VETIVERIM

A Quarterly Newsletter of the Pacific Rim Vetiver Network

Number 7 January 1999

The Third Thai National Workshop on Vetiver

As announced in VETIVERIM-6, the Third Thai National Workshop will be held at the 50th Anniversary Information Building, Kasetsart University, Bangkok on 14-15 January 1999. Tentative program of the Workshop is presented below:

Opening Ceremony:

- Opening Address: Mr. Manoon Mookpradit, Chairman, Sub-committee on Technical Matters, Planning and Evaluation (STeMPE), Committee on the Development and Promotion for the Utilization of Vetiver according to His Mafesty's Initiative (CODPUV)
- Inaugural Address: H.E. Mr. Chulanope Snidvongs Na Ayuthaya, Chairman, CODPUV

Slide Multivision:

Opening of the Exhibition & Poster Session:

Keynote Addresses:

- H.E. Dr. Ampol Senanarong, Privy Councilor: (topic to be announced)
- Dr. Sumet Tantivejkul, Secretary-General, Royal Development Projects Board: Policy and Operational Guideline for the Development and Promotion for the Utilization of Vetiver according to His Majesty's Initiative
- Dr. Apichai Thirathorn, Member, STeMPE: Summary Report on the Monitoring and Evaluation of the Development and Promotion for the Utilization of Vetiver according to His Majesty's Initiative

Workshops:

- Basic and Applied Researches on Vetiver
  Chairman: Dr. Weerachai Nanakorn
- Utilization of Vetiver for the Conservation of Soil and Water and Other Uses
  Chairman: Mr. Chaiyasith Aneksamphant
- Extension and Expansion of Activities on Vetiver
  Chairman: De. Pongsak Angkasith

King of Thailand Vetiver Award

As announced in Vetiverim-1, His Majesty the King of Thailand has graciously agreed to award two prizes, valued at US$ 5,000 each, from His Majesty's Chaipattana Foundation funds under the general

theme of 'Vetiver for Sustainable Development'. One prize will be awarded to the most outstanding research on vetiver and the other for the best program for the dissemination of vetiver technology. At the moment, the Committee on the Development and Promotion for the Utilization of Vetiver according to His Mafesty's Initiative has selected five papers for the nomination of the first award, and six papers for the second award from the nominees sent form ass over the world. The selected papers will be reviewed by the Committee prior to final judging. The announcement of the winners will be made in January 1999. The winners will receive the awards from His Majesty the King sometime in the latter part of 1999. The selected papers from both groups are shown below:

Vetiver Research

1. An Assessment of Strength Properties of Vetiver Grass Roots in Relation to Slope Stabilization by Diti Hengchaovanich and Nimal S. Nilawara.
2. DNA Fingerprints (RAPDS) of the Pantropical Grass Vetiver by Robert P.Adams and Mark R. Dafform.
3. Researches on VGT for Environmental Protection by Paul Truong.
4. Studies on Foot Rot Disease of Vetiver Grass caused by *Sclerotium rolfsii* Sacc. by M.R. Patil.
5. Grass Barriers in Cassava Hillside Cultivation: Rooting Patterns and Root Growth Dynamics by K. Tscherning, D.E. Leihner, T.H. Hilger, K.M. Muller-Samann, and M.A. El Sharkawy.

Dissemination of Vetiver Grass Technology

1. VGT Dissemination by China Vetiver Network by Liyu Xu.
2. VGT Dissemination by Paul Truong.
3. VGT Dissemination in Ethiopia by Alemu Mekonnen.
4. VGT Dissemination by Vetiver Network Philippines by Edwin Balbarino.
5. Extension and Dissemination of Vetiver Grass for Soil and Water Conservation and Rehabilitation of Deteriorated Soil by the (Thai) Department of Land Development.
6. VGT Dissemination by Latin American vetiver Network (LAVN) by Joan Miller.

The Vetiver Network's 1998 R&D Awards

The Vetiver Network (TVN) announces the recipients of its Research and Development Awards for 1998, totaling US$ 50,000.

