A Feather in Our Cap

Soon after ICV-2, we, the Organizer, have received so many compliments regarding the organization of the event from the participants, both national and international. In addition, requests for documents have come from people who could not attend ICV-2 but have heard of our publications. Of course, we shall try out best to satisfy the requests, although, with our limited budget and manpower, it may not be possible to do as much as we would love to do. Luckily enough, again as the result of ICV-2, we have been confirmed that the Heineken Breweries Co. is prepared to donated a sum of US$50,000 to the Thai Vetiver Project (see details in this issue of Vetiverim). It has been agreed by our 'in – house' committee that such fund be used to organize a training course on vetiver grass techology (VGT) for extension workers and engieers of Thailand as well as of our neighboring countries. It will also be used to disseminate information about VGT as widely as possible. These new activities are, in Dick Grimshaw's words, "a feather in our cap".

To my knowledge this donation is the first of its kind: the first time a privately-owned institution is giving a donation to a veitver project. We are happy to announce the organization of a training course whose detail is being processed and will be presented in the next issue of Vetiverim. Suffice it to say that we are proud that we have been given such a trust and shall try our best to use the fund for the benefit of the vetiver community. We also hope that with a successful management of this fund, we shall gain the support and confidence of other multinationals operating in Thailand as well as other international agencies abroad. As commented by Dick Grimshaw, "If they know that Heineken has made a good donation, they might follow suit." Thank you, Dick, for your support, and our sincere thanks, on behalf of those who will reap the benefits of this endeavor, to the Heineken Breweries for their generous donation. These are small steps, but in the right direction and certainly c o n t r i b u t e t o w a r d s m a k i n g o u r w o r l d g r e e n e r a n d c l e a n e r.

We only hope that, by saying a "feather in our cap", it is not a big burden for many of us. Yet we are ready to go forward for this new venture no matter haw hard it will be, just to make the s a y i n g " m i r a c l e p l a n t " r e a l l y m e a n s w h a t i t s a y s.

*A Wonder Grass for All Industries**

A Queensland soil conservationist has discovered a versatile grass that can do the work of contour banks, absorb chemical runoff and could help win the battle against land degradation. Dr

Paul Truong, principal Soil Conservationist with Quensland's Department of Natural Resources (DNR), has researched and trailed vetiver grass, a native of India, in diverse agricultural situations throughout Australia as a bulwark against salinity, acid sulfate soil leaching, soil erosion and land stabilization. Hi has further helped Queensland industry with stabilization work for roads and railways and for rehabilitation of contaminated lands such as mining wastes and landfills.

In Thailand, under the leadership of His Majesty, King Bhumibhol Adulyadej, Dr Truong, on behalf of DNR's research unit, Resource Science and Knowledge, Indooroopilly, Brisbane, encouraged the use of vetiver grass throughout the country for soil and water conservation on steep slopes and floodplains. The grass was further used in bioengineering technology to protect the infrastructure of roads and bridges and also for pollution control of rural, urban and industrial wastes. He demonstrated that former opium cultivators in Thailand could grow vetiver grass in contours as a soil and water conservation measure to support plantations of bananas, mangoes, lychees and vegetable crops on the steep slopes of northern Thailand. Hence many farmers have changed from opium poppies to vegetables, cut flowers and fruit trees. Recently, Dr Truong was conferred the King of Thailand Vetiver Award for research.

In Queensland It has been successfully used for soil conservation purposes in sugarcane land in north Queensland, grazing land in western Queensland and cropping land on the Darling Downs in the past six years. A native to India, the has been demonstrated by Dr Truong to be effective as biological filtration system for run-off from sugar and cotton farms, in mining rehabilitation and in soil stabilization.

