VETIVERIM

A Quarterly Newsletter of the Pacific Rim Vetiver Network

Number 72 **ISSN 0859 – 8878** **April 2015**

Publisher:
Office of the Royal Development
Projects Board (ORDPB)
2012 Arun Amarin 36,
Bang Yi Khan, Bang Phlat,
Bangkok 10700, Thailand
Tel.: (66-2) 447 8500
Fax: (66-2) 447 8543
E-mails: vetiver@rdpb.go.th;
Foreign_rdpb@yahoo.com
Homepage: http://prvn.rdpb.go.th
Editor's E-mail: narongchc@au.edu

Editorial

The Sixth International Conference on Vetiver

The Sixth International Conference on Vetiver (ICV-6) with the theme of "Vetiver System: Empowering Sustainable Development", is scheduled to be held at the University of Da Nang in Da Nang City, Vietnam, 5-8 May 2015. The aims of ICV-6 are to provide an opportunity for academicians and professionals from various disciplines around the globe to share, discuss, and learn about the latest vetiver technologies and applications. Being the host of ICV for the first time, the Vietnam Vetiver Network has confirmed its role as an enthusiastic member of the Vetiver Network International.

The International Conference on Vetiver (ICV) is a scientific event focusing on various applications of the Vetiver System. Such an event was first held in 1996 in Thailand and extended to other countries under the supervision of the Vetiver Network International (TVNI) and the Chaipattana Foundation.

Following the success of previous ICVs, ICV-6 is expected to have equal or even more participants, as "sustainable development" based on the Vetiver System is seriously considered than ever before in many countries. This Conference will be attended by decision makers, researchers and specialists representing the government and private organizations undertaking the global task of "sustainable development" through the use of vetiver grass.

The program of ICV-6 reflects those of the past ICVs, which consists of the Keynote Address, Presentation of Invited Speakers and Contributed Papers, Poster Papers, and Study Tours. Social activities such as Welcoming Toast, Reception Party and Farewell Dinner will be organized. In addition, it is the Organizer, with full support from the Office of the Royal Projects Development Board of Thailand and the PTT Plc.of Thailand, will organize an international training course on "Vetiver Handicraft Making" for those who want to have "hands-on" practicum on vetiver handicraft making from the most experienced guru from Thailand.

Supporting organizations include TVNI, the Chaipattana Foundation, Vietnam Vetiver Network, Da Nang People's Committee, Da Nang University and many others from the private sectors and non-government organizations.

Messages from the Coordinators of the Vetiver Networks on the Occasion of ICV-6

The Vetiver Network International (TVNI)

Thirty years ago John Greenfield "found" vetiver again – this time not to be lost, but to be shared with the world! I am told that it takes a generation (30 years) to introduce and embed a technology like the Vetiver System (VS) - that is precisely what it has taken us all to do. ICV-6 is a very important gathering and sharing of information. We will learn at the conference of new quality research that helps us to understand not only what we might use VS for, but also how and why this unique plant is able to do what it does. We will hear about new initiatives in various countries, using different VS applications, that are not only exciting, but also of profound importance, at a time when our world and population is facing up to the reality of climate change and the disasters that climate change brings; and a world that is desperately looking for successful and affordable mitigation methods. The Vetiver System provides a practical solution in dealing with many of these problems. This conference is a watershed in VS development. It is taking place at a critical time in our history. It is of utmost importance that on your return home that all of you share what you learn with others, and press those who make decisions, whether in government or the private sector, whether nationally or locally, to take note of what the Vetiver System can do to protect and enhance their natural resources and their economy, and to provide a sustainable future. We have a huge bank of supporting evidence and demonstration – we need to apply it on a vast and sustainable way.

Richard Grimshaw <R.grimshaw@comcast.net>
Founder and Director

The last time I wrote in this newsletter, about ICV-5, I spoke about the people who make up the Vetiver Network International and especially those who were instrumental in founding the group and keeping it vibrant. In a few weeks the Vietnam Vetiver Network in Da Nang will host us for ICV-6. During the first week in May, we will gather to discuss the role of vetiver technology across the world and consider how it has changed lives and environments for the better in the four years since ICV-5 was held at the Central Institute for Medicinal and Aromatic Plants in Lucknow, India.

This year we will highlight the use of vetiver technology as a motor of sustainable development. As an international development specialist, over the past 30 years I have had the opportunity to see what works and many examples of what does not work. In the mid 90s, when one of TVNI's founding fathers, Richard Grimshaw OBE, visited our project in Madagascar, I saw something that could work in a difficult environment. Ever since that time it has been a pleasure to promote vetiver technology as a sustainable solution in diverse situations.

We will soon be in the company of many different types of professionals who have come to the same realization. They have put in place various Vetiver Systems solving a myriad of problems. It is especially remarkable that improvements made many years ago have continued to endure. An example includes the work done in the 1980s in the highlands of Ethiopia, where communities systematically planted vetiver hedges in the hope of reversing land degradation and replenishing depleted underground water reserves. Today, 30 years later, the hedges are visible from satellite images and aquifer water levels are on the rise. The nearby hand-dug wells now have water; there is hope for future generations to make a decent life on the land.

All of us do our best to advocate for vetiver technology solutions in our different locations. Of course, it helps when the solution actually and visibly works, is relatively easy to use, costs relatively little and requires minimal maintenance. Not everyone is willing accept this message,but

those who do realize its advantages quickly.

We will have the chance to see what has happened in Vietnam over the past 10-15 years as vetiver was first tested and then used in many different situations. It is good to remember that the Vietnam Vetiver Network may never have come into existence had it not been for Dr. Paul Truong, who never forgot his native country and has been instrumental in creating an enduring movement based on vetiver technology with dedicated professionals hard at work. I wish to particularly congratulate Mr. Tran Van Man, the Vietnam Vetiver Network Coordinator and host for ICV-6. When Dr. Truong was asked to consult on the construction of the Ho Chi Minh National Highway, he was able to demonstrate the usefulness of vetiver hedges on severe slopes that were created when the Ho Chi Minh Trail was enlarged and paved. Then when we saw how vetiver hedges could be created on coastal sand dunes to stop them from invading valuable rice paddies in Vietnam, it inspired all of us.

I have never been to Vietnam and I am very much looking forward to my trip. My father, who was part of the American war effort in the 1960s, was sincerely pleased to hear very late in his life that although he had participated in trying to destroy the trail, his son is part of the movement that is promoting stabilization of what is now a major highway. As one of the fast growing economies of Southeast Asia, Vietnam needs all the environmentally sustainable solutions it can find. As members of a global network, we are invited to see for ourselves what is happening there. It will be a great opportunity to gather again to share examples and new learning from our efforts over the past four years to make enduring progress in our global community.