Category 1 : Soil Erosion Projects

First Prize: shared equally among:

Liyu Xu (China)

Alemu Mekonnen (Ethiopia)

Paul Truong (Australia)

Edwin Balbarino (Philippines)

Joan Miller (Costa Rica)

Dept. of Land Development (Thailand)

(Second and Third Prizes not Awarded)

Category 2: Improvement of Extreme Soils

First Prize: shared equally between:

Zhang Jing (China)

Paul Truong (Australia)

(Second Prize not awarded)

Third Prize:

Nawianmbi Simon (Cameroon)

Category 3: Water Management

First Prize: shared equally between

Jano Labat (Zimbabwe)

P.A. Dalton, R. Smith and P. Truong (Australia)

(Second Prize not awarded)

Third Prize: shared equally between:

Project CAP (Madagascar)

Stang Consult (Zimbabwe)

Category 4. Pollution Control

First Prize:

Paul Truong and Dennis Baker (Australia)

Second Prize:

Hanping Xia and Xuixui Ao (China) *(Third Prize not awarded)*

Category 5. Farmers Support Project

First Prize:

Kevin O'Sullivan (Mexico)

Second Prize:

NOBS (El Salvador)

Third Prize: shared equally between:

Jing Zhang (China)

B.B. Ghaley and Karma Tenzin (Bhutan)

Category 6: Disaster Prevention

First Prize:

Diti Hengchaovanich (Thailand)

Second Prize:

Hanping Xia and Xuixui Ao (China)

Third Prize:

Nawainmbi Simon (Cameroon)

Category 7: Basic Sciences

First Prize:

Diti Hengchaovanich (Thailand) and N.S. Nilaweera (Malaysia)

Second Prize: shared between

Paul Truong (Australia)

Robert Adams and Mark Dafforn (US)

(Third Prize not Awarede)

Special Prize for Technology Initiative

Development of an Improved " A " Frame for Leveling by J. Phiri (Malawi).

Vetiver Report from Australia*

The application of VGT has gained great momentum in Queensland, Australia in 1998, both in the application and research fields.

Applications

Infrastructure Protection: The major breakthrough in VGT application here is the acceptance of VGT by the Queensland Department of Main Roads for both routine maintenance work and new roads. Following the author's presentation at the North Queensland Main Roads Symposium in Cairns, he was invited by the Department to work with the design team to incorporate VGT in the upgrading of the Cooktown Development Road north of Cairns. This was the first time in Australia that VGT was incorporated into the design of a new road and specified for batter and abutment stabilization, drainage channels and other concrete and rock structures protection. The first section of this road is now being built and 23,500 linear meters, i.e. 188,000 vetiver slips are needed for a short section of about 10 km of this road. Other road stabilization works are in Mackay, Central Queensland and Toowoomba, Southern Queensland.

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* By Paul Truong, Resource Sciences Centre, Queensland Department of Natural Resources, Brisbane, Australia.

Environmental Protection: Mining rehabilitation has gained great momentum here, with the use of VGT to control wind erosion (dust storm) from a 300 ha gold tailings dam. Mine tailings often contain heavy metals which can readily pollute the surrounding environment through both wind and water erosion. With vetiver's very high levels of tolerance to soil pH and heavy metals, VGT is ideally suited for the rehabilitation of these contaminated sites.

In addition, the Regional Environmental Office (south) of the Mine and Energy Department has also adopted VGT as the main method of stabilization, erosion and sediment control of small mines in the region. These include gold, arsenic, and bentonite mines; clay pits and quarries.

Interest was also received from Western Australia on the application of VGT in mining rehabilitation.

Research

Three areas of research are being conducted in Queensland.

Mycorrhizal Fungi: The fact that vetiver can grow in a wide range of soil conditions indicate that this species may be benefiting from symbiotic association with mycorrhizal fungi. To date, plant and soil samples have been collected at several locations and different habitats in Queensland and mycorrhizal fungi have been identified. One of the major findings to date is that both the number of species and populations of mycorrhizal fungi in intensively cropped land are much lower in comparison to those from the poor degraded lands. This may be due to the effect of agro-chemical on mycorrhizal fungi population. The implication is that for heavily contaminated land (e.g. mine tailings and landfill) mycorrhizal fungi inoculation may be needed to ensure good and sustainable growth. Work is underway to identify and isolate the most efficient mycorrhizal strain for inoculation purposes.

