A Social Investment Opportunity for Rural Communities in Improving Land Degradation using the Vetiver System

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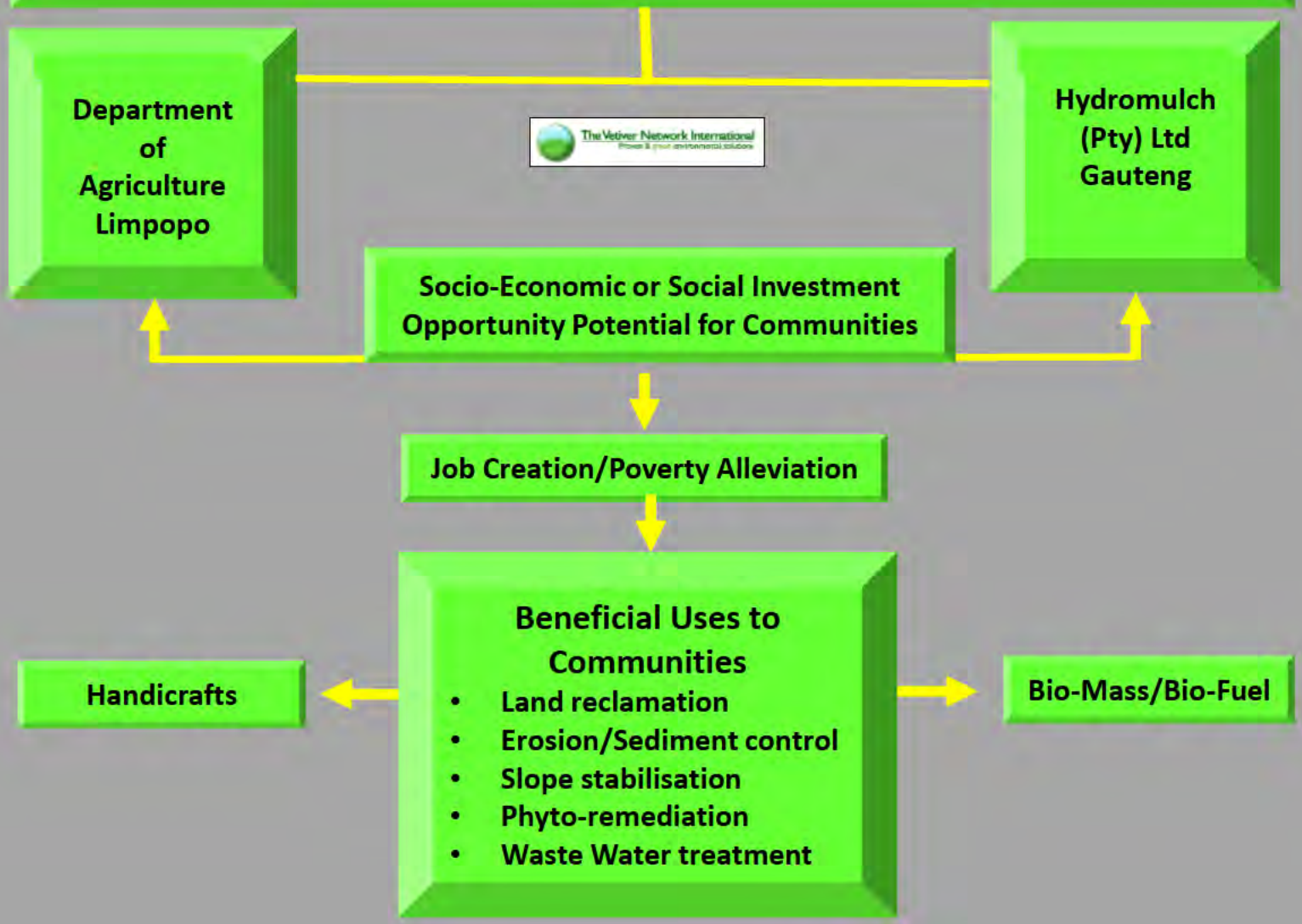
Concept of Introducing the Vetiver System to Rural Communities for Improving Land Degradation in South Africa