The years ago he obtained obtained vetiver from Mt. Cootha gardens near Brisbane, where it had quietly flourished for 100 years. This variety was later registered as Monto Vetiver. It is sterile and non-invasive to crops and pastures. He researched and trialed it in diverse agricultural situations throughout Australia as a bulwark against salinity, acid sulfate soil leaching, soil erosion and land stabilization. Its most effective and unique application is for erosion control on the floodplain of the Darling Downs, in place of strip cropping and stubble retention. One row of vetiver does the job, replacing 5 strips, freeing the stubble retention strips for cultivation, thereby increasing productivity by 30%. Both soil and young crops were fully protected against some major floods in the last 6 years. Conventional contour banks and waterways divert water off the farm, so it is lost to the crops and concentrated in waterways which often erode and take up a lot of useful land. On the

other hand vetiver contour hedges conserve soil and water by spreading run-off water and increasing infiltration.

The key to vetiver's worth lies in its vigorous 3 to 4m deep and extensive root system and its abiliry to establish and survive under extreme conditions. Vetiver is a dense, erect grass clump standing almost 2m tall. Monto vetiver is sterile so it must be planted as individual plants, time consuming, but the results make it well worth the effort. For large areas machine planting is also available.

Pesticide run-off

At farms near Mackay and Emerald Paul and his DNR colleagues used the grass to trap runoff following pesticide and fertilizer application. Elevated concentrations of pesticides, herbicides and nutrients in runoff were reduced after the runoff had filtered through the vetiver strip. In the Lockyer valley vetiver has been successfully used to overcome saline seepage causing gully erosion and salinity scalding, lowering the water table until native grasses take over. Similar benefits have been repeated in coastal sugar growing areas of the state where iron and acids had formerly leached down drains in acid sulfate soils. Nothing would grow in these areas. Erosion was a problem on the sides of the drains. Vetiver was planted and a year later there was no visible erosion. The grass had beaten the acidic run-off and native vegetation covered the previously degraded site.

In all cases of scald, degradation, of heavy metal runoff from mining operations, when planted across drainage lines the water is slowed, spread and filtered, creating a bed of silt that supports native grasses or improved pastures. Vetiver does not tolerate shading so new growth of volunteer or planted species eventually shade the vetiver out and take over. Positive results have been obtained planting vetiver along contour banks on bywashes. Cattle eat vetiver when it is young and tender but it is less tempting when mature, Its strength lies in its soil conservation value and the fact that, being sterile, it will never spread and become a pest. Its roots can absorb heavy metals in degraded area however they are not passed on to livestock through the leaves.

Industry

DNR has been consulting with industry on applications of vetiver. Paul has been called on to help stabilize heavy infrastructure such as the Cooktown Development and Toowoomba range

roads and Murphy Creek-Toowoomba and Brisbane-Gold Coast railways and river crossings near Bundaberg for the Gladstone-Marybourough gas pipeline.

Main Roads Department had serious erosion near the bridge over Columboola Creek on the Leichardt Highway near Miles. Erosion of the creek bank threatened to undermine bridge foundations. Paul went to work with vetiver grass and the environmentally friendly solution came in at half the cost of conventional erosion control methods.

Vegetable Growing

In India the grass in known for its essential oil properties and insecticide qualities. It has great potential for fruit and vegetable growers and practitioners of permaculture. In China and Thailand vetiver is planted on the edge of vegetable and herbs plots as a measure against insect pests. Vetiver has an extreme tolerance to a broad pH spectrum and heavy metal toxicity, withstands bushfires, drought, submergence and extreme temperatures, including severe frost.

As if all this wasn't enough, the wonder grass provides natural medicine, material for thatching roofs, perfume extracted from its roots and shade for sheep in the treeless Mitchell grass Downs country of western Queensland. "I have been working with plants for soil conservation for 25 years and I have never seen anything like vetiver grass," said Paul.

Further information DNR officers: Paul Truong, RSK Indooroopilly, phone 3896 9304, Frank Mason, Mackay 4915 8873; Darryl Evans, South Johnstone 4064 3939 and Clive Knowles-Jackson, Oakey 4691 1499.