Time to gather for ICV-6

Dale Rachmeler <drachmereler@gmail.com>
Ex-President, TVNI

It is with special pleasure that I look forward to attending ICV-6 "Empowering Sustainable Development" in Da Nang, Viet Nam. Viet Nam was one of the early adopters of "modern" Vetiver. In 1990, Viet Nam's National Institute for Soils and Fertilizers began research and development on VGT in mountainous regions. Now, 25 years later, Viet Nam has become one of the leading countries in the world in both research and application of the Vetiver System and, perhaps, the leading country in such critical areas as applications on sea dykes and levees. It is also fitting that ICV-6 be held in Viet Nam, given that it is one of the world's countries most challenged currently by natural disasters as well as one predicated to be among the most impacted in the future due to its natural vulnerability to climate change. In Viet Nam and elsewhere, VGT has a huge potential role to play in confronting the range of issues these pose to sustainable development. By hosting ICV-6, our Vietnamese friends and colleagues will be giving us all the benefit of their long experience and learning and, we in our turn, may hopefully share knowledge and experience of value to them. Thus, we should all take "Empowering Sustainable Development" not as a slogan for ICV-6, but rather as a challenge to ourselves as professionals to come away from ICV-6 empowered by new knowledge and insights and with our commitments renewed to promote and apply the Vetiver System as, to quote Dale Rachmeler, the "*organic 'glue' to support sustainable development at all scales*".

I look forward to seeing you all there,

Jim Smyle <jsmyle@earthlink.net>
President, TVNI

East Africa Vetivernetwork (EAVN)

In Kenya, we work with renewed energy on getting a first paid contract in the roads sector. This after we've shown how to deal with an extreme slope on Nairobi Southern Bypass. See Facebook PLUS-Kenya. The extreme slope work in Kilifi is also completed. See Facebook Green

Cycle Consulting. On-farm, we hear that in Kerio Valley (around Cheptembo) there is slow but sure, sustained progress in raising awareness, including authorities, and mobilising farmers to propagate vetiver.Many more nurseries, and the idea is that Kerio valley's degradation be addressed - large scale.

In other areas of Kenya there is also slow but sure progress, notably these vetiverite farmers got themselves in the news: Paul Kombo (as usual) from Voi, Caleb Omolo from Rongo, Jane Wegesa from Kitale and Christian Makokha from Budalang'i. But occasionally we hear from others, new ones and old ones, needing more plant supplies. From Tanzania, Uganda and Ethiopia there is a trickle of news, sometimes some contact, but nothing substantial as far as I know.

Elise Pinners <elise.pinners@gmail.com>
Coordinator, EAVN

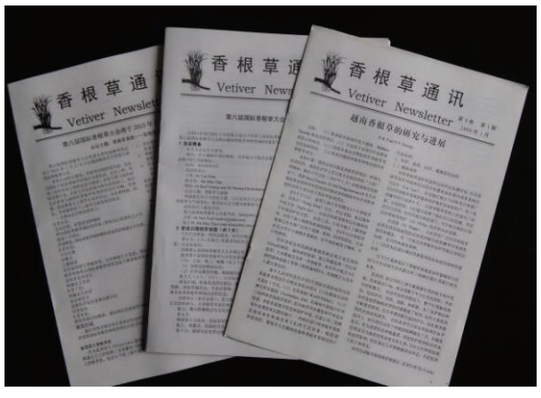
Pacific Rim Vetiver Network (PRVN)

As the Chairman of the Continuing Committee (CC) for ICV-6, at the invittation of Mr. Tran Van Man, Coordiantor of Vietnam Vetiver Network, I had a wonderful time in visiting Da Nang to explore the possibility of Da Nang City to host ICV-6. I participated in a Workshop to brief the key persons of Da Nang City of the organization of ICV-6. I visited several sites to see the various facilities such as vetiver planting on the slope of newly-built road, vetiver propagation, proposed conference facilities and Bana Hill Resort, the place detined to be the site of the Farewell Dinner for ICV-6. Upon submitting my report to the members of CC/ICV-6, a green light was switched on for the preparation of ICV-6. I have made an additinal trip to Da Nang to guide members of the PTT Pcl. on "Landslide Mitigation through the Use of Vetiver and Other Engineering Methods" to see various activities on vetiver planting for landslide mitigation. I have witnessed the readiness to host this international conference in Da Nang. With its competent organizer and its counterparts from both the government and the private sectors, there is no doubt in my mind that ICV-6 will be another successful conference. I wish everyone attending ICV-6 to gain maximum benefit of this conference.

Narong Chomchalow <narongchc@au.edu>
Coordinator, PRVN

China Vetiver Network (CHVN)

Very pleased to see that ICV-6 is going to be held in Vietnam. The VS development in Vietnam has gone a long way and made great success. As early as in 1997 China Vetiver Network introduced the news on vetiver investigation in Vinh Phuc Province and North Pacific Province in Vietnam through its quarterly publication Vetiver Newsletter in Chinese. It indicated that vetiver can reduce soil erosion and promoted the growth of cassava and peanuts.



Later in 2006, China Vetiver Network Comprehensively introduced the research and progress in Vietnam since its initiation of 1990's, including VS for the stabilization of river bank, dams, and ditches; VS for highway protection; utilization of VS on coast dikes protection; VS for wastes treatment of pig farms. Many locations were involved such as Thien An, Quang Tri, Thua Thien-Hue, Quang Binh, Ha Tinh, Nghe An, Thanh Hoa, Cantho, Quang Binh, Quang Nam, Kon Tum, Nam Dinh, Quang Ngai. In addition, some international agencies were actively involved such as Red Cross of Denmark, World Vision, and Australian Aid. All of the experiences and the success obtained in Vietnam encouraged every member at Vetiver Family including Chinese vetiverlists.

During ICV-3 2003 in Guangzhou of China Dr. Dung proposed to organize a regional conference in Vietnam to introduce and extend VS development experience in Vietnam. Now, ICV-6 is going to be held in Vietnam. I am sure it will be one of the most successful vetiver conferences in the world. I wish all of the conference documents can be well prepared and best distributed to all countries in the world in order that all of the Vetiver Family members can share these experiences from Vietnam and from the world and can promote VS to a new stage.

Congratulations and best wishes,

Liyu Xu <lyxu@issas.ac.cn>
Coordinator, CHVN

The 6th International Conference on Vetiver (ICV-6)

The Organizing Committee of the Sixth International Conference on Vetiver has the great pleasure of extending invitation to you to join us in the significant event which is to be held on 5-8 May 2015 in Da Nang City, Vietnam.

With the theme "Vetiver System: Empowering Sustainable Development", ICV-6 aims at promoting the application of vetiver in the global task of sustainable development of agriculture, civil engineering, environment (including water and land improvement and rehabilitation) and other possible areas. Continuing the success of ICVs in the past years, ICV-6 promisingly creates an effective forum for those interested in, passionate about, and experienced in vetiver system's applications, provides opportunities for networking, business, professional growth and learning.

The followings are confirmed schedule of the conference program:

May 5:

Registration
Set up of Exhibitions and Posters
International Training of Vetiver Handicraft Making. (People attending this one-day course have to arrive the day before)
Welcome Dinner attended by HRH Princess Maha Chakri Sirindhorn, the Patron of TVNI.

May 6:

Registration
Inauguration of ICV-6
Keynote addresses
Presentation of the King of Thailand Vetiver Awards by HRH Princess Maha Chakri Sirindhorn and TVNI Awards by Dick Grimshaw, TVNI Founder
Presentation of the Awards Winning Papers
Invited paper presentations

May 7:

Plenary presentation of invited papers
Concurrent Sessions of contibuted papers
Concluding remarks and Panel discussion on issue of great interest
Farewell dinner

May 8:

Field day: visiting vetiver planting sites near Da Nang and Hue

AWARDS

We are pleased to announce the good news that both The King of Thailand Awards and TVNI Awards have been extended to cover more subjects and prizes.