Vetivers recorded presence in Southern Africa

Reference is made to "Vetiveria nigritana" found in Ngamiland (Okavango swamps), Botswana and in the Grootfontein district of Namibia

Reference to Vetiver grass grown in Ventersdorp, South Africa as far back as 1892 – used by the "Pioneers" to scent their wooden chests/containers during their journeys into the Interior

Socio-Economic Potential & Beneficial Uses of the Vetiver system's vegetative Bio-Engineering application techniques for local community participation

Land Reclamation

Erosion & Sediment control

Slope Stabilisation

Phyto-remediation & waste water treatment

Socio-Economic Potential For local community participation

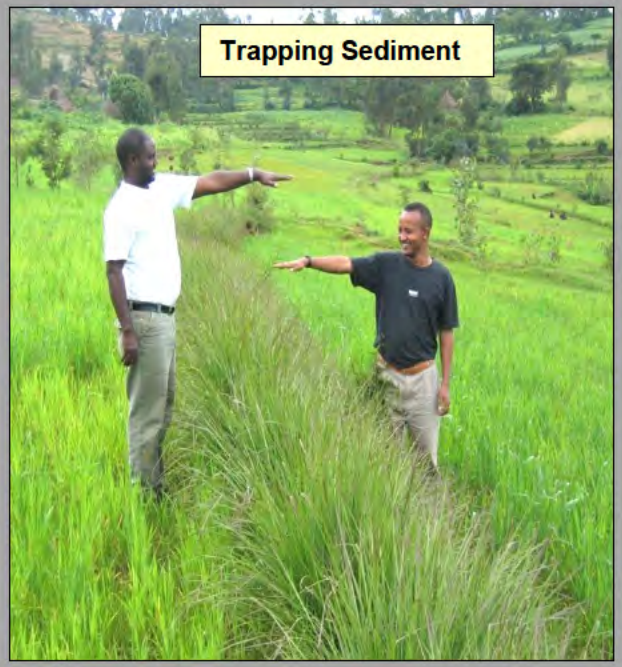
Handicrafts

Job Creation/Poverty Alleviation

Bio-Mass/Bio-Fuel

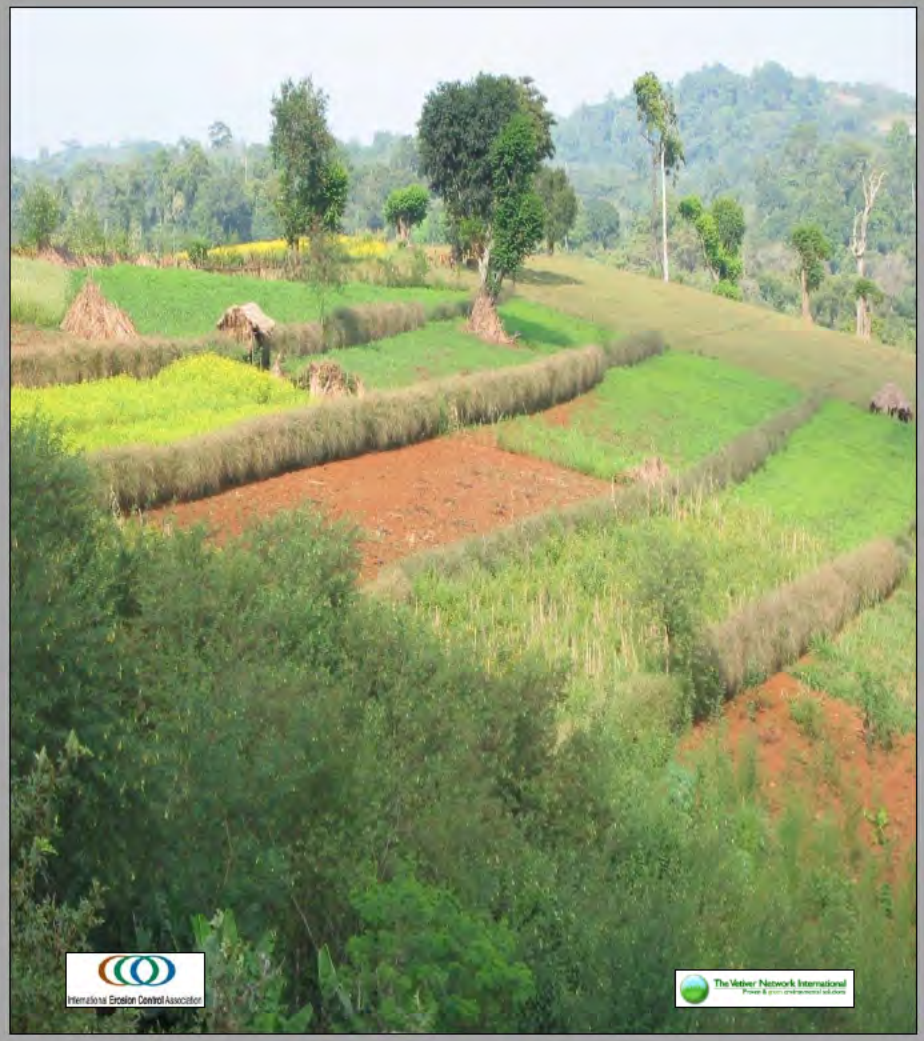
Land Reclamation

Ethiopia- Rehabilitation of Degraded Land and environmental Applications Vetiver hedges planted on contour contributed to ground water "re-charge" increasing soil moisture capacity



