

VETIVERIM

A Quarterly Newsletter of the Pacific Rim Vetiver Network

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Editorial

The Use of Vetiver in Non3 – Agricultural Sector

It is undeniable that human activities are the main source of changes in the world geography and environment. Explicit examples of such include the explosion of mountains to build highways and railroads, drilling of mountains for mining, construction of dams across the rivers to build reservoir, or the destruction of forest resources. Besides these, other causes include chemical changes in the atmosphere as a result of emission of gas or certain types of chemical substances, earthquakes, landslide and land subsidence, extinction of wild animal and plant species, as well as waves of extreme heat or drought which have occurred in several parts of the world. Undesirable and critical changes to the environment caused by man are now having impacts on human lives beyond control. Worst of all, one cannot anticipate the possible disastrous outcomes of this ongoing situation.

In response to this, different countries are earnestly trying to resolve or mitigate the problems by using several measures. Different methods including reliance of heavy machinery and cultivation of various have been attempted to resolve and prevent the problem. In this connection, PRVN has pioneered in promoting the use of vetiver in non-agricultural sector by publishing two technical bulletins, one on environmental by Paul Truong and Dennis Baker, the other on slope stabilization and erosion control by Diti Hengchaovanich.

It is unfortunate that many agencies in most countries in the region which deal with such problems are not aware of the great potential of vetiver in mitigating their problems. This, in part, may be due to the overemphasis on our part in trying to solve the farmers' problem of soil erosion on their farmlands. It is now time that we should also pay attention to other roles that this miracle grass can pay. After all, the same principle in using simple and cheap vetiver grass technology for soil and water conservation can be applied to both agricultural and non-agricultural sectors alike. Such a topic will also be highlighted in the coming Second International Conference on Vetiver, to be held in Cha-am, Phetchaburi, Thailand, 18-22 January 2000, whose detail is presented in this issue of Vetiverim.

The Second International Conference on Vetiver (ICV – 2)

In response to prevailing man-made environmental problems such as forest clearing for crop cultivation on steep land; construction of dams, highways, and railroads; deposition of heavy metals and toxic substances, etc. different countries are earnestly trying to resolve or mitigate the problems by using several measures. Different methods including reliance of heavy machinery and cultivation of various crops have been

attempted to resolve and prevent the problem. However, some of the methods incurred high costs and the technologies applied are too complicated for farmers to implement.

It has been proven worldwide that vetiver grass grown as contour barriers across sloping lands provides a low cost and sustainable system with numerous advantages for environmental conservation, e.g. preventing and controlling soil erosion, maintaining soil moisture, trapping heavy metals and other toxic materials before they reach valuable natural resources, etc. Moreover, the grass's ability to grow in areas containing high levels of toxic substances proves significant in removing heavy metals and other toxic materials by increasing the organic content and allowing the translocation of plant nutrients in the soil. All these help improve the conditions of the area, in terms of soil nurturing and atmospheric moisture.

Thailand is a country which faces the problem of soil erosion and has been utilizing vetiver grass in many areas throughout the country. In 1992, His Majesty King Bhumibol Adulyadej graciously granted initiatives to relevant agencies to use vetiver grass for conserving soil and water as well as for other purposes on a continual basis. Consequently, study, experiment, research, together with actual cultivation of the grass in different areas, have been carried out. The fruitful results of the experiments, etc. have extended to farmers who applied the cultivation on their own land and successfully improved the soil, allowing the benefits from farming to be realized.

On 4-8 February 1996, Thailand the honor from The Vetiver Network to host the First International Conference on Vetiver (ICV – 1) in Chiang Rai Province under the name "*Vetiver: A Miracle Grass*". The Conference ended with overwhelming success in widely disseminating vetiver uses and benefits. On the auspicious occasion to commemorate His Majesty King Bhumibol Adulyadej's Sixth Cycle Birthday Anniversary on 5 December 1999, Thailand is once again given the privilege by the Interim Committee for the International Conference on Vetiver to host the Second International Conference on Vetiver (ICV – 2). The main objective of ICV-2 is to show that vetiver grass is one of the simple and low cost solutions to deal with a broad and ever increasing range of environmental problems.

Conference Theme

Towards the new millennium: An era of practical and economical methods of vetiver utilization for environmental conservation and protection.