Second International Conference on Vetiver: Vetiver and the Environment*

For those unfamiliar with vetiver, it's a grass, Vetiveria zizanioides, is no ordinary grass; in fact, it is called a "Miracle Grass" for its erosion controlling abilities. In appearance, it is a stiff bunch grass, somewhat similar to guinea grass (this pasture grass is familiar to ranchers in the CNMI). Vetiver planted on the contour, slows the water, traps the sediment, and allows the excess water to pass through it. Over time, a terrace forms, reducing the slope and further reducing erosion. In construction projects, its living, dynamic nature is superior to silt fences, which last only a couple of years at best.

The Second International Conference on Vetiver (ICV-2), "Vetiver and the Environment", was held to commemorate the Sixth Cycle Anniversary of His Majesty The King of Thailand. In a word, the conference was awesome, was awesome, from the opening ceremonies to the closing farewell

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From the start, I was impressed at the amount of work that the Thai people and others had put into the conference. Briefcases made of vetiver leaves were distributed while registering for the conference at the Dusit Resort Hotel and Polo Club in Cha-am in southern Thailand. In the briefcase were books containing all of the papers to be presented, programs of activities, notebooks with the conference logo printed on it, facts on vetiver, booklets on the different government entities responsible for the vetiver demonstration sites, and a CD entitled Vetiver Grass Technology for Environmental Protection. The poster room had many very informative posters depicting the research conducted on vetiver: four of these posters received awards. At least 10 exhibit houses with veitver thatching were erected on the hotel grounds with handicraft articles made of vetiver, as well as vetiver oil perfume and soaps. The music, singing and performances must have taken many weeks of preparation. All things were done on a grand scale. During the technical tours, we saw nurseries of vetiver the produced millions of vetiver slips for planting. The demonstration sites had newly constructed wooden bridges and vetiver everywhere. One reforestation project had 280 kilometers of vetiver planted!

In the year 2004, the Third International Conference on Vetiver (ICV-3) will be held in China. The theme of the next conference well be: “Vetiver and Water”. For more information: Contact the Saipan and Northern Islands Soil and Water Conservation District at 233-0650 or USDA/Natural Resources Conservation Service at (670) 233-3415, Fax: (670) 233-3857.

Rats in the Vetiver Hedges in China

The Editor received a message from Prof. Liyu Xu, Coordinator of the China Vetiver Network, raising The problem of rats in vetiver hedges in Guangzhou, China. The message was also sent to several people, some of which have responded. The Editor thinks that such topic should be of

interest to our readers, thus, excerpts from Prof. Liyu Xu's message and the responses from Mr. Diti Hengchaovanich and Dr. Paul Truong are presented blow:

Prof. Liyu Xu, China (14 March 2000): "Madame Xu (nicknamed 'The Tiger 1') of Guangzhou told me that she planted vetiver about 70 Mu in the nursery, but the grass was damaged by rats. The rats eat vetiver roots. Madam Zhang in Fujian told me earlier that the farmers had complained that vetiver attracted snakes, I myself also saw snake in the vetivernursery in Anhui Province. If vetiver attracts rats it may problem for levee protection".

Diti Hengchaovanich, Thailand (14 March 2000): "The rats problem is real and should not be underestimated. A few worries about rats have been raised when I was in China. I myself had experienced moles eating vetiver roots somewhere near Chiang Mai. And in Malaysia I experienced once vetiver roots being eaten by rats, not in the fields, but inside a wooden container. The questions of snakes I the vetiver field or nursery, I believe, is not due to vetiver attracting snakes, but rather snakes come to prey on the rats as foods. I thinks somebody, especially in China, should seriously look into the problems of rats, snakes and insects, and compile record or do research on it. As is well known, the Cantonese in Cantonese in Hong Kong love to eat snakes. In fact, a number of snakes have been exported from Thailand (and probably Guandong too) to Hong Kong to satisfy that terrible habit, to the extent that rats have posed great menace to the rice crop as there are not enough snakes to strike the ecological balance by eating rats. The Thai government once offered a reward for 2 or 5 Baht (I can't remember exactly) per one tail of dead rat to try to solve this problem. If one looks at the literature on vetiver to day, it is mostly said that vetiver will keep pests away. Now we may have to look at this aspect once more, seriously and closely."

