

## **The Promotion and Extension of Vetiver System by PTT Public Company Limited**

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### **Abstract**

PTT Public Company Limited (PTT) first became involved in the promotion and application of vetiver grass in 1996, for erosion control and slope stabilization along the Thai-Myanmar natural gas pipeline in Thong Phaphumi District in Kanchanaburi Province. Incorporating engineering techniques, vetiver was the introductory plant to expedite forest area revitalization along the pipeline route.

For its outstanding work, PTT won the *King of Thailand Vetiver Award* in the Promotion and Development Category in 1999, the *Vetiver Network Award* in the Engineering/ Infrastructure Protection Category in 2003 and the *King of Thailand's Certificate of Excellence for Promotion of Vetiver System* and the *Vetiver Network Certificate of Technical Excellence (Class 2)* in the Bio-engineering and Extension Category in 2006. The achievements inspired PTT to exert serious efforts in pursuing vetiver cultivation and promotion as a standard practice for all PTT divisions nationwide, and incorporated as standard EIA (Environment Impact Assistance) in land rehabilitation along its gas pipeline route.

For 15 years (1996 to 2010) the PTT vetiver project created various activities expanded vetiver uses as follows:

- 1) Cultivation and promotion of vetiver and extension of vetiver utilization in PTT environmental networks and agencies
- 2) An annual contest of the Development and Encouragement of the Use of Vetiver under Royal Initiative held from 2006 to 2010
- 3) Training on vetiver development for farmers, educational institutes and the general public to produce products under the Pat Pat brand of the Chaipattana Foundation and community markets
- 4) Research, development and proliferation of vetiver grass utilization
  - 4.1 Soil, water and socio-economic research
  - 4.2 The *Thai Ban* rural research project develops designs and vetiver fiber into product materials for export
- 5) Creation and support of the Vetiver Conservation Network to promote vetiver cultivation and utilization by communities

### **Introduction**

PTT's work on vetiver planting projects coincided with the 4<sup>th</sup> Master Plan (2007 to 2011) for the Development and Encouragement of the Use of Vetiver under Royal Initiative, which inspired vetiver grass cultivation and promotion for the people. PTT pursued the projects under the framework and direction of the Office of the Royal Development Projects Board.

Soil, water and forest areas are important natural resources in Thailand where agriculture is the prime occupation. However, mainstream farming involves constant plowing which results in soil losing its ability to absorb and retain carbon. Vetiver grass is

a common and cost-effective tool for farmers to preserve and replenish soil. Vetiver, a member of the perennial grass family, has the unique characteristic of absorbing carbon in its roots, trapping it underground. Research studies by the Land Development Department (Dr. Pitayakorn Limthong, Vetiver Grass Research and Development Institute, 2010) discovered that vetiver cultivated in plots of 50 x 50 centimeters preserves 2.0 carbon in the stems per ton per *rai* (one *rai* equals 1,600 sq. meters). Carbon level in the vetiver grass roots underground is at 0.5 ton per *rai*. The total accumulation of carbon in the plants is 14.06 ton per year. Vetiver grass links the natural carbon cycle and assists in reducing carbon dioxide gas in the earth's atmosphere. It is one key in alleviating global warming.

Since 2006, PTT has expanded the campaign to the general public. The company has also organized contests to recognize those who demonstrate good examples of planting or utilization of vetiver grass in the Development and Encouragement of the Use of Vetiver under Royal Initiative project.

### **Objectives**

- 1) Cultivate and utilize vetiver grass to preserve soil and water in PTT agencies and territories
- 2) Encourage and promote vetiver grass utilization to preserve soil and water
- 3) Encourage and promote added value of vetiver grass leaves as a supplementary-income generator
- 4) Recognize and commend those demonstrating good examples of vetiver grass usage in preserving soil and water
- 5) Develop and promote knowledge about vetiver grass

### **Work Direction (chart)**



### **Work Performance**

- 1) Cultivation and promotion for vetiver grass utilization expansion

### **Hands-On Learning**

- Construction disturbs the topsoil, the impact of which is the immediate erosion and collapse of topsoil in slopes. PTT has planted 2,013,500 vetiver plants in combination with other soil-covering vegetations, discovering that vetiver grass plays a vital role in protecting against permanent rill and gully soil erosions by effectively creating soil moisture. Vetiver grass assists in the rejuvenation and balance of forest ecosystems allowing for gradual re-forestation.