(1) King of Thailand Awards

Her Royal Highness Princess Maha Chakri Sirindhorn, the Chairperson of His Majesty the King of Thailand's Chaipattana Foundation, has approved of granting US$ 15,000 from the Chaipattana Foundation for "The King of Thailand Vetiver Awards" for six most outstanding works on vetiver (prize money of US$ 2,500 each) in the following categories:

1. Outstanding Vetiver Research
   - Agricultural Application
   - Non-agricultural application
2. Outstanding Dissemination and Application of the Vetiver System
   - Dissemination and Technology Transfer
   - Application of Vetiver System
3. Outstanding People Participation
   - On-farm Applications and Socio-economic Impacts
   - Disaster Mitigation or Environmental Protection

The six winners will receive the awards from HRH Princess Maha Chakri Sirindhorn, the Patron of TVNI, on His Majesty the King of Thailand's behalf, at ICV-6's Opening Ceremony. The recipients of the awards will present their papers at the Conference and be covered with the cost of participation at ICV-6 as well as the international travel between their home country and the conference venue and accommodation during the conference period.

(2) TVNI Awards

The Vetiver Network International Awards will be offered in the following categories:

1. Basic vetiver plant research.
2. Bioengineering
   (a) Research
   (b) Application.
3. Agriculture – Soil and Water Conservation
   (a) Research
   (b) Application.
4. Mitigation of Contaminated Land and Water
   (a) Research
   (b) Application.
5. Advancing vetiver application in community development.
6. Innovation – Anything new, tested but not yet adopted widely.
7. Vetiver Champion – This is open to nomination for individuals who have been instrumental, either in their country or region or technical area in effective and dedicated promotion, investigation, improvement, etc., of the use of the Vetiver System over the last 4-5 years. (Please note that individuals may not nominate themselves.)
8. Global Vetiver Champion – This is for recognition of individuals who have made exceptional contributions over the long term for the advancement of Vetiver System and have achieved global impacts. This award is dedicated to exceptional contributors and may not be given out at every ICV. (Please note that individuals may not nominate themselves.)

In addition, the following Vetiver System related monetary awards will be made by the Committee based on selections from the submissions for all the above categories.

Monty Yudelman Award ($2 500) – For contributions in agriculture and food security.

Mark Dafforn Award ($1 500) – For contributions in science and research.

Nick Dolphin Award ($750) – For contributions in community participation.

Please note that the same submission can be used for both Awards but they have to be submitted to separately.

Call For Paper Presentation

Researchers, engineers, specialists and other professionals are invited to submit papers compatible with the conference theme. Well-documented case studies and experience in applying vetiver system in the practice of sustainable development are highly encouraged.

Abstracts should be submitted in the prescribed format, which will be provided later through the ICV-6 website (Thread "Paper Presentation").

The authors of accepted abstracts, which are selected by the Advisory Board, will be informed via email on 10 February 2015 and be asked for extended abstracts or full papers.

Concurrent Sessions and Oral Presentations

In addition to the plenary session on 6 May, there will be four concurrent sessions on 7 May:

1. Bioengineering
2. Environmental Protection (including water and land)
3. Socio-economic and community participation
4. Innovation.

Due to time constrain, oral presentation of all submitted papers may not be possible, in this case the Editorial Committee will select the most appropriate papers for oral presentation. But all submitted papers will be included in the Conference Proceedings.

Editorial Committee

This committee is responsible for the collation of all abstracts, papers and posters submitted to the Conference, selection of papers for oral presentation if needed and preparation of the Conference Proceedings. Committee members will include Dr Paul Truong, TVNI, Mr Man Tran. Co-Chairman Organizing Committee and Dr. Samran Sombatpanit, Thailand.

All submissions should be sent to:

- Dr. Paul Truong <P.truong@veticon.com.au> and Cc to
- Man Tran <man.trandn@gmail.com> and
- Dr. Samran Sombatpanit<sombatpanit@gmail.com>

Important Dates to Remember

01 July 2014	Online registration
10 January 2015	Submission of presentation paper's or poster's abstract
10 February 2015	Notification of accepted abstracts
10 March 2015	Submission of extended abstract or full paper or poster
5 April 2015	Application for exhibition
June 2014 – January 2015	Early registration
February 2015 – May 2015	Normal registration
5-8 May 2015	Conference

Conference Registration and Fee

Registration should be made online via ICV-6 website (www.icv6.org) or by sending form to the conference secretariat (email: icv6info@gmail.com).

Early registration (before 31Jan 2015)	300 USD
Normal registration (after 31 Jan 2015)	350 USD
For authors of accepted papers	250 USD
For Vietnamese students (excluding banquet)	50 USD
Group registration (from 3 people upwards)	20% discount on the price

The above fee includes the conference proceedings including materials, lunches, coffee breaks, banquet dinner and field trip costs. Students have to attach a copy of their student IDs or a letter from their supervisor confirming their student status when they submit the registration form. An additional banquet dinner ticket is 50 USD.

Accommodation

Participants should make hotel room reservation on their own directly at the hotel of their choice. The Organizing Committee can recommend and assist in hotel booking upon participant's request. For more detailed information on hotels in Da Nang, please contact the Conference Secretariat via email <icv6info@gmail.com>.

Field Trip

A one-day field trip will be held on 8 May 2015. Due to time restriction and distance, 2 sites will be visited:

(1) Laguna Resort South of Hue: Extensive applications of VS were carried out on the access road to the Resort, where comparison can be made between VS by itself and VS in association with conventional hard structures. At the resort itself, vetiver was also widely used for cut and fill slopes as well as for landscaping around various facilities.

(2) Son Tra Peninsula: To show case the incredible survival instinct of vetiver under extremely hostile environment including ocean salt spray

Post Confereence Trip

9 May Day trip: For those who wish to stay on to visit Da Nang City; Hoi An, the first commercial trading post between Vietnam and the West in 18th Century; and Hue the ancient and historical capital of Vietnam with several Imperial tombs.

Announcement - The King of Thailand Vetiver Awards

On the occasion of the Sixth International Conference on Vetiver (ICV-6), which will be held in Da Nang, Vietnam, between 6-8 May 2015, Her Royal Highness Princess Maha Chakri Sirindhorn, the Chairperson of His Majesty the King of Thailand's Chaipattana Foundation, has graciously granted US$ 15,000 from the Chaipattana Foundation for "The King of Thailand Vetiver Awards" for six most outstanding works on vetiver (prize money of US$ 2,500 each) in the following categories:

1. Outstanding Vetiver Research
   1.1 Agricultural Application
   1.2 Non - agricultural Application
2. Outstanding Dissemination and Application of the Vetiver System
   2.1 Dissemination and Technology Transfer
   2.2 Application of the Vetiver System
3. Outstanding People Participation
   3.1 On-farm Applications and Socio-economic Impacts
   3.2 Disaster Mitigation or Environmental Protection

The six winners will receive the awards from Her Royal Highness Princess Maha Chakri Sirindhorn, the Patron of The Vetiver Network, on His Majesty the King of Thailand's behalf, during the Opening Ceremony of the Sixth International Conference on Vetiver (ICV-6) in Da Nang, Vietnam. With the support from the Chaipattana Foundation, the recipients of the awards will have the honor to present their papers in the Conference and be covered with the cost of

participation at ICV-6 as well as the international travel between their home country and the conference venue and accommodation during the conference period.

