



INDONESIAN VETIVER NETWORK (IDVN):  
c/o EAST BALI POVERTY PROJECT



# VETIVER ACHIEVEMENTS & PROJECTS THROUGHOUT INDONESIA

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# VETIVER GROWTH AS CHILDREN'S EDUCATION

(Cegi School Example planting pot)

Introducing the Power of Vetiver to school children: "Learning by Doing"

WHAT IS VETIVER?

HOW IS IT DIFFERENT TO OTHER GRASSES?



Above: Cegi students with pot after 3 months



Right: After one years growth: 2.2 metres roots



# HOW TO PREPARE VETIVER SLIPS FOR RE-PLANTING



**Typical Vetiver clump**



**Vetiver roots & leaves trimmed, before splitting**



**A tiller after splitting & guideline to measure 15-20cm leaf length**

**Vetiver stabilizes volcanic  
ash mountain tracks,  
providing permanent access  
for remote mountain  
communities**



# **VETIVER GRASS INTRODUCED APRIL 2000 TO STABILIZE FIRST EVER ROADS** in upper mountain hamlets between Mts Agung & Abang in East Bali. Prior to vetiver stabilisation, all tracks collapsed during annual rainy season



Pre Vetiver: Locals carry goods on their head up the steep dirt tracks which collapsed yearly



April 2000: EBPP schoolchildren in Bunga rush to plant the first ever vetiver grass



April 2000: EBPP's Cegi School children planting vetiver to stabilise dirt tracks



31 May 2000: Ed Balbarino, Philippine Vetiver Network Coord. (right) & Richard Wendt (EBPP), amazed at 2 months vetiver growth on EBPP's newly opened road



**1999: ERODED ROAD TO BUNGA HAMLET BEFORE PLANTING VETIVER**



**2002: VETIVER PROTECTED ROAD TO BUNGA HAMLET**





# VETIVER PROTECTING JATITUHU DIRT ROAD





# VETIVER PROTECTS CEGI STEEP EMBANKMENTS FROM COLLAPSE



**2008: Dr Paul Truong, International vetiver expert, admires EBPP vetiver systems in Cegi**





**Vetiver stabilizes volcanic  
sand fill to facilitate  
building of schools**

# VETIVER STABILIZES VOLCANIC SAND FILL FOR CEGI SCHOOL



**Cegi hill before school construction**

Bali Hindu Priest blessing Cegi community land in January 2004 prior to leveling out the hill leading down to Cegi children's organic vegetable garden. The community did not believe that the cut sand from the brow of the hill could form the school foundation as fill as there was no clay or other cohesion in the sand. Vetiver came to the rescue! The power of vetiver in this testing situation sent a clear message throughout the region: "Got a land stabilization problem? No problem *If you use vetiver!*"