KP 19+900: June 2541



KP 19+900: March 2542



KP19+900: October 2543

## Learning from Cooperation with External Agencies in Expansion towards Communities

Between 2003 and 2006, PTT was part of the Royal Project Foundation working committee in 22 vetiver projects that spurred vetiver researches and cultivation works on soil and water preservation and erosion protection. PTT spearheaded 7 projects.

## Expansion within the Organization

Since 2003 PTT has expanded vetiver projects within its own organization and provided knowledge training for its employees. The company produced 224 graduates in 12 graduating classes who became vetiver lecturers and trained staff on the subject. PTT employees are encouraged to grow vetiver on their private properties. *Vetiver Clinics* provide consultations for staff and interested members of PTT groups.

## Expansion towards the Community

In 2006, PTT developed vetiver projects for communities, schools, environmental networks and other interested parties. Since 2008 work has further expanded to the *84 Tambons on a Sufficiency Path Project* volunteer group members which PTT provides support on water, forest and environmental resources management.

### **PTT Vetiver Grass Cultivation, Promotion, Expansion and Utilization: 1996 to 2010**

	<b>Activity</b>	<b>Usage</b>	<b>Vetiver Plants</b>
1	Thai-Myanmar Natural Gas Pipeline Construction Project	- Soil erosion protection - Rehabilitate soil in the area	2,013,500
2	3272 Highway-Thong Phaphumi to Ban E-tong route (30 Km)\ Vetiver Planting Project	- Solve mudslide problem	835,550
3	Vetiver Planting Project-Thor Chor Dor Vijit Vitayakarn School in Kanchanaburi Province	- Solve mudslide onto school buildings	20,000
4	Project to encourage vetiver planting to preserve soil and water in Huay Ka-yeng tambon, Thong Phaphumi district, Kanchanaburi Province	- Stabilization of steep slopes - Rebalance soil of agricultural lands	1,326,300
5	Project to plant vetiver grass in reforestation plot of 4,000 rai along border area of Ban E-tong, Kanchanburi Province	- Enhance growth of flora	300,000
6	Project to grow vetiver to preserve soil and water in water source in the forest in the Mae Ping, Chiangdoa district, Chiangmai Province	- Stabilization of steep slopes	2,164,000
7	Project to grow vetiver grass for conservation in high altitude areas in cooperation with the Resource and Sustainable Agriculture Network in Nan Province	- Stabilization of steep slopes	740,000

8	Project to grow vetiver grass in high altitude in cooperation with the Community and Mountainous Area Development Foundation in Maechan district, Chiangrai Province	- Reduce soil erosion on steep slopes	880,000
9	Project to grow vetiver grass along the entrance road of Sirinart Rachinee Ecosystem Learning Center in Pranburi district, Prachuab Khiri Khan Province	- Stabilizing newly constructed roads - Stabilizing road shoulders	112,000
10	Planting and encouragement of the utilization of vetiver within the PTT organization in 41 areas around the country	- Solve erosion problems - Stabilizing steep slopes - Enhance soil conditions	1,249,000
11	Encourage for PTT agencies in the Map Ta Phut Industrial Estate in Rayong Province in 5 areas	- Stabilizing river banks - Reduce erosion	230,000
12	Expand project to staff of PTT groups in 86 areas	- Stabilizing steep slopes - Increase moisture in agricultural lands - Stabilization of water sources	690,900
13	Encourage and expand projects towards the community, school and external agencies in 17 areas in 9 provinces	- Stabilizing steep slopes - Stabilizing river banks - Increase moisture in agricultural plots	759,200
14	84 Tambons on a Sufficiency Path volunteer group in 58 provinces	- Stabilizing steep slopes - Increase moisture in agricultural lands - Stabilization of water sources - Starter plot	10,292,500
15	PTT Vetiver Conservation Network in 5 regions in 34 provinces	- Stabilizing steep slopes - Increase moisture in agricultural lands - Starter Plot	620,000
<b>TOTAL</b>			<b>21,473,750</b>

