

THE VETIVER NETWORK (INTERNATIONAL) THE VETIVER SYSTEM - PROVEN & 'GREEN' ENVIRONMENTAL SOLUTIONS



The Vetiver Network is an IRS approved tax-exempt NGO under code 501(c)(3)

Patron - H.R.H. Princess Maha Chakri Sirindhorn of Thailand

OFFICERS

- Chairman -
Richard Grimshaw D.B.E.
- President -
Dale Bachmeyer PhD
- Secretary -
Mark Delfino PhD
- Treasurer -
Richard Grimshaw D.B.E.

DIRECTORS

John Greenfield MSc
Chris Jullard PhD
James Smye PhD
Paul Truong PhD
Sumet Tantivejkul PhD
Monty Yudelman PhD
Paul Zuckerman PhD

CONTACT

The Vetiver Network
(International)
709 Briar Rd
Bellingham
WA 98225 USA
info@vetiver.org
www.vetiver.org

Vetiver and the Vetiver System

Introduction:

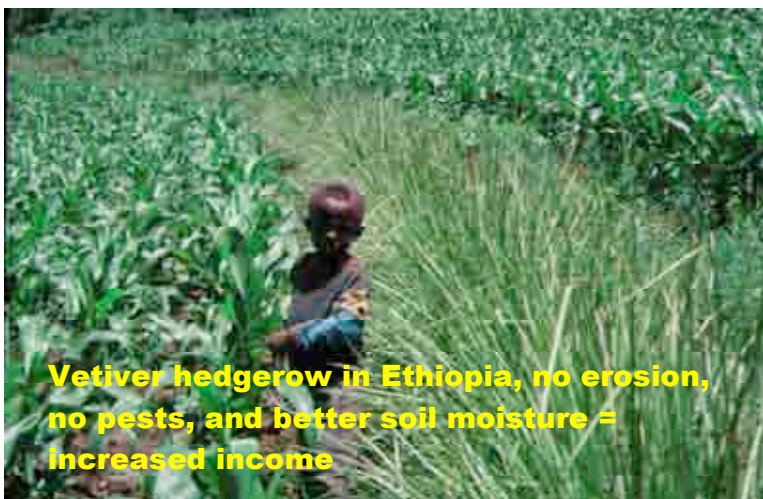
Vetiver: Vetiver is a unique tropical plant (*Vetiveria zizanioides* L. recently reclassified as *Chrysopogon zizanioides* R.) with environmental characteristics



developed over millions of years adapting to and surviving in a wide range of climatic and soil conditions. Its origins are traced to South India and its use is found in Babylonian literature going back to 5,000 BC. People in different parts of the world have used vetiver plants to delimit farm plots, and used its roots for its medicinal and perfume properties. In more recent times vetiver has been applied to a variety of ecological conditions and used to solve urgent environmental problems in the developing and developed world. Parts of its unique qualities are its ability to resist harsh soils, draughts as well as flooding, and saline and toxic waste. It is user friendly and non-invasive; it cannot propagate itself. It survives virtually anywhere in tropical and semi-tropical climates.

The Vetiver System: The World Bank, through its agricultural programs in the 1980's in India established the Vetiver System as a defined environmental system. It was based on

observations of how farmers used Vetiver in Fiji, the Caribbean and India and has been refined since through significant research and application experience in over 100 countries. Vetiver plants, when planted in the form of a narrow self-sustaining hedgerow, exhibits proven and effective features in dealing with common, unresolved environmental problems related to soil and water. The Vetiver System is now applied where soil erosion, water quality, deforestation, marginal agriculture and draughts are severe, and where few practical and low cost solutions are available. Vetiver is



Vetiver hedgerow in Ethiopia, no erosion, no pests, and better soil moisture = Increased income

planted across land, around trees or in fields to significantly reduce soil erosion, improve soil moisture, increase aquifer recharge and agricultural production, stabilize slopes improves water quality, and as a precursor to reforestation.

To improve agricultural land, Vetiver absorbs and blocks off-site

movement of contaminants, including pesticides, fertilizers and heavy metals. Because of the anti bacterial properties of its roots, Vetiver is used in wasteland and mine land reclamation, waste water treatment, stabilization and clean up of municipal land fills. Other applications include handicrafts, fuel, medicinal and community uses. Because its root system deep and massive, vetiver has a great potential as a carbon sequester.

Since the early 1990's the 'Vetiver Network (International)' introduced the technology to hundreds of thousands of small and poor farmers in over 100 countries. Most farmers increased their incomes through better crop yields from reduced soil and fertility losses. Their communities have more and cleaner drinking water, and they now have a technique that allows them to permanently and sustainably farm their lands.



Vetiver delimits the vegetable plot & protects plants from nematodes and other insect pests

How Applied: Propagation of the non-invasive Vetiver plant has to be by clump subdivision and is generally multiplied in nurseries. When used for erosion control, plants are usually spaced 8 to 10 plants per linear meter, on the contour to create, when mature, a barrier of stiff grass that acts as a buffer and spreader of down slope water flow and a sediment filter. A good hedge will reduce rainfall run-off by as much as 70% and sediment by as



Vetiver System Protection and Community Participation (DR Congo)

much as 90%. A hedgerow will stay where it is planted and the sediment that is spread out behind the hedgerow gradually accumulates to form a long lasting terrace with vetiver protection. It is a low cost, labor-intensive technology (linked to the cost of labor) with very high benefit/cost ratios. When used for civil works protection its cost is about 1/20 of traditional engineered systems and designs.

Vetiver grass can be used directly as a farm income product, or it can be used as an application that will protect river basins and watersheds against environmental damage particularly point source environmental problems relating to: (1) sediment flows (2) excess nutrients, heavy metals and pesticides in leachates from toxic sources. The two major uses are closely linked.