Trapping Agro-chemicals and Nutrients: Trials are being conducted to determine the efficiency of vetiver hedges in trapping agro-chemicals and nutrients in run off; sediment eroded from sugar cane fields and irrigated cotton farms. The following chemicals and nutrients are being monitored:

- Insecticides: Lorsban, Endosulfan.
- Herbicides: Atrazine, Prometryn and Trifluralin.
- Fertilisers: N, P, K, S, Zn.

Phyto-degradation in Wetlands: Some plants have the capacity of breaking down agro-chemicals under wetland conditions. A trial is being conducted firstly to determine whether vetiver has this capacity and secondly if it does, how efficient it is in comparison to other species.

International conference

TVN is one of the major sponsors of the First Asia Pacific Conference on Ground and Water Bioengineering for Erosion Control and Slope Stabilization in Manila, Philippines in April 1999. The

author is representing TVN on the Organizing Committee and he is also a member of the Technical Review Committee. VGT will be well presented at the Conference, with several quality papers from Australia, China, Philippines and Thailand. In addition he will also coordinate a training coures and will chair a Panel Discussion on vetiver and VGT at the Conference.

Vetiver: An Authorized Grass for Highway Stabilization*

An official document was prepared and released by the Highway Bureau of Fujian province of China on 8 July 1998. The document fully approved the function of vetiver for highway embankment stabilization and requested all highway institutions, offices, and departments at county and prefecture levels throughout the province to study vetiver grass technology (VGT) and to use vetiver for highway stabilization and erosion control. The document also requested all institutions to strengthen the exchange of ideas and experience in order to extend the VGT throughout the province more rapidly. The Chinese version of the article "Vetiver Technology Application in Engineering Aspects" by Diti Hengchaovanich, was also provided as attachment.

There are three prefectures, 16 cities, and 54 counties in Fujian province with a total area for over 120,000 sq. km. The province is located on the northeast of Taiwan with many mountains and hills which account for more than 90% of the total land area. There has been a rapid development of highway construction in Fujian province, e.g. 4,000 km of highway were built during the period from 1992 to 1996. The highways were usually construted on the deeply-weathered granite, from few meters to several dozens of meters deep, and were subject to soil erosion and collapse, leading to damaged highways and new soil erosion area along the highways. To protect the highway, engineers had to use rock and concrete for the critical sections of the road embankment. There are 2.6 million sq. m. of road embankment slopes that need to be protected in Fujian province. However due to financial constraints, there was only a very small percentage of the slopes being protected. Following the International Vetiver Workshop held in Fuzhou, the capital of Fujian province in October 1997, the VGT was introduced to the highway authority of the province. They have been convinced that the VGT is the cheapest yet effective way for highway embankment stabilization.

Vetiver at China Super-way Conference*

The China's National Super-way Conference titled, "Super-way Construction and Development" was held on 26-29 November 1998. It was organized by the China Highway Engineering Society. The vetiver grass formed an important of the Conference. During the Conference the China Vetiver Network

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* By Liyu Xu, Coordinator, China Vetiver Network, P.O. Box 821, Nanjing 210008, P.R. China.

(CVN) introduced the characteristics of the grass and the technology of applying the grass for highway embankment protection and erosion control along the highway slopes. Vetiver publications were distributed. Typical examples of using vetiver for highway stabilization in Yunnan, Guangdong, and Fujian provinces were introduced. Vetiver samples and a set of photographs were exhibited. The representative of CVN suggested that the environment should be one of the main parameters before the new road was checked and accepted. He also proposed that a workshop on highway embankment protection and slope stabilization be organized in 1999. More than 90 participants attended the Conference coming from highway engineering institutions, universities, and construction companies through out China. Some detailed descriptions on the grass behavior and application Yannan province was presented. During the Conference, some participants went to An Ning to visit the demonstration site.

In the past, the highway institutions protected highway embankments with rocks or sometimes with short grass which usually could not survive for long period of time. The vetiver grass generated great interest in the participants.

The Highway Science Institute of the Ministry of Communications planned to establish a large demonstration for several dozens of kilometers. Many participants from northern China also expressed their willingness to test vetiver.

The participants suggested that the activities of China Highway Engineering Society should include three subjects: Road Surface, Road Embankment, and Environment; the latter two of which involve VGT. Some participants said that the most impressive issue from the Conference was that they learned more about the miracle grass vetiver.

