand **rural** Madagascan farmers who live between the highland city of Fianarantsoa and the eastern port of
22 Manakara. The farmers grow and export mostly tree **crops**, such as bananas and coffee. A study **funded** by the U.S.
23 Agency for International Development (USAID) found that the railroad also benefits wildlife: The rail line helps
24 **preserve** a corridor of **intact** forest that allows animals to migrate between national parks north and south of the
25 track. In past years erosion has **devastated** the rail line, however. Four years ago back-to-back cyclones whiplashed
26 Madagascar over a two-month **span**. The storms sent over 150,000 cubic meters of **debris** sliding onto the tracks of
27 the FCE railroad, putting the rail line out of service. Karen Freudenberger **conducted** the **initial** USAID-funded
28 study of the Madagascan railroad. She is now leading a 13-million-dollar (U.S.) FCE Rehabilitation Project to
29 **restore** the rail line.

30 The project will keep the forest corridor between the national parks intact. Working with local leaders, Freudenberger
31 developed a program to enlist farmers who live and work along the track to grow vetiver **hedges** to stabilize
32 surrounding slopes. The program **emphasized** the farmers' dependence on the railroad and **demonstrated** the
33 connection between agricultural practices and landslides. "Once a few farmers began using vetiver, the word got out
34 quickly and the **demand** for vetiver systems increased **significantly**," Rachmeler, the Vetiver Network president,
35 said. Today more than 600 farmers have planted an **estimated** three million vetiver plants in hedges along the tracks
36 of the FCE railroad. Between rows of vetiver, farmers are growing crops **ranging** from rice and cereals to fruit trees.
37 "This year we had one cyclone that did a U-turn and came back again, very **similar** to [cyclones] Eline and Gloria [in
38 2000]," Freudenberger said. "Instead of 150,000 cubic meters of debris, we had 300 cubic meters. So our strategy is
39 working."

40 Adapted from [The National Geographic](#)