Paul Truong, Australia (15 March 2000): "This is probably a good project for your (Liyu's) student. It is good to find out whether they eat the roots or just hiding in there, that is, building nests under the vetiver clump for good protection. Yes, it would be serious on the levee. I had problem with mice here too. They were hiding in the vetiver clumps in winter and come out in spring to attack the young seedlings. My solution was to burn bank the vetiver hedges early in winter, exposed the ground so they could not hide in there in winter. This worked very well. So if your rats do not eat roots (as the Thai mice), then try this method: slash or whatever to keep the grass short, exposing the ground during their breeding time if they live there all year long; or before the time they move in, if they came in from the outside."

Editor's Note: It is definite that rats are found in the vetiver hedges. They may use the clumps to hide or may eat the roots (but not yet confirmed by scientific evidence). Snakes are attracted to the vetiver hedges to prey on rats. In many places, due to the people's habits, either by eating snakes or getting rid of the creatures for fear of being bitten by them, their number is drastically reduced and cannot keep pace with the rat's exploding population (1250 are produced from a single couple within one year!). With no rice or other field crops to be used as food during the dry season, and no place to hide, the rats may find the vetiver hedge a nice habitat for them to live and survive by eating their roots. Paul's suggestion of keeping the grass short, exposing the ground, is very interesting. Did anyone else have any experience with rats in the vetiver hedges? The Editor invites comments of suggestions to cope with this problem from our readers.

Heineken Contribution *

Before I left for vacation in Europe on 26 April (to act as a leader of the study tour group organized by the Society for Ornamental Plants of Thailand of which I am its President), I was informed by Dick Grimshaw that the Heineken Breweries Co. Ltd. will make a donation to the Chaipattana Foundation of Thailand to promote vetiver utilization. Heineken has its green label image and is dependent upon sources of clean water for its products. So the Company is interested in environmentally beneficial technologies, especially those that involve the conservation of clean water. Just before I left, I also received an e-mail copy of EMVN Newsletter (April issue) from Mike Pease, saying the same thing (although the amount mentioned was different!). Thus, I approached Mr. Cornelis des Bouvrie, an ex-World Bank officer and a Board Director (Europe) of the Vetiver Network, who is a close friend of Mr. Karel Vuursteen, C.E.O. of Heineken Breweries, to have an appointment to discuss this issue during the time I was in Amsterdam.

As I had very little time in Amsterdam, I could not see Mr. des Bouvrie in person but we had a good long conversation on the phone. Upon returning to Bangkok, I received the following e-mail message from him: "…I refer to our recent conversation in the evening of 1 May. Firstly, kindly permit me to assure you that Mr. Karel Vuursteen fully understands that neither the Chaipattana Foundation nor the Royal Development Projects Board can be obligated by any commercial conditions set by his contribution to the Vetiver Program in Thailand, and that it is not his intention to thus seek publicity for his company. I trust, therefore, that this matter will prove no more to be an issue and that we will soon be able to proceed with the implementation of this Heineken-sponsored program. Turing now to the question on how the Thai Vetiver Committee considers this donation can best be

spent, I have noted your interest in expanding the Thai Vetiver program to help your neighboring countries. This would be achieved through training in Thailand of engineers and extension workers from those countries; study tours to successful vetiver-based projects in Thailand, and introduction from Thailand of suitable vetiver planting materials. I believe that we all would welcome this initiative and I have informed Heineken accordingly. I am also confident that Heineken will agree that at least part of their donation be used for such purposes. Finally, I apologize for the misunderstanding that has arisen around the alleged magnitude of the Heineken contribution. I can, however, only confirm that it will be US$ 50,000, and I have that in writing signed by Mr. Vuursteen himself. I also know that Heineken considers this donation an interesting, but, as yet, untested new joint venture. But I am also confident that the company will be prepared to consider funding a second such donation if the result of this first phase warrants to do so. I will keep you informed of developments…"