Below are the main categories of application – each is linked to a group of photos demonstrating its application. All these applications can directly or indirectly impact on the rural poor through either protection of farm-land and, where necessary its rehabilitation, provision of direct farm income, or indirectly improving the quality of life and resources available to the poor.



Agriculturist and engineers often asked two questions: (1) Does vetiver make a good fodder? The answer, supported by research, is yes, if cut and managed correctly. It also makes a good maintenance ration in the dry season when most other forage plants have either died or become unpalatable (See picture); and (2) is vetiver grass invasive. The seeds (if produced at all) of the south Indian cultivar of *Chrysopogon zizanioides* are **sterile** and its roots are **not** stoloniferous. Thus vetiver hedgerows remain where planted and do not compete with native species. In fact to the contrary, vetiver hedgerows improve the microclimate and in consequence help native species to grow and thrive.

Vetiver Systems can be used by most of the sectors involved in rural, community and environmental development. It should not just be left solely to the agricultural sector to promote, but should be incorporated, where appropriate, into the development plans for community, district or region. If all the sectors use it, there is then an opportunity for vetiver grass producers, both small and big to get involved with the Vetiver System as an income generating enterprise, whether in producing planting material, contracting for reforestation projects, for road construction firms using vetiver for slope stabilization and other needs, or selling vetiver byproducts such as handicrafts, mulch, thatch, forage and other material.



It is a technology common to so many different application that if widely applied might be the “kick-start” to a significant climb out of poverty for a large segment of the community.

An interesting aspect of the Vetiver System is that while it is one of the more far reaching, effective and cost-efficient solution for a wide array of environmental problems, it has reached “critical” mass (wide and sustainable national usage) in only a few countries; China, Vietnam, Venezuela, Australia and Thailand. In Thailand, Vetiver is now ubiquitous, in large part because government mandated the plant to be at the heart of the nation’s economic development. Success in mainstreaming vetiver in these countries is attributed to a collective bottom–up and top-down approach that combined dissemination and awareness through public sector push with support from business, international organizations and civil society at the community level.

The Vetiver Network: is a world wide organization comprising a number of country and regional networks linked to thousands of individual, institutional and commercial users. The Network is currently administered by a few unpaid volunteers, and its overhead is significantly minimal. Funds that are raised from a few donors are passed on generally in totality to the grantee. All the information and research data provided to the Network is held on the Internet site and is in the public domain. This site is the main source of information world wide for Vetiver Systems related information and has been instrumental in the promotion of the Vetiver System world wide.

Vetiver System and Its Applications: (Internet web browser required). Power point presentations

Vetiver System – [An Overview](#)

Vetiver System - [The Plant](#)
Vetiver System – [Propagation and Planting](#)
Vetiver System - [Poverty Alleviation](#)

Agricultural applications:
[Soil and Water Conservation](#)
[On Farm Use and Products](#)

Water and Water Quality applications
[Flood Control](#)
[River Banks](#)
[Dams, Ponds and Lakes](#)
[Mine and Quarry Rehabilitation](#)
[Pollution Control](#)
[Landfill](#)

Slope Stabilization applications
[Rural Roads](#)
[Highways - batter/ fill and drainage](#)
[Railroads](#)
[Land Rehabilitation](#)
[Pipeline and electricity utilities](#)

[Urban Landscaping](#)
[Other uses – handicrafts, aromatic oils, medicinal etc.](#)

TVN(I) Website: <http://www.vetiver.org/>

Texts that support various Vetiver applications are found under the following headings on the Vetiver Network (International) [Website](#):

GENERAL

- [**THE VETIVER SYSTEM**](#)
- [**THE VETIVER PLANT**](#)
- [**PROPAGATION AND PLANTING OF VETIVER**](#)
- [**DISASTER MITIGATION**](#)
- [**DISSEMINATION, TRAINING, ECONOMICS AND SOCIAL ISSUES**](#)
- [**FRENCH TRANSLATIONS OF SELECTED PAPERS**](#)
- [**SPANISH TRANSLATIONS OF SELECTED PAPERS**](#)
- [**VETIVER SUPPLIERS AND CONSULTANTS**](#)

AGRICULTURAL, CROP PRODUCTION AND RURAL INDUSTRIES

- [**AGRICULTURAL AND CROP PRODUCTION**](#)
- [**HANDICRAFTS**](#)
- [**MEDICINAL AND INSECTICIDAL USES OF VETIVER**](#)
- [**SOIL AND WATER CONSERVATION APPLICATIONS OF VETIVER**](#)
- [**THE VETIVER PLANT**](#)

- [PROPAGATION AND PLANTING OF VETIVER](#)

INFRASTRUCTURE PROTECTION AND STABILIZATION

- [SLOPE STABILIZATION \(BUILDING SITES, HIGHWAYS, ROAD and RAILWAY CUT and FILL\)](#)
- [RIVERS, PONDS, RESERVOIRS and FLOOD PROTECTION](#)
- [PUBLIC UTILITIES \(pipelines, power lines, water carriers and other right of ways\)](#)

LAND REHABILITATION AND MINING

- [LAND REHABILITATION](#)
- [MINE AND QUARRY REHABILITATION](#)

LANDSCAPING

- [LANDSCAPING](#)

POLLUTION AND WATER QUALITY

- [LANDFILL STABILIZATION AND LEACHGATE CONTROL](#)
- [POLLUTION - EFFLUENT CONTROL \(WATER QUALITY IMPROVEMENT\)](#)

RIVERS, PONDS, RESERVOIRS and FLOOD PROTECTION

- [RIVERS, PONDS, RESERVOIRS and FLOOD PROTECTION](#)