Objectives

1. To commemorate the Sixth Cycle Birthday Anniversary of His Majesty King Bhumibol Adulyadej of Thailand.
2. To provide an international forum for experts to exchange views, knowledge and new techniques on the utilization of vetiver, especially on its attributes in environmental conservation and protection.
3. To educate the public and disseminate the knowledge on vetiver, its usage and application.

4. To be a venue for different vetiver networks and dissemination units all over the world to share their work experiences and achievements.

Conference Technical Program

The conference's technical program is divided into 3 main sessions: plenary, concurrent, and poster sessions. All sessions will be based on 7 major categories: (1) Soil and Water Conservation Attribute; (2) Pollution Control and Treatment / Restoration and Rehabilitation of Disturbed and Contaminated Areas; (3) Disaster Prevention; (4) Training and Technology Dissemination; (5) Basic Research and General Studies; (6) Alternative Uses and Socio-economic Values of Vetiver; and (7) Other Topics.

Plenary Session: The plenary sessions will be featuring the opening ceremony, keynote lecture, plenary lectures, and panel discussions. Partial list of prominent scientists who have agreed to speak in the plenary sessions include: Sumet Tantivejkul, Chaipattana Foundation, Thailand; Richard Grimshaw, The Vetiver Network, USA; Paul Truong, Queensland Department of Natural Resources, Brisbane, Australia; Diti Hengchaovanich, APT Consultant, Thailand; Aldo Miranda, NOBS Antierosion, El Salvador; Criss Juliard, Madagascar; Alemu Mekonnen, Ethiopia; Ngainmbi Simon Chia, Cameroon; Duncan Hay, Institute of Natural Resources, South Africa; Jim Smyle, The World Bank, Costa Rica; Rob Shelton, Papua New Guinea; Mark Dafforn, National Academy of Sciences, USA; Stephen Carr, Malawi; Oscar Rodriguez, Venezuela; Joan Miller, Latin America Vetiver Network, Costa Rica; Mike Pease, Euro-Med Vetiver Network, Portugal; Narong Chomchalow, Pacific Rim Vetiver Network, Thailand; Liyu Xu, China Vetiver Network; Edwin Balbarino, Philippine Vetiver Network; Apichai Thirathon, Thailand Vetiver Network.

Panel Discussions: Panel discussions will be featuring the following topics: (1) Experience in Putting Together Country-wide Vetiver Program: Policies, Issues, Expectations, and Results; (2) Vetiver and Natural Disaster: Prevention and Rehabilitation; and (3) Reports of International, Regional and National Vetiver Network Coordinators.

Concurrent Sessions: Altogether three concurrent sessions covering 7 topics above will be held during the conference. Each session will take Place in three separate rooms.

Poster Session: The poster session feature the posters prepared by the participants as well as the papers selected from qualified papers that fail to be presented at the concurrent sessions due to limited time for the sessions. Every poster presented at the conference is eligible for the competition of the 'Best Poster Award' to be presented at the Closing Ceremony on the last day of the Conference.

Technical Tours

With particular reference to the environment, five sites for technical tours on vetiver researches, applications, and technology dissemination to farmers have been selected. Huai Sai Royal Development Study

Center and Chaipattana-Mae Fah Luang Reforestation Project in Phetchaburi Province and Khao Cah-Ngum Rehabilitation Study Area in Ratchaburi Province will provide activities concerning researches and applications of vetiver while a visit to the farmer's orchard will enable the participants to see practical use and the successful application of vetiver.

Exhibitions

Throughout the conference period, three major exhibitions will take place at the Dusit Resort and Polo Club. They are: (1) Poster Exhibition: The poster session exhibition shows the selected posters of vetiver works prepared by participants, (2) Scientific Exhibition: The exhibition features the works of different governmental and non-governmental agencies in Thailand regarding the research and development works of vetiver grass technology, (3) Commercial Exhibition: The exhibition demonstrates and sells mainly local handicrafts made from vetiver grass developed and promoted by the Department of Industrial Promotion.

King of Thailand Vetiver Awards

His Majesty the King of Thailand has agreed to award two US\$5,000 from the Chaipattana Foundation Funds to the best vetiver research work and the best dissemination of vetiver technology work. All papers to be presented at the conference, including papers for the Plenary Lectures, the Panel Discussions, the Concurrent Sessions, as well as the Poster Sessions are eligible for the awards competition. In addition to the awards, the winners will be invited to be the plenary speakers and will be awarded with full sponsorship to attend the conference. The sponsorship includes air travel between the winners' countries and Bangkok, local transportation, accommodations and meals during the conference period. The awards will be announced in December 1999.