Concerning training and dissemination of vetiver grass technology, I received the following comments from Paul Truong, "…I absolutely support your great idea of training instead of research with such a small grant. The impact is much wider and quicker if we use it for dissemination. You can even call them Heineken scholarships! Following IVC-2 we are ready for full-scale dissemination now. The Thais have done a wide range of very good research already. I don't think we need any more in depth research, but if we can train and have 20 Noahs (Ms Noah Mararang of the Philippines who has been trained in Thailand under RDPB sponsorship and now operates a very successful private vetiver farm in the Philippines – Ed.) running around the region, the impact is certainly far-reaching. The other thing I would suggest is to keep some of the money for information dissemination as CDs, books, bulletins, video, etc. The Thai Vetiver Network can organize and package the information together in CDs and you can produce and distribute them. At the moment, besides the Conference Report, I am preparing two more for Dick, so we can send them our later. As a result of IVC-2, I have been invited to California to give a seminar on the use of vetiver for phytormediation there, namely dealing with Hg pollution to their lakes and farms from silts coming down the slopes from old mined, etc. They have tried all the 'hi tech' methods but could not solve the problem, so they want to try vetiver…"

Letters to the Editor

A Request From Madagascar to Rehabilitate the Cyclone – Hit Area

I am writing to ask a question about the possible availability of a team of Thai vetiver experts who could travel to Madagascar for a short consultation. As you may have heard, Madagascar was

hit twice by sever cyclones. An area that was especially hit was a zone where I worked for three years trying to rehabilitate an important railroad that links two regions for the country and crosses mountainous and fragile lands. According to project personnel there, alomost 80% of the 162 km rail line has been covered by land slides. When we worked on the railroad, we began to plant vetiver along the most fragile lands. Most of it survived. But now the cyclone damage requires massive rehabilitation of the slopes and hillsides on the order of magnitude of the Yadana gas pipeline right of way. We have been emailing the people on the ground there, and I suggested that possibly Thailand expertise might be tapped to help design repair measures that includes vetiver along with other techniques to prevent future damages.

As the people in Madagascar are preparing an emergency budget, could you give me an idea of the cost of a Thai engineer/consultant who would travel for about 3 weeks to provide guidance and advice. The ideal situation would be to have a 2 –3 person team, including an environmental engineer, a nursery specialist (in-vitro reproduction) and a structural engineer. I can send you more information, but before that I wanted to know where the people in Madagascar should be addressing the request, and an order of magnitude of the cost, and even if there is a chance that some of your experts could be detached for a short time to a place like Madagascar.

Criss Juliard

Chemonics International, Madagascar

Thanks for your trust in Thailand's expertise in this regard. This is in line with our intention to disseminate our knowledge and experience to help the situation like what has occurred in Madagascar. Consequently, we have set up a team of two experts consisting of Dr. Uthai Charanasri of the Doi Tung Development Project, and Mr. Diti Hengchaovanich of APT Consultant Co., who are most willing to travel to Madagascar to make a survey and provide technical assistance.

When the manuscript of this issue is about to be sent to the press, we heard that everything has been planned for them to leave Thailand on 17 July for a 3 – week assignment in Madagascar.- Ed.

Problem of Soil Loss in Samoa

I have read about your network and the various roles that vetiver plays on soil protection and soil fertility. I am very interested on the results of different experiments that your vetiver experts have conducted, especially on measuring the amount of soil erosion using vetiver grass as barriers. We

have been practicing the same concept to stabilize soil erosion in Samoa using Calliandra and other legumes, but we did not conduct any experiment or research to find out the exact amount of soil loss similar to the one I have read the good results in your newsletter. This is because of the lack of knowledge and training on research and experiments.