Scientists as well as vetiver practitioners from around the world are invited to apply for the awards by submitting the application form along with the abstract and full paper, both of which should conform to the format of the papers, to the following address.

The Selection Committee for the "King of Thailand Vetiver Awards"
Foreign Affairs Group, Bureau of Planning and Foreign Affairs,
Office of the Royal Development Projects Board
2012 Soi Arun Amarin 36, Arun Amarin Road, Bang Yi Khan Subdistrict,
Bang Phlat District, Bangkok 10700
THAILAND
E-mail: rdpb_vetiver@yahoo.com

The deadline of the application with the abstract and the full paper is 31 January 2015. The announcement of the winners will be made by 1 April 2015.

Specifications for abstract and full paper

The abstract should be between 400-500 words (1 page). The complete work should not be longer than 6,000 words (including figures and pictures, not more than 15 pages). Before submitting, all papers should be edited according to the following norms:

Format: The papers should be written in the Microsoft Word program for Windows, in Times New Roman (TNR) font, according to the following specifications:

Title: TNR, capital letters, 14 points and bold black, centered

Author(s): TNR, 12 points normal. Initial of the first (and second) name(s), last name, institution(s) to which they belong, postal address and e-mail, centered

Keywords: TNR, 10 points, maximum five (NOT to include the word 'vetiver')

Text: TNR, 12 points normal, single space, justified

Graphs and pictures: In black and white or color. Edit and place in the main text at proper places

Format of page: A-size, margin: 2.5 cm right, top and bottom; and 3 cm for the left; single space

Contents: The text of the paper should include introduction, materials and methods, results and discussion, conclusions and references. Tables and figures should be inserted within the text at proper places. References should be included and listed in alphabetical order by last name of the first author according to the following norms:

Author (if more than one author, use commas to separate them), year of publication, title, journal (abbrev.), volume, number, pagination (10, and 14 points of line space). For example:

Chomchalow, N. and Henle, H.V. (eds.). 1998. Proceedings of the First International Conference on Vetiver. The Office of the Royal Development Projects Board, Bangkok, Thailand.

Roongthanakiat, N. and Chairoj, P. 2001. Uptake potential of some heavy metals by vetiver grass. Kasetsart J. (Nat.Sci.) 35: 433-440.

Truong, PNV. 1999. Vetiver grass technology for mines tailings rehabilitation. In: Proceedings of the First Asia-Pacific Conference on Ground and Water Bioengineering for Erosion Control and Slope Stabilization. Manila, The Philippines. pp. 315-325.

Awards Criteria for Consideration

1. Outstanding Vetiver Research

1.1 Agricultural Application

1.2 Non-Agriculture Application

The proposed papers should comply to one or more of the following criteria:

1) Being the study of a researcher or a group of researchers
2) Being the basic or applied research
3) Creating new knowledge in such fields as science, agriculture, environment, or other fields
4) Benefiting the community as a whole. If being a basic research, the researcher (s) must be able to provide the guideline on how to put it into practice.

2. Outstanding Dissemination and Application of the Vetiver System

2.1 Dissemination and Technology Transfer

2.2 Application of Vetiver System

The proposed papers should comply to one or more following criteria:

1) Manifesting the effective promotion on the use and the real application of vetiver grass
2) Following the principle of sustainable development
3) Can be widely applied with no restriction to any particular group
4) Using appropriate technology that is environmental friendly
5) Supported by scientific reasons and is widely accepted
6) Having appropriate quantity of work done.

3. Outstanding People Participation

3.1 On-farm Applications and Socio-economic Impacts

The proposed papers should concern works implemented by a group of participating people on voluntary basis and comply to one or more following criteria:

1) Demonstrating the effective utilization of vetiver system that yields true benefits
2) Bringing about the improvement of the people's quality of lives in terms of social and economic aspects
3) Showing strong people participation in the utilization of the vetiver system

3.2 Disaster Mitigation or Environmental Protection

The proposed papers should concern works implemented by a group of participating people on voluntary basis and comply to one or more following criteria:

1) Using the vetiver system in order to render benefits to the environment, especially through the mitigation and/or protection of the environment
2) Following the principle of sustainable development, both in terms of people participation and benefits for the environment.

The Selection Committee

The Selection Committee for the King of Thailand Vetiver Awards comprises the following members.

1. Outstanding Vetiver Research

Dr. Paul Truong, TVNI Board Member, Technical Director and Director for Asia and Oceania

Mr. Roley Noffke, TVNI Board Member, Technical Director and Director for South Africa; President, International Erosion Control Association, Region 2

The Winners of The 9th Annual Competition on Vetiver Handicraft
A. The People's Group

First Prize: "Natural Ornament"

Second Prize: "Pha-op Rak Chan"
(casket loves the moon)

Third Prize: "Light of Life"

Consolation Prize No. 1:
"Vetiver Phan Phum"

Consolation Prize No. 2:
"Leisure Chair" Appliance

Consolation Prize No. 3: "Shadow Play" D̆cor

Consolation Prize No. 4:
"Warming Cooked Rice Box" Appliance

Consolation Prize No. 5:
Multipurpose Vase
“Vetiver Screw and Pieces of Wood”

Consolation Prize No. 6: D̈cor
“Colorful Miraculous Vetiver”

Consolation Prize No. 7: “Duck Basket” Appliance/Dcor

Consolation Prize No. 8: “Light of the Fture” Appliance/D̈cor

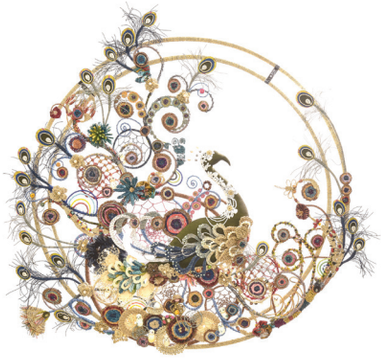
Consolation Prize No. 9: “Beauty and Value of Vetiver” Dcor

Consolation Prize No. 10: “Hill-triber Home”

B. The Designer's Group

First Prize: Cananga Plate Mat

Second Prize: Vividness of Lanna



Third Prize: "Silk Peacock" Hanger

Consolation Prize No. 1: "Chok Nang" Pad

Consolation Prize No. 2: Multipurpose book shelf

Consolation Prize No. 3: "Phueng Wong" (Turkey) Armchair)

Consolation Prize No. 4: "Amoeba Basket" Utensil

Consolation Prize No. 5: “Plao Khacha” wall clock

Consolation Prize No. 6: “Nang Yang” Chair

Consolation Prize No7: “Culture” Lamp

Consolation Prize No. 8: “Saeng Thong Hom Din” Lamp

Consolation Prize No. 9: Bee Hive Lamp

Consolation Prize No. 10: “The Nine” Lamp

Pictorial Report on the Visits of the Privy Councilor to Observe the Development and Promotion of the Utilization of Vetiver Grass Activities in Uthi Thani Province, Thailand, between 20 – 21 February 2015

1) The Huai Kha Khaeng Wildlife Sanctuary
(Implemented by the Department of National Parks, Wildlife and Plant Conservation)




2) The Huai Tab Sela and Huai Kok Kwai Reserve Forest
(Implemented by the Department of National Parks, Wildlife and Plant Conservation)



3) The Karen Hilltribe Community at I-Mard – I-Sai Village
(Implemented by the Land Development Department)





Dr. Weerachai Nanakorn, Member, Sub-committee on Technical, Monitoring and Evaluation of the Utilization of Vetiver Grass according to the Royal Initiatives.