Fodder Crops

Spreading surface water runoff and increasing soil moisture capacity

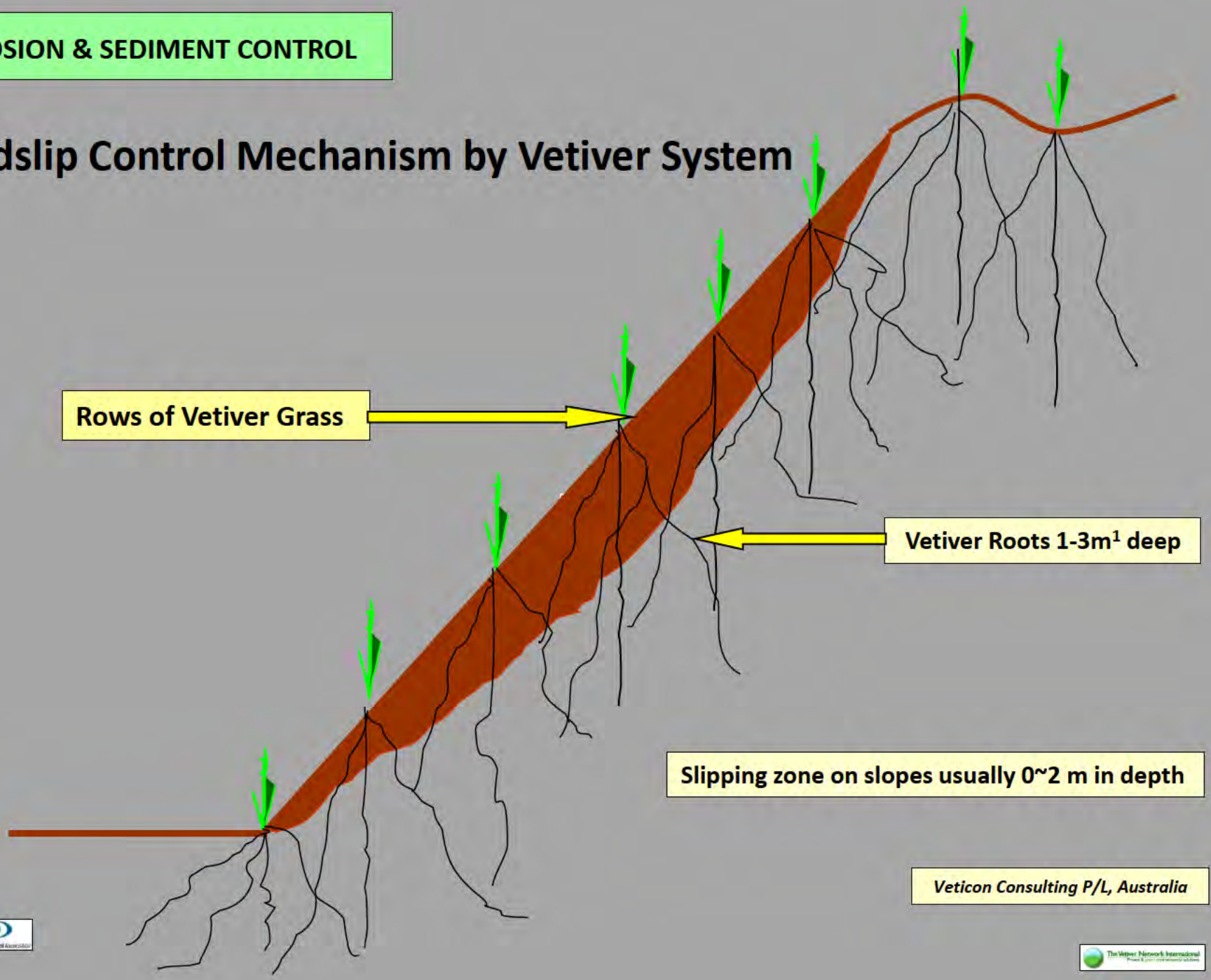


Reducing surface flow velocities & increasing ground water penetration

Erosion & Sediment control

EROSION & SEDIMENT CONTROL

Landslip Control Mechanism by Vetiver System



Veticon Consulting P/L, Australia


Road Embankment Rehabilitation
Gabions-Coir Logs-Wire mesh

Bio-Jute/Vetiver grass - Installation on Cut Slope Embankments. Rio Tinto-Simandou, Guinea