**Newly completed Cegi school in June, 2004**



**2006: Vetiver boundary now higher than surrounds!**



# 2007: VETIVER STABILIZES STEEP JATITUHU SCHOOL EMBANKMENT



Vetiver "pot" examples in front of Jatituhu School



Vetiver stabilizes Steep embankments in front of school





# 2002: VETIVER STABILIZES VOLCANIC ASH SLOPES BEHIND BUNGA SCHOOL BUILDING

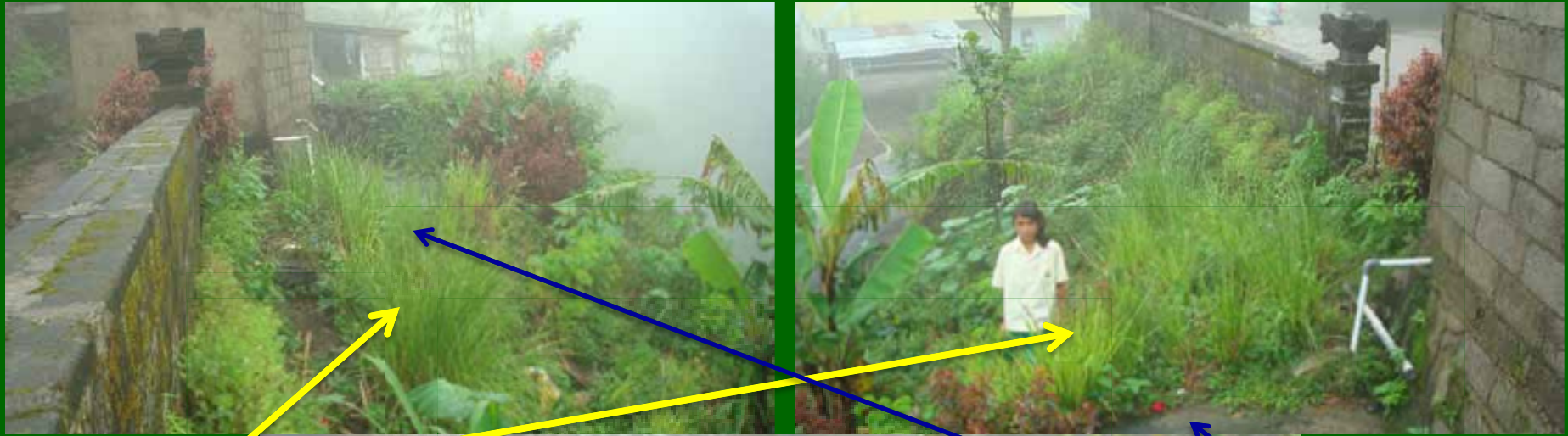




## 2010: The Vetiver System

**stabilizes steep volcanic ash land  
for new family toilets and absorbs  
septic tank waste water further  
down slopes – and shows  
rapid growth of new  
native species**

# VETIVER SYSTEM BEHIND TOILETS ON SLOPES



Vetiver

Toilets &  
Septic  
tank





**Vetiver stabilizes &  
re-greens  
mountain homes  
built on precarious &  
steep volcanic ash slopes**

# MOUNTAIN HOMES MADE SAFER & GREENER WITH VETIVER





**Vetiver stabilizes  
mountain springs that  
provide 140 litres/day  
safe water for  
1,000 mountain families  
with no other water source**

# VETIVER PREVENTS DESTRUCTION OF ESSENTIAL MOUNTAIN SPRINGS [1]

**October 2004: Serious erosion to mountain spring after torrential monsoon rain mountain floods cascaded down**





# VETIVER PREVENTS DESTRUCTION OF ESSENTIAL MOUNTAIN SPRINGS [2]

October 2004: Fix logs to stabilize sand & planting vetiver hedges





# VETIVER PREVENTS DESTRUCTION OF ESSENTIAL MOUNTAIN SPRINGS [3]



**Vetiver growth after 6 weeks**



**Vetiver growth after 2.5 months**



**Developing EBPP  
Community-owned  
Vetiver Nurseries for  
sustainable social &  
economic development by  
ownership & empowerment**

# EBPP COMMUNITY VETIVER NURSERIES



**Optimising benefits of very steep volcanic ash mountain slopes that were too steep for crops**





# HARVESTING VETIVER AND RE-PLANTING



**Vetiver stabilizes steep volcanic ash farmland, that previously only supported cassava & corn crops, for sustainable organic vegetable & herb farming for schools & community kitchen gardens**



# ORGANIC SCHOOL GARDENS





# HARVESTING ORGANIC VEGETABLES AT SCHOOL GARDENS





# ORGANIC COMMUNITY GARDEN



**June 2003: British Ambassador, Richard Gosney CBE, visits EBPP projects and very impressed with vetiver stabilized school & community organic vegetable & herb gardens**



# LOCAL FAMILY'S ORGANIC VEGETABLE KITCHEN GARDENS





**Vetiver handicrafts from roots & leaves, introduced to EBPP children from 2001 after harvesting vetiver from community nurseries to replant in the many community-based beneficiary projects**

# CHILDREN MAKING HANDICRAFTS FROM VETIVER ROOTS & LEAVES & ALSO LEARN ROOF THATCHING [1]



**Cegi kids: Vetiver roots**



**Bunga: dried Vetiver grass**



**Manikaji: flowers from roots & grass**



**Cegi kids: Vetiver roof thatch classes**



# 11-2008: VETIVER HANDICRAFTS WORKSHOP BY THAILAND WORLD EXPERTS FOR LOCAL WOMEN'S GROUPS AND EBPP SCHOOLS (2)





# DRIED VETIVER GRASS ROOF THATCHING EXAMPLE AT EBPP HQ IN EAST BALI



**Underneath view of thatching**



**Completed recreation area vetiver "umbrella"**



**Major Examples of**

**EBPP/IDVN**

**Vetiver Projects**

**from 2000 to 2011**

# VETIVER CITY PROJECT

Client in Denpasar city: Vetiver to stabilize villa slopes & beautify landscape



**EBPP's Ardika Adinata: 6 months growth**



# **VS AT SUNDANCER RESORT, SEKOTONG WEST LOMBOK (1)**

To stabilize steep slopes and eliminate the 1,000cm+ annual erosion mainly on steep collection gullies: planted 140,000 vetiver polybags