2. Outstanding Dissemination and Application of the Vetiver System

Dr. Jim Smyle, TVNI President, Board Chairman and Director for the Americas

Ms. Elise Pinners,TVNI Board Member and Director; Board Member, Platform for Land Use Sustainability (PLUS-Kenya)

Dr. Pitayakon Limtong, Member, Sub-committee on Technical, Monitoring and Evaluation of the Utilization of Vetiver Grass according to the Royal Initiatives.

3. Outstanding People Participation

Mr. Richard Grimshaw, TVNI Founder and Board Member

Dr. Dale Rachmeler, TVNI Board Member and Director for Sub-Saharan Africa

Dr. Narong Chomchalow, Member, Sub-committee on Technical, Monitoring and Evaluation of the Utilization of Vetiver Grass according to the Royal Initiatives.

The Winners of the King of Thailand Vetiver Awards

The Judging Committees of the King of Thailand Vetiver Awards has announced the winners of the various categories as follow:

1. Outstanding Vetiver Research

1.1 Agricultural Application

Title: The Salt Tolerant Vetiver
Authors: Malee Nanakorn, Mattanaporn Maikami and Lily Kaveeta
Affiliation: Faculty of Science, Kasetsart University
Country: Thailand
Statement of Merit:

Low level of salt tolerance is probably the most important limitation for various applications of the Vetiver Grass Technology, particularly in farm land and environmental protection. Due to climate change, sea level is rising, more and more farm land will be affected by salinity, particularly the highly productive but low lying deltas of Myanmar, Thailand and Vietnam in our region and elsewhere around the world.

The work conducted by Professor Malee Nanakorn and her team is very comprehensive including the *in vitro* salt tolerant induction, resulted in the selection of four polyploid salt tolerant accessions for testing in the field to verify their tolerance under natural conditions as compared with the original diploid plants. The results confirmed that salt tolerance of polyploid vetiver grass has been successfully improved and they would be introduced to the salt affected areas, not only in Thailand but around the world. In addition to the benefit that these salt tolerant accessions would bring to agricultural land, they will also contribute greatly to the phytoremediation of wastewaters, which are usually highly saline.

1.2 Non-Agriculture Application

Title: Laboratory-scale Developments and Field-scale Implementations of Using Vetiver Grass to Remediate Water and Soil Contaminated with Phenol and Other Hazardous Substances from Illegal Dumping at Nong Nae Sub-district, Phanom Sarakham District, Chachoengsao Province, Thailand.

Authors: Tanapon Phenrat, P. Teeratitayangkul, T. Imthiang, Y. Sawasdee, S. Wichai, T. Piangpia, J. Naowaopas and W. Supanpaiboon
Affiliation: Naresuan University
Country: Thailand
Statement of Merit:

The inevitable side effects of industrial growth and human activity in general contribute enormously to the pollution of our environment. Increasingly organic contaminants have become one of our major concerns. Up to a certain extend we have developed technologies to minimize the harmful effects of inorganic pollutants; we have not adequately dealt with organic pollutants due to their diversity and ever increasing new products.

Research conducted by Dr. T. Phenrat and his team highlighted the danger of phenol contamination, demonstrated methods of dealing with this problem by various Phytoremediation methods, implemented a field-scale treatment program to protect the local community. But most importantly their laboratory-scale experiments identified two possible phases of phenol degradation by vetiver: Phase I: phytopolymerization and phytooxidation followed Phase II a combination of Phase I with enhanced rhizomicrobial degradation. The procedural and technological standards of this project should be used as a model for future research in this field.

2. Outstanding Dissemination and Application of the Vetiver System

2.1 Dissemination and Technology Transfer

Title: Introduction, Adoption and Expansion of Vetiver System in Congo-Kinshasa, Congo Brazzaville and Uganda Republics: Experiences Sharing from 2003 to 2014
Author: Alain Ndona
Affiliation: Vetiver Network International
Country: Congo
Statement of Merit:

A good, brief presentation that clearly indicates the underlying substance of the work accomplished. The work on the ground is convincing and the presentation indicates significant success in expanding use and application. The work demonstrates that the author has been quite successful in scaling up VGT. The work demonstrates that the author was a major mover and innovator in his region for VGT.

2.2 Application of Vetiver System

Title: Application of Vetiver (Vetiveria Zizanioides) as a Bio-technical Slope Protection Measure: Some Success Stories in Bangladesh
Author: Mohammad Shariful Islam
Affiliation: Department of Civil Engineering, Bangladesh University of Engineering and Technology
Country: Bangladesh
Statement of Merit:

The paper covers a very broad range of development of applications. The overall presentation is well done and well-reference, providing important, relevant technical details and some useful cost comparisons. The potential, particularly of the newest work on VS for coastal zone protection for enhancing resilience to climate change impacts has tremendous potential. The mega delta countries (e.g., Bangladesh, Viet Nam) are the most vulnerable countries to climate change. This work is highly important. The focus & main thrust of the author's work is to evaluate the extent to which VGT can be replicated across real world conditions in Bangladesh, which are also extrapolatable to other river deltas and situations where industrial contamination may inhibit vegetative approaches to land and infrastructure stabilization.The work focused on providing VGT

as a tool for climate change resilience is innovative and much welcomed. The overall body of work represents years of systematic development of VGT options, which while not highly innovative as individual actions, as a body is. Few researcher/practitioners have produced the range of application information as the author.

3. Outstanding People Participation

3.1 On-farm Applications and Socio-economic Impacts

Title: Vetiver System Application and Extension for Rural Development in the Mountains of Southern China
Authors: Liyu Xu and Biao Huang
Affiliation: Institute of Soil Science, Chinese Academy of Sciences, China Vetiver Network
Country: PR China
Statement of Merit:

This paper addresses an agro-forestry (perennial fruits and tea)/vetiver soil and water conservation program located in a mountainous areas of southern China (Vetiver-Based Agro Foresty - VBAF). The project involved 2000 households most with very small land parcels (less than half a hectare). High level of people participation at all levels with good supporting training programs. The two innovative aspects were the vetiver/agroforestry approach and the introduction of vetiver handicraft production at household level. The project and its training has interested people from outside the project area – resulting in upscaling elsewhere in a number of provinces. A recent report from Liyu Xu indicates that 100 million vetiver plants a year are being produced in Hunan and Sichuan provinces, and that similar VBAF programs are being developed. An important aspect of the VBAF program demonstrates that for China: (1) Vetiver System significantly reduced on farm erosion, (2) enabled "crops" to increase in productivity, (3) the importance of "cash" generating income from vetiver bi-products (forage/goat income – leaf//handicraft income) to assure interest in VS by farmer, and (4) the link between vetiver and farm forestry/horticultural trees. The China experience is that clear links between vetiver and increased crop productivity together with economic byproduct use is essential if VS is to be accepted by small farmers.