Vetiver in Viet Nam *

Vetiver is a large, coarse tropical grass. It grows to 2 m and more and, as a hedge planted on contour lines, forms a porous living dam. It has dense, strong, fibrous roots penetrating rather straight down, 3 m (sometimes within the first year) to as much as 6 m, binding the soil tightly. It has long been used (including in Viet Nam) for many purposes – baskets, mats, thatch, medicine, fodder, and perfumery. In recent times, however – especially since the 1980's starting mainly as a World Bank effort – it has taken on an important new role in many countries around the world, a role for which it is nearly ideal: a "hedge against erosion".

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* By Ken Crismier, Redmond, WA, USA; Email: Dencris@gte.net: WWW: Http://homel.get.net/kencris This article will also be appearing in substantially the same form in the Indochina Interchange, the newsletter of the US-Indochina Reconciliation Project, New York; and on our Website.

Many agricutural and forestry efforts fail, or encounter under difficulties and waste, because they neglect to stabilize the soil and water situation properly before attempting to achieve the project goal – this is where vetiver shines!

From 26 October to 23 November 1998, I was in Viet Nam for vetiver. The purpose of the trip was to introduce vetivr to more policy makers, planners, and practitioners – in agriculture, forestry, roads and bridges, dams and dikes, canals and channels, environment – anyone involved with disturbing the soil or repairing the after effects of such disturbance! We are excited to report success in getting published in Vietnamese the World Bank handbook "Vetiver – The Hedge Against Erosion" for farmers and others – 5,000 copies, by the Agriculture Publishing House, with 1,500 immediately into distribution. In addition, we were able to present vetiver to many key people who were previously not aware of it.

The high point of the trip was a meeting on November 7 at the Ministry of Agriculture and Rural Development (MARD) with nearly 25 people, representing three Ministries and a total of 17 organizations, where for three hours the vetiver message was warmly received and discussed.

We are working on plans for two workshops: the first in Hanoi (January 19-22, one day of presentations and other meetings, 3 days for field trips) and the second in Ho Chi Minh City (January 29). These are being organized by he International Cooperation Department of MARD; the number of invitees is expected to top 300. Main presenters will be international vetiver authorities, viz. Dr. Paul Truong, with the Australia Department of Natural Resources, emphasizing agricultural applications of vetiver; and engineer Diti Hengchaovanice, Thailand, emphasizing engineering applications. The goal will be to set in motion concrete actions to get vetiver into widespread use. Among other things, we will be meeting to discuss constituting Vetiver Network Viet Nam as a Viet Nam based organization, to join many other such international, regional, and national "vetiver networks" around the world in promoting the use of vetiver.

Between the two MARD workshops we have been invited by the Gardeners Association (Vacvina) of Nghe An province (Vinh) for two days of ssimilar activities. This major provincial branch of the countrywide association has really taken up the torch for vetiver! We will continue to report progress in Nghe An and elsewhere as it occurs.

You will be pleased to know that on this last trip I distributed all the copies you sent me – 20 or so – of the 'Vetiver Grass System for Environmental Protection', PRVN Technical Bulletin No. 1998/1 Paul Truong and Dennis Baker. They were much in demand, even after I ran Out! Are you able to supply me with more? I would take whatever you can give me, for the upcoming workshops.

News from The Vetiver Network*

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* By R.ichard G. Grimshaw, Coordinator, The vetiver Network, 15 Wirt Street NW, Leesburg, Virginia, USA.

It is "Thanks Giving Day" here in the US, and we have a lot to be thankful for with regard to the use and application of the Vetiver Grass Technology over the past year. I have been particularly with the way that the regional and national networks have functioned and have gone much further in the development and dissemination of the technology than I could ever have imagined. Also many of the NGOs who are working with TVN have developed new ideas in using the technology and involving participating users. You are all to be congratulated.

Earlier this month we announced the winners of the Vetiver Research and Development Awards and we have now dispersed most of the $50,000 allocated to the awardees. In deciding the winners we gave special recognition to those working under difficult conditions. We also recognized people who have been working in very practical ways with vetiver. The details of the awards are on our web site at http://www.vetiver.org and will be published in the next Newsletter # 20. We have forwarded 10 names to Thailand as our nominees for the prestigious "King Of Thailand Award".

