

Vetiver Grass Bank Stabilization Project for Naveicovatu Village



Minister Hon. Dr. Mahendra Reddy with Naveicovatu village members

The pioneering initiative of villagers of Naveicovatu, Wainibuka in Tailevu in planting 400m of vetiver grass along the river bank in a bid to protect the village from soil erosion has received praise from Government.

Minister for Agriculture, Rural and Maritime Development, Waterways and Environment Hon. Dr. Mahendra Reddy while commissioning the Naveicovatu Vetiver Project in Tailevu last week acknowledged the villager's initiative in safeguarding their environment, with both men and women involved in planting vetiver grass.

"They also planted fruit trees to support nutritional security in the village with the surplus going to the roadside stalls or market on weekends for their income security," he said.

He said there are multiple benefits associated with promoting vetiver for riverbank and slope stabilization.

"Vetiver grass conserves the soil and

prevents soil erosion and water retention in the farmlands. It is a low-cost bio-engineering tool. It is a green technology, and as such, helps to sequester carbon," added Hon. Reddy.

The tensile strength of vetiver roots is strong and long (2-3.5m) and has massive root networks which are very fast-growing, it is better than many types of trees which normally take 2-3 years to be effective.

The river bank protection would further provide many benefits to Naveicovatu Village in terms of protection of land, protection against erosion avoiding loss of land, stabilization of river banks, reduces the loss of agricultural land, reduction of excessive sedimentation within watercourses which silts up gravel beds and destroys spawning and invertebrate habitat and reduction of channel widening and associated flow issues.

"Vetiver system is a very simple, practical, inexpensive and effective

biological measure for soil and water conservation. Vetiver grass was introduced to Fiji over 100 years ago and it has been widely used for soil and water conservation purposes for more than 50 years."

"It has been a very important component of soil erosion control on the sugar cane lands around Lautoka and Rakiraki from the 1960s until fairly recently."

The Land Use Section of the Ministry of Agriculture has been involved in vetiver systems to arrest soil erosion issues in farms.

"The vetiver grass has distinctive morphological, physiological and ecological characteristics. Together with its tolerance to highly adverse growing conditions, provides a unique bio-engineering tool for land stabilization, flood and stream bank erosion control. It is non-invasive, a good pollution control, thus making it ideal for soil and water conservation.

A thin line against Erosion - Vetiver Grass



Vetiver grass used in Residential stabilizing and landscaping

HISTORY

Soil conservation practices are used to prevent soil degradation and maintain good soil health. It is to prevent soil erosion, soil overuse and water contamination. There are various measures that are used to maintain soil health, and prevent the above harms to soil. These practices include: mulching, contour farming, Agro-forestry, inter-cropping, alley cropping, and vetiver hedgerows.

Vetiver Establishment is a Technology on its own. Since 1987, technology has been tested in India, China, Philippines, Indonesia, Nigeria, Madagascar, Brazil and Australia. In Trinidad used to stabilize rock based roadside. In Fiji research was carried out in Waibau, Naitasiri from 1987-2000. This project was initiated by Land Use Planning Section in collaboration with IBSRAM. Next decade environmental issues will dominate the agricultural and

natural resource sectors.

DESCRIPTION OF VETIVER

The plants grow in large clumps from a much branched "spongy" root stock with erect 0.5 - 1.5m high. Leaf blades are relatively stiff, long and narrow up to 75cm long, less than 8mm wide.

VETIVER HEDGEROW AT WORK

- The leaves & stem slow the silt loaded runoff and cause it to deposit the silt behind the plant. Binds the soil beneath the plant to a depth of up to 3 meters
- Forming a dense underground curtains that follows the contour of the land
- Roots prevent gully erosion and tunnelling

WHY VETIVER GRASS IS AN IDEAL PLANT?