3.2 Disaster Mitigation or Environmental Protection

Title: The Research Project to Prevent and Rehabilitate Shallow Landslide in Steep Slope Areas: Case Study at Ban Na Tham Village, Tha U Thae Sub-district, Kanchanadit District, Surat Thani Province, Thailand
Author: Songkiert Tansamrit
Affiliation: The Sustainable Energy Foundation, PTT Public Company Limited
Country: Thailand
Statement of Merit:

This paper addresses a critical problem of deforestation and associated land slips. It recognizes that VS and associate vegetation can only deal with shallow slips, and that if it is to be up-scaled the community must be involved from the beginning. The first step of involving and training/teaching the community appears to have been successful. It was able to identify a key slip that the community realized was essential to them and had to be repaired, and a solution was found and executed. They have introduced some new technology (winged bags) and have applied VS correctly. The results appear to have been successful, and there is sufficient awareness of the value of VS to expand it to many other identified locations that belong to community members. The supporting Foundation should take the community to the next level and introduce the community to the wide range of VS applications that can improve its well being.

The 9th Annual Competition on Vetiver Handicraft

As in the past eight years, the Sub-committee on Competition on Vetiver Handicraft of the Committee on the Campaign on the Utilization of Vetiver under His Majesty's Initiative, a consortium of Chaipattana Foundation, Office of the Royal Development Projects Board, Land Development Department and PTT Group, has announced the 9th Annual Competition on Vetiver Handicraft since 15 November 2014. Details of the competition are as follow:

Category of the Contestants:

There are two categories of the contestants, namely (1) the People, and (2) the Designers.

Qualification of the Contestants:

a. The criteria for the qualification of the People's Group are: (i) any person who is not a designer, and (ii) member(s) of any public enterprises (OTOP). The number of items of the vetiver handicraft submitted for competition is not more than one piece per individual, and not more than two pieces per group of the public enterprises.

b. The criteria for the qualification of the Designers' Group are: (i) any desginer, (ii) any designers' student, (iii) any professional commercial designer, and (iv) any professional exporter designer. The number of pieces of the vetiver handicraft submitted for competition is not more than one piece per individual, and not more than two pieces per group/team.

Criteria and Qualification of the Items Submitted for the Contest:

a. For the People's Group:
   (i) The item must consist mainly of vetiver leaves.
   (ii) The item must be a utilizable product or can earn additional income, such as toy, gift, home appliance, furniture, container, etc. all of which have used vetiver leaves in production or in pattern using other technique.
   (iii) The item must be newly designed, beautiful, and the pattern has not been stolen from the others.
   (iv) The item must be complete and utilizable in everday's life.

b. For the Designers' Group:
   (i) The item should be a new creation with innovative design and impressive.
   (ii) The item should present new perspective with new pattern of arrangement of vetiver leaves.
   (iii) The item could actually be produced commercially.

Notes:

a. Those who have previously received the awards, including the first, second and third prizes, are not eligible for the contest.
b. The Committee reserves the right to switch the items to appropriate grouping.
c. The Organizer has the right to publicize the item to the public as a mean of extending the new career in making vetiver-leave handicraft.

Amount and Value of the Prizes

a. For the People's Group

1st prize	40,000 baht with H.M. the King's trophy
2nd prize	30,000 baht with the Organizer's trophy
3rd prize	20,000 baht with the Organizer's trophy

Consolation prizes (10) @ with 10,000 baht with the Organizer's trophy

b. For the Designer's Group

1st prize	50,000 baht with H.M. the King's trophy
2nd prize	40,000 baht with the Organizer's trophy
3rd prize	30,000 baht with the Organizer's trophy

Consolation prizes (10) @ with 10,000 baht @ with the Organizer's trophy

Number of Items Received for Competition

a. For the People's Group: 35 items
b. For the Designers' Group: 88 items

The Winners (see photographs on pages 11-14)

a. **The People's Group:**

First Prize: "Natural Ornament"

By: A Group of Teachers of Phatthanachai Kindergarten School, San Phak Wan Sub-district, Hang Dong District, Chiang Mai Province

Concept: Emphasis on using vetiver leaves and fallen small-sized fruits in the vicinity of the school, which were used along with vetiver leaves in order to bring out the beauty from nature and able to be used as ornaments.

Second Prize: "Pha-op Rak Chan" (casket loves the moon)

By: Ms. Wiphawi Rak Chan, Ban Na Sub-district, Si Nakharin District, Phatthalung Province

Concept: Casket has been a Thai traditional utensil for keeping relics or souvenir for a long time, thus vetiver, being strong and durable, is selected to make "Pha-op"

Third Prize: "Light of Life"

By: Vetiver Handicraft and Produce Group, Dan Tap Tako Sub-district, Chom Bueng District, Ratchaburi Province

Concept: "Lamp of Life" is the use of integrated valuable vetiver to make beautiful ornament with the shape of terracot commonly found in the area

Consolation Prize No. 1: "Vetiver Phan Phum"

By: Vetiver Group of Ban Don Chai, Mu 10, Chiang Raeng Sub-district, Phu Sang District, Phayao Province.

Concept: 'Phan Phum' or a tray with pedestal is used in various ceremonies; it is made by weaving vetiver leaves to make it beautiful and durable

Consolation Prize No. 2: "Leisure Chair" Appliance

By: Mrs. Kemthong Khamchun, Pa Sak Sub-districtm Phu San District, Phayao Province

Concept: Value addition to the chair by twining twisted rope made from vetiver leaves

Consolation Prize No. 3: "Shadow Play" Decor

By: Mr. Nopphon Thongdi and Mr. Sithiphon Khaengraeng, Dan Tap Tako Sub- district, Chom Bueng District, Ratchaburi Province

Concept: "Shadow Play" is the art of the southern part which has survived in Thailand for a long time; while vetiver is tough and durable. The two have been integrated into the body of the shadow play, Uncle Theng and Nu Nui

Consolation Prize No. 4: "Warming Cooked Rice Box" Appliance

By: Vetiver Lovers Group of Ban Huai Pao, Thung Khao Phuang Sub-district, Chiang Dao District, Chiang Mai Province

Concept: Originally, a rice box is made of bamboo that is easily found in the locality; vetiver is likewise widely distributed. Thus its soft leaves are weaved into a box that keeps the cooked rice warm for a long time

Consolation Prize No. 5: Multipurpose Vase "Vetiver Screw and Pieces of Wood"

By: Ms. Sunantha Sukchin and Ms. Krittiya Khid-ngam, Khok Sa-art Sub-district, Prasat District, Surin Province

Concept: Vetiver leaves wraping pieces of wood can be used as candle support and vase; the idea is to make vetiver products integrated with waste material of the locality

Consolation Prize No. 6: Décor "Colorful Miraculous Vetiver"

By: Mrs. Amphai Prayonghom, Prue Sub-district, Prasat District, Surin Province

Concept: The use of vetiver leaves together with the addition of creative work to make a floral product that can be kept for a long time, stressing the neatness, value addition and beauty that can be arranged in several patterns in various occasions as well as for earning income.