In Samoa, there is a Watershed Management Section, one of the sections of Forestry Division under the Ministry of Agriculture, Forests and Fisheries. The overall objective of this section is to look at the various catchment areas of the country and identify the existing problems and then propose programs as a solution to tackle the problems. One of the mai9n problems is the clearing of Upon reading about the experiments that you have conducted, I am sure that this will be a good opportunity for me to look at all the benefits of this grass, not only for soil protection, but also for soil improvement. Therefore, may I ask for any advice form you since you have the expert so that we can work together and help each other.

Maturo Paniani

Senior Watershed Management Officer

Forestry Division, Samoa

The (Thai) Department of Land Development has done a lot of research on soil protection and fertility improvement using vetiver barriers, many of which have been reported at ICV-2. In particular, I am referring to a paper which won His Majesty's award, "Research on methodologies for selection, propagation and cultivation techniques of vetiver grass and its application in Thailand". In this paper which will appear in ICV-2 Proceedings, mention has been made on the effectiveness of vetiver grass on mitigation soil erosion problem. –Ed.

Country Representative of Cambldia

After visition the (Thailand) Hill-tribe Welfare Division, Department of Public Welfare, Ministry of Labor and Social Welfare in Chiang Mai, and after reading through the Vetiverim Newsletter, I am interested in knowing more about vetiver. In this connection, I would like to volunteer to be the Country Representative of Cambodia in your Pacific Rim Vetiver Network in order to act as a focal point in vetiver activities in my country.

Kong Thann, Executive Director

Foundation for Poverty Alleviation and Paralegal

Phnompenh, Cambodia

We are more than glad to have you help us as the Country Representative of Cambodia, a country that needs vetiver badly. We shall send ass documents about vetiver to you for further distribution in Cambodia; meanwhile, kindly send us news and articles on vetiver from Cambodia for possible inclusion in future issues of the Vetiverim. – Ed.

Vetiver – Mycorrhiza Association

During the field trip component of the Vetiver Conference in January there was a poster which particularly caught the attention of many and Mark has referred to it. I have quite a good close up photograph of this poster but I cannot read the detail attached to the graphical presentations. What I can read is the principle text which says: "This research showed that rhizosphere of vetiver fibrous root can produce root exudate for increasing population of soil microorganisms and enzymatic activities which play an especially important role by decomposing or transforming both organic and inorganic substances to available nutrients for plant growth".

I do not recall any paper being delivered at the Conference in support of this poster. So, I would be most grateful if you would send me whatever paper may have been produced that expands and details wath was on the poster.

Michael Pease, Coordinator

Europe and Mediterranean Vetiver Network, Portugal

The poster, titled, "Soil Microbial Biodiversity in Rhizosphere of Vetiver Grass" was on a field trip and is based on the work of Vanlada Sunathapongsuk of the Land Development produced by paul Truong. A copy has already been sent to you by e-mail. _Ed.

Request for Document

Some time ago I received an e-mail and attachments form you – copies of material you had sent to Mike Pease, Coordinator of EMVN. I have read the material with great interest and would like to receive a copy of the bulletin "The Use of Vetiver Grass System for Erosion Control and Slope Stabilization along the Yadana Gas Pipeline Right –of-Way" to which reference is made in Vetiverim-12. I collaborate with several colleaguse in Central Asia Turkmenistan and Kazakhstan and in China. There are several situations in these countries where the use of vetiver grass might be advantageous. I have read that it is also used in China.

Elliott Birnbaum

Blaustein Institute for Desert Research, Ben-Gurion University of the Negev

Sede Boker Campus, Israel

Thanks for your interest in our publication. The document requested has already been sent to you. We shall also send you our newsletter as we know that you have made good use of it. –Ed.