Established Bio-Jute/Vetiver/Hydroseeding Slope


Eroded side slope repairs with Sandbags & Vetiver

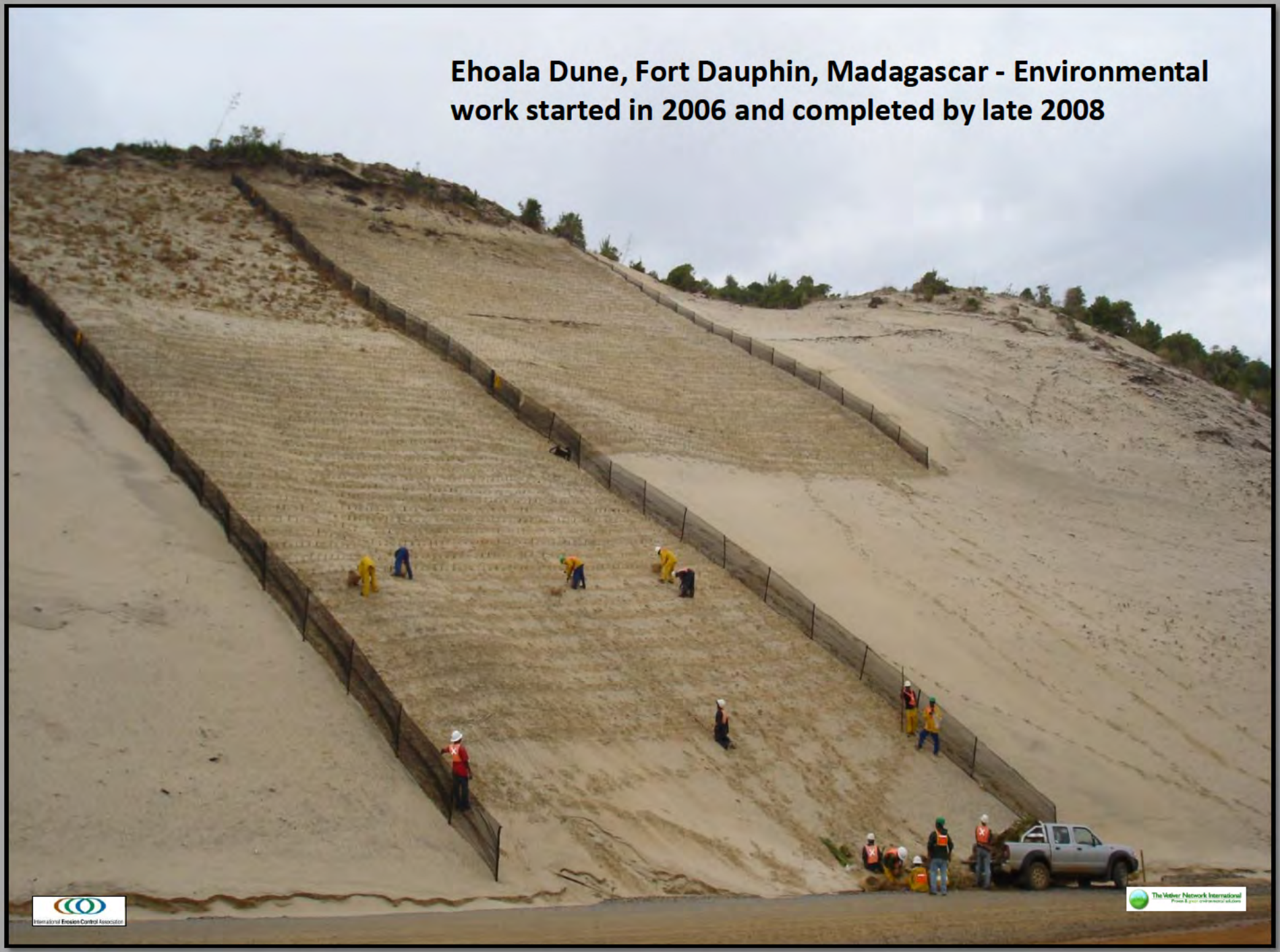
Donga & Gully Repairs with Sandbags & Vetiver