Consolation Prize No. 7: "Duck Basket" Appliance/Decor

By: Ms. Rung-arun Tho-thong, Khlong Takrao Sub-district, Tha Takiap District, Chachoengsao Province

Concept: A portable container with constant arrangement that prefers to walk as a group, consequently a basket in the shape of a shell to show off the pattern of vetiver that has been orderly arranged

Consolation Prize No. 8: "Light of the Fture" Appliance/Decor

By: Prasat Tambon Local Administration Authority, Prasat Sub-district, Khukhan District, Si Sa Ket Province

Concept: Developing community natural product by bringing vetiver leaves to twist into a screwed Manila rope and weave into different beautiful patterns, exhibiting gentle sweetness of the integrated pattern of the lamp shade.

Consolation Prize No. 9: "Beauty and Value of Vetiver" Decor

By: Mr. Preecha Phloisuk, Son Phak WanSub-district, Hang Dong District, Chaing Mai Province.

Concept: A home decorating panel made from vetiver leaves exhibiting its beauty through decoration and value addition

Consolation Prize No. 10: "Hill-triber Home"

By: Ban Khang Vetiver Group,Khi Lek Sub-district, Mae Rim District, Chiang Mai Province

Concept: Inspiration was obtained during the training of the hill-tribers on the use of vetiver where the way of living of the hill-tribers was observed; thus their way of living was replicated

b. The Designers' Group:

First Prize: Cananga Plate Mat

By: Ms. Thanapha Chaweerat and Ms. Parinya Disom, Lat Phrao Sub-district, Lat Phrao District, Bangkok

Concept: Based on the model of the veins of cananga flower, vetiver leaves are used to make pattern on the clothe resembling that of cananga vein pattern.

Second Prize: Vividness of Lanna

By: Ms. Phatchariya Fang-ot, Rattanakosin Ratchamagala University of Technology, Salaya, Salaya Sub-district, Phutthamonthon District, Nakhon Pathom

Concept: The festival of floating lamp of the Northerners or Yi Peng Festival is integrated with varied colors and patterns as identity of the hill-tribers of the North

Third Prize: "Silk Peacock" Hanger

By: Ms. Waraphon Chalosantisuk, Bang Mae Nang Sub-district, Bang Yai District, Nonthaburi Province

Concept: The integration of vetiver weaving technique and Thai silk clothe results in new and beautiful pattern and design imitating the pattern of the beautiful peacock and symbolizing Thai silk clothe through the incorporation of the information of Thai silk in the item.

Consolation Prize No. 1: "Chok Nang" Pad

By: Ms. Phonthip Mali, Thai Ban Mai Sub-district, Muaeng District, Samut Prakan Province

Concept: Inspiration from the peacock's tail and its unique and distinct pattern results in the design of the Japanese-style pad with Thai ornament integrating with twisted rope of vetiver leaves to make a beautiful pattern

Consolation Prize No. 2: Multipurpose book shelf

By: Mr. Natthapon Klinmala and Mr. Songpon Sermsuklert, Bang Khae Sub-district, Lak Song District, Bangkok.

Concept: Inspiration from "Chula" kite that signifies Thai identity, the book shelf is most suitable symbol of Thainess

Consolation Prize No. 3: "Phueng Wong" (Turkey) Armchair

By: Ms. Thanitya Si Khwancharoen, Min Buri Sub-district, Min Buri District, Bangkok

Concept: Inspiration from the shape of turkey, the armchair can be used in the hotel, parlour, etc, and made from vetiver and other natural materials

Consolation Prize No. 4: "Amoeba Basket" Utensil

By: Ms. Chantmani, Ms. Arachapon, and Ms. Phinnapha, Salaya Sub-district, Phutthamonton District, Nakhon Pathom Province

Concept: Inspiration from amoeba's dispersal that has no fixed form, obtaining the idea of making a basket having several chambers and sizes in one set of basket

Consolation Prize No. 5: "Plao Khacha" wall clock

By: Ms. Panatda Phosii, Industry Technology Faculty, Ratchapat Suan Sunantha University, Sub-district, Dusit District, Bangkok

Concept: Elephant is the animal intemately associated with Thai people, thus it is used as the medium for telling the time

Consolation Prize No. 6: "Nang Yang" Chair

By: Mr. Chetsada Sukmak, Anusaowari Sub-district, Bangkhen District, Bangkok

Concept: Inspiration from some thing simple but hides the fine structure of vetiver, weaved together, making the attractive surface of a pad of the chair, built from used material, rebuilt into new product and actually utilizable

Consolation Prize No7: "Culture" Lamp

By: Ms. Suphapon Chaengsem, Mr. Kittikhun Sisaengno and Mr. Khemrat Daopiak, Ratchamongkol Rattanakosin University of Technology, Salaya Sub-district, Phutthamonton District, Nakhon Pathom Province

Concept: Inspiration from Songkran (Water Throwing) Festival by bringing the essense of the festival to create the lamp

Consolation Prize No. 8: "Saeng Thong Hom Din" Lamp

By: Mr. Witthawat Khammak, Tha Pho Sub-district, Muaeng District, Phitsanulok Province

Concept: The shape of a lotus flower featuring respectful worship extending to the people who receive the benovelence of His Majesty the King as a blessing similar to the golden light shining on the land (Saeng Thong Hom Din)

Consolation Prize No. 9: Bee Hive Lamp

By: Mr. Saksiri Khunkhongsatian, Tha Sai Sub-district, Muaeng District, Non-thaburi Province

Concept: Inspiration from the bee hive through modification using the technique of knitting and weaving vetiver leaves together with other materials

Consolation Prize No. 10: "The Nine" Lamp

By: Mr. Paphakon Wangpanya, Ms. Pariyakon Burana, Mr. Kanyaphak Arunwon-sanukun and Ms. Sakuna Khreaubunma, Pongyangdok Sub-district, Hang Chat District, Lampang Province

Concept: Gradual reducing down the level makes the rhythm by using the technique in arranging vetiver leaves and crochet knitting

Two PRVN's Technical Bulletins Published

Two PRVN's Technical Bulletins have recently been published by the Office of the Royal Development Projects Board on behalf of the Pacific Rim Vetiver Network. They are:

1. TB 2015/1: The Long Term Effectiveness of Vetiver System in Highway Batter and Steep Slope Stabiliaation

This first bulletin of 2015 published in February 2015 by the PRVN is a photo essay on the subject prepared by Paul Troung, Board Director and Asia and Oceania Representative of the Vetiver Network International (TVNI) and CEO and Pricipal Consultant of Veticon Consulting, Brisbane, Queensland, Australia. It is a technical report of the vist to two main sites, namely: (i) Ho Chi Minh Highway in February 2014, whose objective was to access the effectiveness of the Vetiver System in contolling erosion on the Ho Chi Minh Highway after 14 years of implementation (2000-2014), and (ii) Hong Kong steep slopes and highway batters in June 2014, whose objective was to observe the projects carried out by Dr. P.K. Yoon in 1998 and 2001; the sites visited were Kwai Shing and Sin Tin Wai. General observations and some conclusions were made for both sites.