- It has strong fibrous root system that penetrates and binds the soil to a depth of up to 3 meters and can withstand the effects of tunnelling and cracking
- Requires minimal maintenance
- It will not become a weed
- Protects the plant against fire and

- overgrazing because crown is below the surface
- Maintain soil fertility

OTHER PRACTICAL USES FOR VETIVER GRASS

- Protecting riverbanks
- Nurturing trees
- Stabilizing tree crops
- Vetiver as a mulch
- Protecting roadsides
- Stabilizing gullies
- Stabilizing wasteland areas

Research done in Waibau from 1992 - 2000 Average tropical countries soil loss per year is 13.5 tons/ha/yr. Soil loss from research site was 50 tons/ha/yr. With hedgerows of vetiver only 1 ton of soil is lost in a hectare per year. Uses of Vetiver grass in Fiji



Vetiver grass used for contour hedgerows

Public-Private Partnership Encouraged for Riverbank Stabilization



Minister for Agriculture, Rural and Maritime Development, Waterways and Environment Hon. Dr. Mahendra Reddy

Non-Governmental Organizations (NGOs) and Private Sectors are being encouraged to partner with Government in stabilizing riverbanks and to lend support towards the control of soil erosion using vetiver grass.

The Minister for Agriculture Rural

and Maritime Development, Waterways and Environment Hon. Dr. Mahendra Reddy has urged donor agencies, NGOs, and other corporate entities to promote vetiver grass as a tool for riverbank stabilization and for erosion control purposes.

"We need to work together to scale-up such ecosystem-based approaches and use it as a vegetative candidate for bioengineering river stabilization work. I now wish to invite them to provide funding and to take ownership of matching commitment with Government.

He elaborated that Government intended to coordinate 50km of vetiver grass planting every year, with NGOs being invited to commit funding for 50km with the

invitation extending to the private sector to provide support for an additional 50km of vetiver grass.

"We also urge them to adopt this unique community base model whereby we pay them \$12,200 per kilometer or \$12.20 per meter of vetiver grass establishment. In this way, we can achieve 150km per year with full community ownership and we could achieve the dual objective of protecting our river banks as well as contributing to a green environment while supporting the community as well," added Dr. Reddy.

He highlighted that the stabilization of riverbanks was important but despite current efforts, there still was a lot to be done for the effective management of river banks.

"The protection of the environment is not only the sole responsibility of the Government but the public at large has an important role to play and the Naveicovatu community has pioneered to take the lead," he acknowledged.

Public Urged to Protect Natural Resources

The Fijian Government's commitment to safeguarding natural resources was reiterated to all communities and the general public, who are being advised to refrain from damaging natural resources and contributing to environmental pollution.

This was the stern advice reiterated by the Minister for Agriculture, Rural and Maritime Development, Waterways and Environment Hon. Dr. Mahendra Reddy during the commissioning of the Naveicovatu Vetiver Project in Tailevu last week.

Dr. Reddy stressed that Government remained committed to protecting our natural resources, highlighting that the 2013 Fijian Constitution guaranteed this, with legislations in place.

"Government will come out strong on the enforcement of these legislations as there have been instances of sea and river bank destabilization; cutting down of mangroves; dumping of litter and industrial waste in our waterways; unsustainable and irresponsible commercial, industrial and agricultural practices which is posing a threat to our waterways; and indiscrimi-

nate destruction of our natural resources for personal commercial gains," he said.

"Let me make it clear that while we want investment, growth and development, and will support and promote it, but not at the expense of our environment and natural resources," said Dr. Reddy.

He highlighted that this was being done to ensure that future generations were not deprived and had the opportunity to enjoy the same benefits from the environment and natural resources.

"Natural resources provide direct benefit to the current generation, however, the loss of these natural resources will not only deprive the future generation from deriving these same direct benefits, it will also deprive them of the environment whose value may not be measured quantitatively," said Minister Reddy.

"While we will do our best to educate everyone on the importance of protecting our environment and natural resources, we will, at the same time, use the full force of law to punish anyone who attempts to do otherwise.



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