Slope Stabilisation

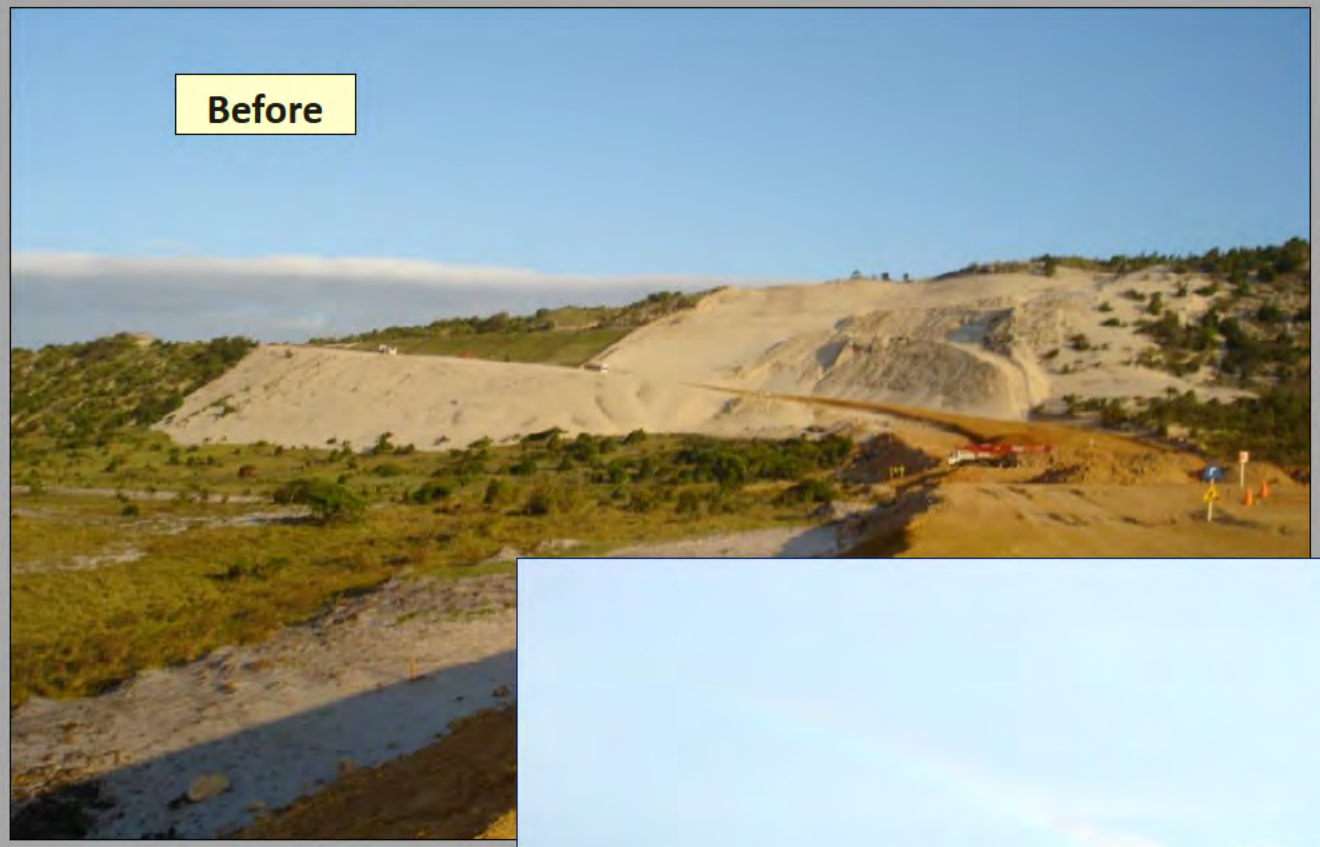
Slope stabilisation

Rio Tinto Project– Fort Dauphin, Madagascar

40 hectares were stabilised and re-vegetated.
4,000,000 Vetiver plants were propagated & supplied by 168 local villagers over a 3 year period.


Ehoala Dune, Fort Dauphin, Madagascar - Environmental work started in 2006 and completed by late 2008