Sponsorship

Due to the economic downturn facing Thailand today, only a limited amount of sponsorship is available. The Organizing Committee would like to urge that only applicants from the Least Developed Countries should apply for the sponsorship by stating in the appropriate section of the Abstract Submittal Form along with the curriculum vitae. Applicants from other countries are advised to seek their own sponsorship in order to attend the conference.

Registration Fee

Since ICV-2 is organized to commemorate His Majesty's Sixth Cycle Birthday Anniversary, the Organizing committee, with financial support from the Office of the Royal Development Projects Board and the Chaipattana Foundation, will be responsible for all expenses in organizing ICV-2. Therefore no registration fee has to be paid. All participants will receive, as a compliment from the Organizing Committee, the admission to all sessions as well as all conference materials. However, due to budget constraints, the participants are required to pay for their own accommodation during the conference period.

Registration Procedure

Those who are interested in attending the conference are encouraged to complete the attached registration form and return to the Secretariat to reserve seats as soon as possible. For those who send in their abstracts for consideration, please also turn in your registration form and indicate if you have already sent in your abstracts. The deadline for accepting registration form is 31 October 1999. The Secretariat will then process your application according to the available seats and accommodation capacity and inform you by 1 December 1999. Upon the Secretariat's confirmation on acceptance to the conference, participants are asked to fill out the hotel reservation and flight information form and return it to the Secretariat by 20 December 1999.

Spouse Program

During the conference period, the accompanying persons are eligible to take advantage of the going around by contacting the local travel agency available at the hotel.

Post Conference Tour

After the conference, a number of tour packages has been arranged specially for ICV-2 participants by Tourism Authority of Thailand in collaboration with ATTA for participants who would like to see more of Thailand. Those who are interested in taking the tour should write for details from the Secretariat. Prior arrangement is needed to make the post conference tour.

General Information

Participants: A total of 300 participants are expected to attend ICV-2. These include about 120 international vetiver experts from countries of all regions, international organizations and development agencies. Additionally, about 180 local experts from Thai government agencies as well as non-governmental organizations involved in the utilization of vetiver are also anticipated to join the conference.

Date: 18-22 January 2000

Venue: Dusit Resort and Polo Club

1349 Petchakasem Road

Cha-am, Phetchaburi 76120, Thailand

Home Page: <http://www.dusit.com>

Official Language: The official language as well as all documents during the conference is English.

Accommodation: Rooms will be reserved for all participants at the Dusit Resort and Polo Club, Cha-am Phetchaburi during the conference period which is from the nights of 18-22 January 2000. Invited international participants might be provided with additional nights as required by their flight schedules. Hotel reservations for additional nights other participants can be made through the Secretariat. Please note that the Secretariat will arrange for all accommodations at the Dusit Resort and Polo Club at a special conference rate (with most of the

meals provided), therefore, foreign participants should not make their own reservation. The room rates including tax and service charges per person (in US dollars) are listed below:

	<i>One night</i>	<i>Four nights</i>
Single Room	150	600
Double Room (<i>sharing the room with other participant</i>)	100	400
Accompanying Person (<i>sharing the room with the participant</i>)	50	200

The above rates also cover all meals. Payment for accommodations can be made upon registration at the conference venue.

Accompanying Person: Due to limited room available, the number of accompanying person is limited to one person per one participant. The accompanying persons are entitled to attend the opening session, reception, and farewell dinner.

Climate and Clothing: The climate in Cha-am in January is cool with an average daytime temperature of 18-20 C. National dress of lounge suit will be appropriate for the opening day of the conference. During other conference sessions, any formal dress is suitable. Informal or casual dress is recommended for the technical tours and social functions. Participants are also advised to bring comfortable walking shoes for the technical tours.

Thailand Entry Requirement: All participants must possess valid passport or travel documents endorsed and valid for Thailand. Tourist visas valid for 60 days are obtainable from all Royal Thai Embassies and Consulates. Transit passengers of certain nationals with confirmed onward tickets are allowed to stay in Thailand for up to 15 days. It is recommended that inquiries regarding visa and entry regulations should be made at the Royal Thai Embassy or Consulate in your own country or the nearest one prior to your departure.