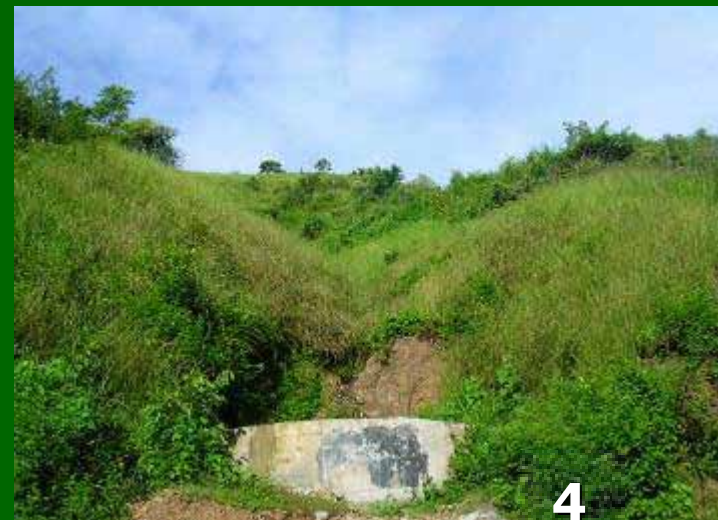
**Steepest gully before planting vetiver**



**After clearing bushes & grasses**



**Planting vetiver polybag**



**6 months after vetiver planting**



# VS AT SUNDANCER RESORT, SEKOTONG WEST LOMBOK (2)

Another very steep major gully





# VETIVER TO STABILIZE 85° SLOPING LAND BELOW NEW VILLA CONSTRUCTION & AYUNG RIVER, BALI



**Villa slopes before planting vetiver**

**Organic worm castings fertiliser used for all plants to ensure rapid growth**



**EBPP team planting vetiver 7th May 2006**



**New shoots 3 days after planting**



**Vetiver growth after 3 weeks**



**5 weeks after planting**



# STABILIZE STEEP VILLA SLOPES, LAPLAPAN, UBUD, BALI



**Land before vetiver planting**



**Planting Vetiver on contours**



**1 month after planting**



**5 months after planting**



# VETIVER GRASS TO STABILISE VERY STEEP VILLA LAND TO STOP EROSION & LAND SLIDES: Gwyn Day, Ubud



Steep land in front of Villa before planting Vetiver



Planting vetiver: long ladders required



Vetiver growth after 1 month



4 months after planting



# REHABILITATING DRY NORTH BALI



Village leader surveys his dry slopes



Land near beach to be rehabilitated



Chris Brown's Pemuteran Vetiver nursery with plans to re-green all with Vetiver in 2003/4





# VETIVER PROTECTS BEACH FRONT HOUSE FROM SEA



**Roots grow 10cm - 7 days after planting**



**Rapid Vetiver polybag growth on beach despite ocean waves**



**Fierce waves erode steep sand slopes – Vetiver survives**



**Vetiver looks dead but still functions**



# VETIVER SYSTEM AT OBEROI HOTEL, BALI

Vetiver planted on banks and river to clean polluted river water entering ocean in front of Oberoi Hotel





# TYPICAL PLANTING OF VETIVER GRASS TO STOP BEACH EROSION West coast of Bali



**Before planting vetiver**



**Planting vetiver**



**Plant vetiver polybags on pathway border**



**7 months after planting**



**VETIVER GRASS  
GROWS WELL ON THE  
BEACH, PROTECTING  
PROPERTY &  
PREVENTING EROSION**





# VETIVER SYSTEM SURVEY for PT RAPP [1], INDONESIA'S LARGEST PULP & PAPER PRODUCER, SUMATERA, May 2007





# VETIVER SYSTEM for PT RAPP [2]

## Establish Vetiver Nursery & pilot projects





# VS FOR INDONESIAN GOVT. PUBLIC WORKS DEPARTMENT

(After intro & consulting by David Booth, 2006 & 2007)

**New Jakarta-Bandung Toll Road (Cipularang), June 2008**



**Paul Truong & David Booth advise on planting design, etc.**



**Ardika Adinata clarifies examples on TVNI VS poster**





# VS FOR INDONESIAN GOVT. PUBLIC WORKS DEPARTMENT

Cipularang toll road, June 2008: Good results from Vetiver planted in 2007-8





# VS FOR INDONESIAN GOVT. PUBLIC WORKS DEPARTMENT

Newly constructed Nagreg Bandung Ring toll road.