Surface Water Runoff control with Vetiver Grass Hedge Rows

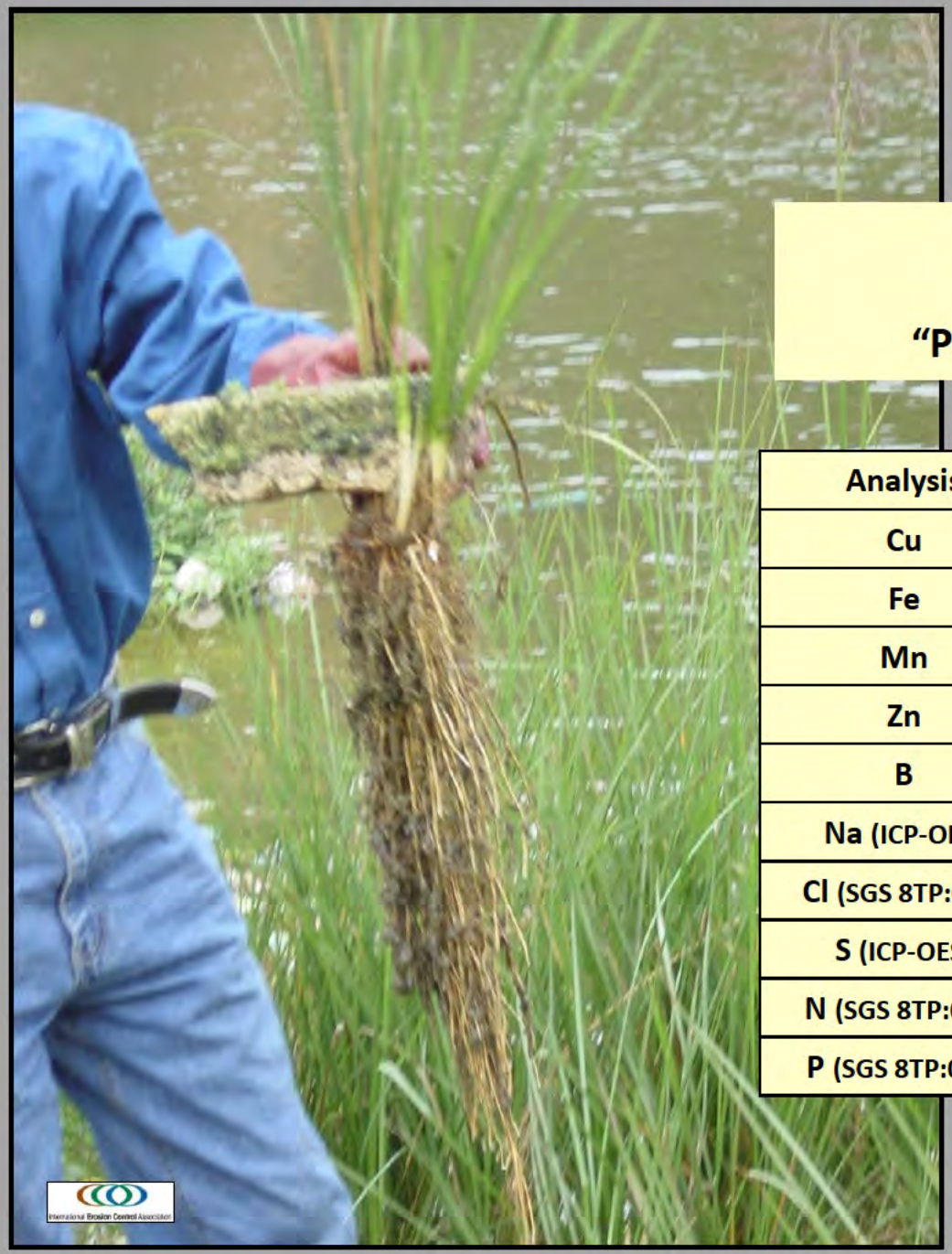


Restoration Project Rio Tinto Madagascar

Phyto-remediation
&
Waste Water treatment

Cleaning of Discharge Water – Phytoremediation

Vetiver Pontoon – 12 Weeks later



Chemical Analyses of "Pontoon" floated Vetiver plant

Analysis	Leaf	Root
Cu	3 mg/kg	12 mg/kg
Fe	360 mg/kg	676 mg/kg
Mn	170 mg/kg	621 mg/kg
Zn	22 mg/kg	57.08 mg/kg
B	14 mg/kg	10 mg/kg
Na (ICP-OES)	0.01 %	0.04 %
Cl (SGS 8TP:033)	0.41 %	0.26 %
S (ICP-OES)	0.12 %	1.31 %
N (SGS 8TP:022)	1.31 %	3.50 %
P (SGS 8TP:022)	0.07 %	0.24 %

SGS South Africa


Waste Water Treatment
Refilwe Community Project-Lanseria
REFILWE COMMUNITY PROJECT - MAY 2007
This facility was made possible by the generous support given by the donors of the Globalgiving Community U.S.A. the participating Jewellers of The Private Collection of South African Diamonds Programme U.S.A. Sanix (Pty) Ltd., Enviro Options (Pty) Ltd. South Africa and The Brian La Trobe Foundation
Refilwe Life for all
Breaking the cycle of poverty...
globalgiving
Vetiver Buffer Area
Dr B.E. La Trobe