Currency, Credit Cards, Banking and Exchange Rate: Only Thai Baht will be accepted at ordinary shops and restaurants. Major credits cards such as VISA, American Express, MASTER and DINERS are also normally accepted at a large number of department stores and restaurants. Currency exchange service will be available at the Dusit Resort and Polo Club front office. Banking hours in Thailand are from 9:30 a.m. to 3:30 p.m.

Mailing and Telephone Services: Mailing and public telephone facilities are served by the front office of the Dusit Resort and Polo Club.

Electricity: Electric power outlets in Thailand are 220 volts.

Upon Arrival at Bangkok International Airport: For participants who notified the Secretariat in advance, the Secretariat will arrange for the pick up service to take them to the Dusit Resort and Polo Club, Phetchaburi (about 2 hours drive). The Secretariat staff will display of the conference during most arrival flights on 18 January 2000. A booth will also be set in the arrival lounge to assist participants who arrive earlier (17 January) or later (19 January). For those who arrive earlier than 17 January or later than 19 January, and fail to inform the Secretariat in advance, Please contact the Secretariat at the office of the Royal Development Projects Board at 280-6193 to 200.

Correspondence: The Secretariat address is as follows:

The Secretariat: Vetiver and the Environment

Office of the Royal Development Project Board

78 Rajdamnern Nok Avenue; Dusit, Bangkok 10300, Thailand

Tel. : 280-6193; Fax: 280-6206, 629-8915 E-mail: vetiver@mail.rdpb.go.th

Become Magic after Six Years*

Due to both climatic and edaphic influences, a vast region in western Queensland, Australia, which locally known as Mitchell Grass Downs, remains treeless in its natural state. This treeless state is partly due to the extremely hot and dry weather, with temperature often exceeds 45 C in the summer and the clayey soil will crack wide open when dry, breaking the roots of young trees. As a result, areas of up to 1,000 ha of this grassland can be found completely bare of trees or shrubs, provided no shading for any wild life or domestic animals.

This grassland is mostly used to graze sheep for wool production, but the lack of shading in the summer has been found to significantly reduce lambing rate. About six years ago, Greg Bortolussi, a research scientist with the Department of Primary Industry, asked me whether vetiver grass, because of its drought tolerant characteristics, could be used to provide shade for sheep in the Mitchell Grass Downs region. I was hesitant as vetiver is only a grass and I have not heard anyone has used grass to provide for animal before. But Greg insisted and pointed out that anything thicker than a fence post is an improvement as at the present sheep line up behind fence post to seek shade in the summer. So we decided to give it a go, that was in 1993.

The following article on the Queensland Country Life (10 Nov.94), a Queensland rural newspaper highlights some of the points I mentioned above:

Asian grass to lift lambing percentages – by Toni Somes

An Asian grass, already used extensively to control soil erosion, may soon prove instrumental in boosting lambing percentages in western Queensland. The vetiver grass (*Vetiveria zizanioides*) is being grown as part of shade plots on Mitchell grass country can boost lambing percentages 15%. According to Toorak manager Tony Barnes, the vetiver grass has considerable advantages over native trees and trees and its predecessors, particularly prickly acacia and Parkinsonia.

“Introducing thorny trees and shrubs like prickly acacia and Parkinsonia, for animal welfare reasons, has seriously threatened the viability of Mitchell grass pastures.” Mr. Barnes said. “But research shows vetiver doesn’t spread – it can only be propagated by root division or slips - and therefore will not compete with natural grasses like Mitchell and Flinders. It also grows rapidly and is capable of providing adequate shade for adult sheep after at least 12 Months”. The vetiver grass is already recognized world – wide as an effective way to control soil erosion.

It has been described as fire-resistant, well adapted to humid and dry condition, tropical and temperate climates and can also survive under water for a reasonable period.

Although the Toorak trial is in early stages, research officer, Greg Bortolussi said he was confident of finding favorable results. “We planted the grass in February last year and now it stands about 1.7 m high and provides quite adequate shade for sheep”. He said.

Mr Bortoulusse said: “Heat stress is currently blamed for approximately 20% reduction in the birth weight of lambs and up to 30% increases in lamb mortality.” He said the addition of artificial shade plots for pregnant and lactating ewes on Toorak had increased overall productivity by 15%. Already we know that nothing really eats the grass, stock won’t touch it, and although kangaroos use it for shade they don’t touch it either”. The Vetiver grass trial is being run alongside native tree shade plots trials at Toorak.