April 2009





# **VETIVER PROJECT FOR EXXONMOBIL NEW OIL PLATFORM**

**Indonesia's 1<sup>st</sup> inland oil field, Bojonogoro, East Java**  
**40,000 Vetiver slips planted in November 2008**



**Planting Vetiver [1]**



**Planting Vetiver [2]**



**Planting Vetiver on platform corner slopes**



**Vetiver growth 4 months after planting**



# VETIVER SYSTEM FOR CARITAS, SWISS NGO, ACEH

Land rehabilitation & house building post-Tsunami in Aceh Province, Sumatera, Indonesia





# VETIVER PROJECT FOR PT TIMUR ADICITRA

Middle income Housing Dev't, Samarinda, East Kalimantan, June 2009

Planted 100,000 Vetiver slips





# ADB PILOT DEMONSTRATION ACTIVITY (PDA) PROJECT: Citarum River Basin, West Java

Technology Transfer in Application of Vetiver Systems (VS) for Slope Stabilisation, Erosion Control and Initiating Sustainable Upland Farming Systems to Citarum Riparian Communities. Planted 100,00 vetiver slips

[1] Pilot efficacy of VS in phytoremediation of septic tank waste water from 150 family system



Septic tank

Vetiver Planting area

Before Vetiver System



Planting 40,000 vetiver slips



3 weeks after planting



3 months after planting



# ADB PILOT DEMONSTRATION ACTIVITY (PDA) PROJECT: Citarum River Basin, West Java

[2] Stabilise terraces and develop nurseries in Upper River Basin farmland



Paul Truong & IDVN team demonstrate vetiver planting techniques to local stakeholders





# VETIVER SYSTEM FOR PT. ADARO, COAL MINING COMPANY IN KALIMANTAN (2<sup>nd</sup> BIGGEST IN INDONESIA) TO REHABILITATE MINE TAILNGS [1]



**April 2010: Planted 2,200 vetiver slips in polybags for 1 month prior to planting on tailngs slopes**



**Soil characteristic is so bad, low fertility, sandy texture and slope 27% even with hydroseeding technology, this soil is too hard to revegetate with just one hydroseeding.**



**Vetiver planted with 2 meter vertical interval, row distance: 5,4 meter and slips distance : 15 – 20 cm**



# VETIVER SYSTEM FOR PT. ADARO, COAL MINING COMPANY, KALIMANTAN TO REHABILITATE MINE TAILINGS [2]



**Vetiver acted as a pioneer species and very soon, between the vetiver grew other species**



**Clear example of sediment erosion trapped by vetiver after only 4 months after planting polybags!**



# VETIVER SYSTEM FOR PT. ADARO, COAL MINING COMPANY, KALIMANTAN TO REHABILITATE MINE TAILNGS [3]



**The drop structure using vetiver aims to reduce the water flow rate so as to reduce erosion while holding the eroded soil sediment carried in the water flow.**



# VETIVER SYSTEMS FOR GOLD MINING COMPANY, N. SULAWESI, PT MEARES SOPUTAN (PT TOKA TINDUNG)

Planted 100,000 vetiver slips



EBPP Vetiver Team give presentation to MSM staff and Environmental Dept. of North Sulawesi Province



Survey/planning for VS in future mine tailings area



Planning for immediate VS on slopes above explosives magazine compound



Planting vetiver on steep 400m slopes around the Base Transceiver System (BTS) & new power lines



# VETIVER SYSTEMS FOR GOLD MINING COMPANY, N. SULAWESI, PT MEARES SOPUTAN (PT TOKA TINDUNG)

Designs for VS throughout extensive infrastructure and drainage





**EAST BALI POVERTY PROJECT  
& INDONESIAN VETIVER NETWORK (IDVN):**

**VETIVER WORKSHOPS &  
TRAINING**

**THROUGHOUT INDONESIA**



# EBPP'S ARDIKA ADINATA TRAINS FARMERS GROUPS AND SCHOOL CHILDREN IN RURAL BALI VILLAGES HOW TO BENEFIT FROM VETIVER SYSTEM



**Vetiver posters are a very powerful visual aid**



**Explaining simple hand measure for slip & root length**



**North Bali junior high school children listen.....**



**and practice what they learnt on barren school land**



# VETIVER & SUSTAINABLE AGRICULTURE TRAINING FOR INDONESIAN GOVT WATERSHED MGT. COMPANY PT PERUM PERHUTANI AND LOCAL FARMERS GROUPS AT EBPP CENTRE