During the past year a great deal of interest has been shown by our engineering colleagues in the technology, much of this interest had been developed because of excellent work by Diti Hengchaovanich, Paul Troung, Hanping Xia, Liyu Xu, Criss Juliard, Stage Consult and others. In Madagscar all major highway donors are including vetiver specs for highway stabilization, and in Fujian province (China) all provincial roads are to be stabilized with vetiver. I understand from Jim Smyle that rehabilitation of roads in Honduras will include vetiver components. (It is a pity that the technology had not been applied earlier.) Early feedback from the areas hit by Hurricane Mitch indicated that vetiver hedgerows did their job well.

Proceedings of the International Vetiver Workshop Published*

Vetiver Research and Development, the proceedings of the International Vetiver Workshop held in Fuzhou, China in Oct6ober 1997 was published by the Agricultural ScienTech Press of China in Beijing. It includes four parts: (i) General description, (ii) Growth behavior and utilization, (iii) Vetiver for soil conservation, and (iv) Reproduction and perspective. There are altogether 37 articles, most of which were written by Chinese scientists and extensionists. It contains 200 pages with 86 tables, 39 figures, and 28 photographs. The proceedings was published in Chinese, and its English version is to be published when funds are available.

The Vetiver Network Recognition Awards

The special "Recognition Awards" have been given by The Vetiver Network (TVN) this year to about 50 persons at all levels who have played a special role in the development of vetiver and its

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* By Liyu Xu, Coordinator, China Vetiver Network, P.O. Box 821, Nanjing 210008, P.R. China.

technology dissemination. These awards will probably be made once every two or three years. Persons who won TVN prizes are not included in this category.

Ground and Water Bioengineering for Erosion Control and Slope Stabilization

Ground and water bioengineering is one of today's fastest growing technologies for the prevention of soil erosion. By utilizing local resources and labor, bioengineering offers an economical alternative to traditional erosion control and soil stabilization methods. It is gaining worldwide acceptance for stabilizing slopes, riverbanks, agricultural lands, mined areas, and shorelines. Ground and water bioengineering harness nature to enhance project performance and sustainable use of human and plant resources.

The International Erosion Control Association, in collaboration with five cooperating organizations, viz. the World Association of Soil and Water Conservation, the Vetiver Network, the Road Engineering Association of Asia and Australia, the Asia- Pacific Association of Forest Research Institutes, and the Asia-Pacific Association of Agricultural Research Institutions, is Organizing the First Asia-Pacific Conference and Exhibition on "Ground and Water Bioengineering for Erosion Control and Slope Stabilization at the Shangri-La Edson Plaza Hotel, Manila, the Philippines, 19-21 April 1999. The goals of the conference are to share knowledge, to discover solutions and to explore applications of bioengineering for the purpose of environmental improvement.

In addition to the technical program, several field tours will be offered to visit local and regional projects that have incorporated bioengineering and other erosion control technologies. There will also be an exhibition which will provide outstanding educational opportunity in exploring today's best bioengineering technology.

The Conference will feature two main strands to explore the application of bioengineering solutions to seven important topic areas: *1. Engineering:* (i) Infrastructure and Transportation: Development, (ii) River, Canals, and Shorelines, (iii) Mining: *2. Soil & Water Conservation:* (iv) Agriculture, (v) Forestry, *vi) Watershed Management, and (vii) Socioeconomic.

The program of the technical presentations include a Plenary Session, a Workshop, Oral Presentation Sessions (7 topic areas above).

Contact: Philippine Congress Organizing Center, Conference Secretariat, P.O. Box 4486, Ermita, Manila, the Philippines Tel: (632) 522 0541; Fax: (632) 522 1090 E-mail: pcoc@manila-online.net Web Site: http://www.ieca.org

Program of the Third Thai National Workshop on Vetiver (Cont'd. from p. 1)

Panel Discussion:

- Topic: Vetiver: An Amazing Grass

- Discussion Leader: Dr. Narong Chomchalow
- Discussants: Dr. Riksh Syamanonta
  Mr. Diti Hengchaovanich
  Ms. Chularat Serichetapong
  Mr. Songsak Khieokhli

Presentation of Awards:

- Winners of the Exhibition Contest
- Winners of the Products Contest