Greg has transferred to another posting soon after the publication of the above article so I have lost touch of that trial, thinking the sheep has eaten it out. But recently on a visit to the region, to my great delight and surprise to find out that Greg’s prediction of the success of the trial was correct, for a minor point, that kangaroos have now developed the taste for vetiver too!

Although I did not visit the trial area, I was told that vetiver has been a great success there and now being used quite extensively to provide shading for sheep in the region and graziers in the Julia Creek region now call vetiver the Magic Grass. I will certainly find out more about the impact of this magic grass on the wool industry later.

Vetiver Handicrafts in Thailand

One of the problems in transferring technology on planting vetiver to the farmers is the acceptance of the farmers who are not quite willing to sacrifice their limited land areas to grow vetiver, a plant does not provide any cash income. One way to overcome this problem is to utilize the leaves, which should have been cut off from the plant at regular interval to induce good growth, to make handicrafts for sale.

The Thai Department of Industrial Promotion has been very active in promoting the utilization of vetiver leaves to make handicrafts. The Department has provided training courses on the techniques of producing wicker words from prepared vetiver leaves, and has organized contests and exhibitions to promote the activity.

With the strong belief that the production of handicrafts from vetiver leaves will encourage farmers to grow vetiver and make use of available leaves to produce handicraft products for sale, the Pacific Rim Vetiver Network has requested the Department of Industrial Promotion to prepare the manuscript entitled, “Vetiver Handicrafts in Thailand” for publication as its Technical Bulletin No. 1999/1. The contents of this publication include 7 chapters, viz. (1) Introduction, (2) The Vetiver Grass, (3) Preparatory Steps for the Utilization of Vetiver Leaves in Handicraft Making, (4) The Making of Handicrafts from Vetiver Leaves, (5) Types of Handicrafts made from Vetiver Leaves, (6) Socio-economic Consideration, and (7) Vetiver Handicraft Contests and

Exhibitions. In addition, solutions for bleaching and dyeing the vetiver leaves have also been provided as appendix. The bulletin is of A-4 Size, with 24 pages, including 16 color pager.

This publication will be produced by the RDPB on behalf of the Pacific Rim Vetiver Network, with fund available from the Chaipattana Foundation. It is expected to be ready at the end of October 1999. Copies will be available free of charge to the participants of the Second International Conference on Vetiver (ICV-2). For those who do not plan to attend ICV-2 may write for a complimentary copy to the RDPB.

Letters to the Editor

Vetiver Grass for Slope Stabilization, Erosion Control and Phytoremediation

I have completed the translation of Technical Bulletin No. 1992/2, “Vetiver Grass for Slope Stabilization and Erosion Control” into Thai as I feel it will be useful to a lot of people. For your information, the document has already been translated into Chinese, French, Spanish and Vietnamese, maybe soon in Italian. So a Thai version would be timely especially in the light of the overwhelming responses I received when the Department of Highways (DoH) recently organised a training on the use of vetiver for their engineers in the northern and southern regions, covering most mountainous areas in 20 provinces—where vetiver would be ideal. I do feel similar exercises should be held for the State Railway for their steeply-cut railroads, the Waterworks for their canal banks, etc. These people, from what I happen to know, are still in the dark of what good vetiver can do for them. Even the DoH people very much regretted they didn’t know earlier about the virtues of vetiver and the proper way to use it. There is a lot of educating and promotion still to do. No. doubt RDPB and DLD have done great jobs so far, probably more weight to the agricultural sector.

I will send you another e-mail on the research on the trial use of vetiver for phytoremediation for the sanitary landfill at Kamphaeng Saen, Nakhon Pathom. Unfortunately because of a few problems and time factors, detailed results will only be partly available at ICV-2. Despite this, we do wish to discover something new before ICV-2 and thereby let the world know in the process.

Diti Hengchaovanich

APT Consultant Co. Ltd., Bangkok

Thanks for your information and contribution. We shall try to seek fund to publish your paper in Thai-language version. Perhaps this will encourage our Thai colleagues in nonagricultural sector to realize the potential of His Majesty’s ‘Miracle Grass’. – Ed.