Vetiver Buffer Zone-Refilwe Community Project-Lanseria


Buffer or Catchment Zone

Socio-Economic Potential

Job Creation/Poverty Alleviation

Handicrafts & Bio-Mass

Vetiver propagation – Fort Dauphin, Madagascar

Vetiver Rastafarian

Empowerment of Local Communities for Vetiver propagation

Started with 15 communities in 2006 & expanded to 32 communities by 2008


Antahova family from the Mangarivotra Village

Utilisation of all available space for vetiver propagation


Donga Rehabilitation Limpopo Province South Africa
Initiated by the Department of Agriculture, Limpopo Province.

VETIVER PROPAGATION COURSE
FOR
SOIL CONSERVATION & EROSION CONTROL

Initiated by:

Department of Agriculture, Limpopo Province
Republic of South Africa in association with Hydromulch (Pty) Ltd

Hydromulch Premises, Bapsfontein Farm,
Ekurhuleni, Gauteng or at Community Halls
By

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Under the auspices of:
The Vetiver Network International (TVNI)
&
The International Erosion Control Association (IECA)

A two day basic theoretical & practical introductory course offered to selected participants from local communities.


Local community members receiving training in the functional uses of Vetiver

Tubatse Class – Vetiver slip preparation February 2012

In-Field Training on soil preparation techniques of degraded area in Tubatse, Limpopo Province, RSA

Community training - Setting out of contours and Vetiver planting techniques

Pre-grown Vetiver plants were supplied for the training program

In-Field Training - Dongas Rehabilitation at Malomanye Village

Vetiver slip preparation for mature plants

In-Field Training on soil preparation techniques of degraded area in Malomanye, Limpopo Province, RSA

In-Field Training on soil & vetiver planting techniques - Malomanye, Limpopo Province, RSA

Vegetated Dongas at Malomanye Village overgrazed by local domestic animals – important to note that NO erosion has occurred and that native grass species are starting to creep in

More Community Field Training in progress

Status of Rehabilitation Donga

HYDROMULCH
(Pty) Ltd
Certificate of Attendance

is hereby granted to:

.....

to certify that he has successfully completed

Vetiver Propagation for Soil Conservation

&

Erosion Control Workshop

at .....on .....20.....

Dated: .....

.....
R. Selemela
Department of Agriculture
Limpopo, Republic of South Africa

.....
R.E. Nöffke
Hydromulch (Pty) Ltd

Potential to make Vetiver Handicrafts

Vetiver Bio Mass Options for BioFuel

Bio-Mass for Bio-Fuel Production

The use of Vetiver grass as a source of bio-mass to be used in the production of bio-fuel (ethanol) or as palletized fuel has enormous potential.

Some Interesting Facts supporting the Use of Vetiver grass

- One plant on the planet with the highest photosynthetic activity (given sufficient sunlight, water and nutrients produces the most dry biomass per unit in time).
- Produces up to 70-80 dry tons per hectare of cellulosic biomass with adequate water & nutrients.
- Perennial plant only requiring to be planted once with a lifespan running into many decades.
- It is a C4 plant and has a “Net Calorific value” of 14.01 MJ/kg and a “Gross Calorific value” of 15.18 MJ/kg.
- Potential fermentable sugars found in Vetiver is approximately 57% by weight.

In conclusion

Various physical, chemical and hydrological approaches are being developed and used to control soil erosion, soil salinity and land degradation. These practices are however very expensive and often beyond the reach of rural communities.

The Vetiver system (VS) has the potential to contribute to reversing land degradation if applied systematically and to set down guidelines. It also has many other interesting aspects about it which can be utilised by local communities in and around the household.

Vetiver needs to be incorporated in rural development initiatives while involving all the stakeholders including government organisations, extension service agencies, researchers, NGO'S and educational institutions.


We always seem to have a
PLAN B
but we forget that there is
"No"
PLANET B
It is our responsibility to preserve and protect the environment we live in.
Thank you