# VETIVER TRAINING FOR CONSERVATION INTERNATIONAL (CI) STAFF FOR REHABILITATING WEST PAPUA PROTECTED REGION





# VS WORKSHOP FOR ADB PDA CITARUM RIVER BASIN PROJECT STAKEHOLDERS: BY DR PAUL TRUONG AND IDVN June 2008





# WORKSHOP FOR CARITAS NGO STAFF, ACEH January 2009





# WORKSHOP FOR INDONESIAN PUBLIC WORKS DEPARTMENT: "GREEN CONSTRUCTION"

David Booth, Paul Truong & Ardika Adinata, JAKARTA AND BALI, June 2008





# WORKSHOP FOR INDONESIAN PUBLIC WORKS DEPARTMENT: "GREEN CONSTRUCTION" Field trip to Ban Village





# VS & WASTE WATER WORKSHOP FOR CIPTAKARYA INDONESIAN GOVT. WATER & SANITATION DEPARTMENT, DENPASAR

Presented by David Booth, June 2008





# VETIVER INTRODUCTION TO THE SULAWESI COMMUNITY, PT. MEARES SOPUTAN NEW GOLD MINING PROJECT Jan 2011





# VETIVER WORKSHOP FOR SNR. MGT. NEW OIL PALM COMPANY: PT. SAKTI MAIT JAYA LANGIT

Denpasar, 5<sup>th</sup> April 2011



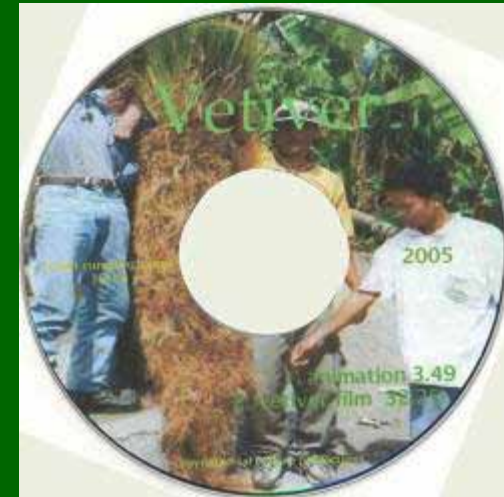
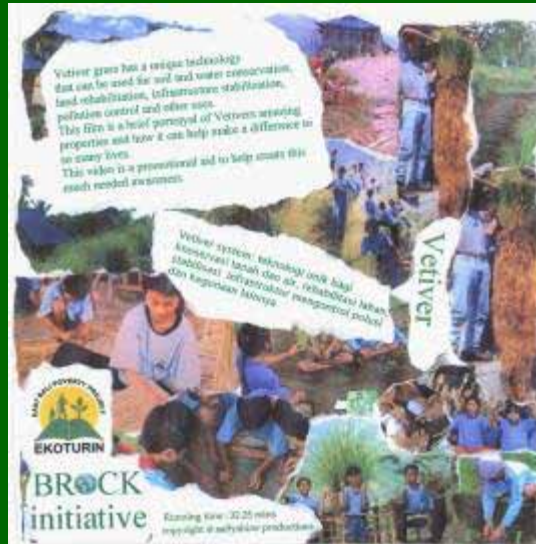


# VETIVER TRAINING FOR TANTAN RUSTANDI, REC. COORD. FOR EAST INDONESIA BRANCH OF INDONESIAN VETIVER NETWORK [IDVN]





# EBPP Vetiver Training Video



**Sarah filming village head explaining the power of Vetiver**



**Sarah records Bunga's Kartawa telling how Vetiver has changed his community forever – opening a future**



# EBPP/IDVN Vetiver Supplied from 2000-2011

Period	EBPP Vetiver planted for Village projects/nurseries	Sold to Clients	Total
Year 2000	88,000	15,000	103,000
Year 2001	100,000	24,000	124,000
Year 2002	200,000	12,000	212,000
Year 2003	300,000	24,000	324,000
Year 2004	450,000	186,000	636,000
Year 2005	450,000	56,000	506,000
Year 2006	500,000	70,000	570,000
Year 2007	500,000	142,000	642,000
Year 2008	400,000	190,000	590,000
Year 2009	400,000	220,000	620,000
Year 2010	500,000	105,000	605,000
2011 [till April]	100,000	120,000	220,000
<b>Total</b>	<b>3,988,000</b>	<b>1,164,000</b>	<b>5,152,000</b>



A lush green field with tall grasses in the foreground. In the background, several people are working in the field, and there are trees and a hillside. The scene is bright and natural.

**THANK YOU**