2. TB 2015/2: Vetiver: A Living Trap By Narong Chomchalow

The second bulletin of 2015 published in April 2015 was prepared by Narong Chomchalow. Coordinator of Pacific Rim Vetiver Network and Vetiver Expert of the Office of the Royal Development Projects Board. It deals with unfamiliar function of vetiver in trapping living and non-living objects. Vetiver has many unique properties, including being living wall and living dam, highly tolerant to pollutants, extreme soil conditions and extreme adverse conditions. These have enabled it to perform the function of a trap. Diverse types of vetiver trap are recognized, namely living trap, trap crop, and dead-end trap crop. Two main types of objects are trapped by vetiver, namely non-living and living objects. The former includes sediments, fertilizers, pesticides, agrochemicals and nutrients, and heavy metals; the latter includes insects, nematodes, and weed seeds. Vetiver traps have two main roles, namely (i) in integrated pest management, and (ii) in environmental protection. Several benefits are derived from vetiver traps, namely purification of wastewater, control of algal growth, pollution reduction, making the soil more fertile, pest control, and phytoremediation.

Privy Councilor Observing the Vetiver Plantation Activities in Uthai Thani, Thailand

On 20-21 February 2015, H.E. Mr. Ampol Senanarong, a Privy Councilor, went to observe:

1. The conservation of natural resources and environment activities at the Huai Kha Khaeng Wildlife Sanctuary, implemented by the Department of National Parks,

2. The study and research on the growth of vetiver (Huai Kha Khaeng ecotype) under the different shades of trees in the natural forests at the Huai Tap Sela and Huai Kok Kwai Reserve Forest, implemented by the Department of National Parks, Wildlife, and Plant Conservation,

3. The plantation of vetiver grass for soil and water development in the sloping areas at the Karen Hilltribe Community at I Mat I Sai Village .

Problems and Implementation Results

Most areas are slopes which are prone to the problem of soil erosion. The farmers and agencies grow vetiver grass for soil and water conservation and development by intercropping it with trees, fruits trees and field crops, and planting it along the pond edges and natural water streams. The cut vetiver leaves are used to cover strawberry plots and under the strawberries which helps maintain moisture in the soil, prevent the fruits from dirt and prevent diseases from the soil. The Hua Kha Khaeng and Sri Lanka ecotypes are frequently used in the areas.

Benefits Gained

Vetiver grass helps increase soil moisture and nutrients while preventing soil erosion to some extents. Growing of vetiver grass with fruit trees and forest trees can help conserve soil and water and serve as food for animals. The use of vetiver leaves to mulch the strawberry plots and put under the strawberries helps the moisture to spread consistently, reduces diseases from fungi and bacteria as well as keeps the fruits from contacting with dirt on the ground, thus the fruits are still fresh and can be sold at high prices.

Problems and Obstacles in the Implementation

Vetiver grass tends to die when shaded by the growing trees. In some areas, some parts of vetiver rows are missing, which reduce the effectiveness in the preservation of soil and water. Moreover, there are soil erosions in the areas with deep slopes, especially in gullies. In addition, the strawberries in the plots must be carefully covered or the fruits may be tainted with dirt, causing infections and damages. Another problem is the lack of water for agriculture in the dry season. Suggestions from the members of the Sub-committee on Academic, Monitoring and Evaluation on the Development and Promotion of the Utilization of Vetiver Grass According to His Majesty's Desire are:

1) New vetiver tillers should be planted in the vetiver rows where missing in order to to prevent forest fires in order to yield accurate and correct experimentation results. In case of a forest fire, the burnt vetiver grass, Huai Kha Khaeng ecotype should be monitored on how many percent of the grass will continue to grow after rainfalls.

2) In planting vetiver grass with trees in the forests, there should be good measures strengthen and increase their ability to prevent soil erosion.

3) There should be a study to compare the growth of Huai Kha Khaeng ecotype with other ecotypes in the different levels of shades and to study the characteristics of seed set and seed germination of Huai Kha Khaeng ecotype and other ecotypes.

4) There should be a detailed data collection and recording in a systematically and continuously manner in the aspects of growth rate of the vetiver grass and other environs, such as soil conditions, trees that grow in nature in the plots with and without vetiver grass, etc.

5) Vetiver grass should be planted correctly according to the rules for soil and water conservation; that is to grow the grass along the contour lines or against the slopes. This is to prevent the occurrence of soil erosion and deep gullies as a result of the growing of vetiver grass in the pattern that does not coincide with the water flows.

6) In order to gain ultimate benefits from land use, annual plants should be grown in rotation together with perennial plants when the plants are not fully grown and block the light from other plants. The annual plants are such as vegetables, herbs, rice, field crops, etc.

7) The survival rates of the vetiver grass and the intercropping plants should be monitored to see the length of time they can be grown together. This will provide the academic data which will be useful in the planning of the management in order to yield maximum benefits.

8) Regarding the problem of inadequate water for agriculture due to the reliance on only one natural water stream, the water should be irrigated during the dry season to the areas with dry spells in an economic and cost-saving manner.

(see photographs on pages 15-18)

Abstracts of Vetiver Research Papers

1. Title: "Phytoremediation Potential of Vetiver System Technology for Improving the Quality of Palm Oil Mill Effluent"

Authors: Negisa Darajeh[1/], Azni Idris[1/], Paul Truong[2/], Astimar Abdul Aziz[3/], Rosenani Abu Bakar[4/], and Hasfalina Che Man[5/]

[1/] Department of Chemical and Environmental Engineering, Faculty of Engineering, Universiti Putra Malaysia, Serdang, Selangor, Malaysia; [2/]The Vetiver Network International, Asia and Oceania, Brisbane, Australia; [3/]Malaysian Palm Oil Board, Agro Product Unit, Engineering and Processing Division, Selangor, Malaysia; [4/]Department of Land Management, Faculty of Agriculture, Universiti Putra Malaysia, Serdang, Selangor, Malaysia; [5/] epartment of Biological and Agricultural Engineering, Faculty of Engineering, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

Abstract:

Palm oil mill effluent (POME), a pollutant produced by the palm oil industry, was treated by the Vetiver System Technology (VST). This technology was applied for the first time to treat POME in order to decrease biochemical oxygen demand (BOD) and chemical oxygen demand (COD). In this study, two different concentrations of POME (low and high) were treated with vetiver plants for two weeks. The results showed that vetiver was able to reduce the BOD up to 90% in low concentration POME and 60% in high concentration POME, while control sets (without plant) only was able to reduce 15% of BOD. The COD reduction was 94% in low concentration POME and 39% in high concentration POME, while control just shows reduction of 12%. Morphologically, maximum root and shoot lengths were 70 cm, the number of tillers and leaves was 344 and 86, and biomass production was 4.1 kgm^{-2}. These results showed that VST was effective in reducing BOD and COD in POME. The treatment in low concentration was superior to the high concentration. Furthermore, biomass of plant can be considered as a promising raw material for biofuel production while high amount of biomass was generated in low concentration of POME.

Office of the Royal Development Projects Board
2012 Arun Amarin 36, Bang Yi Khan, Bang Phlat
Bangkok 10700, Thailand

To

Vetiverim is an official quarterly newsletter of the Pacific Rim Vetiver Network. It is published by the Office of the Royal Development Projects Board, Bangkok, and distributed free of charge to individuals / institutes working on vetiver of the Network's member countries. Application for membership can be made by writing to the Secretariat, giving name, position, place of work, and mailing address.