## **2. Contest for the Development and Encouragement of the Use of Vetiver under Royal Initiative**

In 2006, PTT worked in co-operation with the Chaipattana Foundation, Office of the Royal Development Projects Board and the Land Development Department organized vetiver cultivation contests on the auspicious occasion of the 60<sup>th</sup> Anniversary of HM the King's Accession to the Throne. The project's theme was "*The Root of Thai Strength beneath HM the King's Royal Benevolence*" to encourage vetiver cultivation and recognize outstanding vetiver works and usage. Since 2007, the competition has been called contest *for the Development and Encouragement of the Use of Vetiver under Royal Initiative*.

From 2008 to 2010, the contest's theme was *Vetiver is More than Grass*. The *Downstream to Upstream* strategy was added. Emphasis was made on promotion and

awareness of product development to generate income and expand vetiver cultivation areas. The contest has two categories, Vetiver Planting and Promotion, and Vetiver Products. Subcategories between general public and students were created.

Competition & Category	Participants					Winners				
	Per sons	Commu nities	Education Institutes	Organi zation	Total	Per sons	Commu nities	Education Institutes	Organi zations	Total
<b>1<sup>st</sup> Time, 2006</b>										
- Vetiver Planting	90	15	35	104	244	9	5	1	4	19
- Vetiver Planting Promotion	20	3	11	26	60	2	-	-	3	5
- Vetiver Planting Promotion Poster Design	94	-	-	21	155	7	-	-	1	8
<b>Total</b>	<b>204</b>	<b>18</b>	<b>46</b>	<b>151</b>	<b>419</b>	<b>18</b>	<b>5</b>	<b>1</b>	<b>8</b>	<b>32</b>
<b>2<sup>nd</sup> Time, 2007</b>										
- Vetiver Planting	134	16	31	24	205	11	4	3	1	19
- Vetiver Planting Promotion	13	-	2	9	24	5	1	1	1	8
- Products/Creation	198	-	11	-	209	24	-	2	-	26
<b>Total</b>	<b>345</b>	<b>16</b>	<b>44</b>	<b>33</b>	<b>438</b>	<b>40</b>	<b>5</b>	<b>6</b>	<b>2</b>	<b>53</b>
<b>3<sup>rd</sup> Time, 2008</b>										
- Vetiver Planting	66	10	14	33	123	12	1	4	1	18
- Vetiver Planting Promotion	14	1	1	7	23	5	1	-	-	6
- Special Organization* (*Certificate)	-	-	-	14	14	-	-	-	7	7
- Products/Creation										
- General Public	102	5	6	-	113	9	-	4	-	13
- Student Design Camp	-	-	106	-	106	-	-	12	-	12
<b>Total</b>	<b>182</b>	<b>16</b>	<b>127</b>	<b>54</b>	<b>379</b>	<b>26</b>	<b>2</b>	<b>20</b>	<b>8</b>	<b>56</b>
<b>4<sup>th</sup> Time, 2009</b>										
- Vetiver Planting	62	11	9	11	93	13	3	1	2	19
- Products from Vetiver Leaves										
- General Public	108	-	-	-	108	11	-	2	-	13
- Student Design Camp	-	-	236	-	236	-	-	18	-	18
<b>Total</b>	<b>170</b>	<b>11</b>	<b>245</b>	<b>11</b>	<b>437</b>	<b>24</b>	<b>3</b>	<b>21</b>	<b>2</b>	<b>50</b>
<b>5<sup>th</sup> Time, 2010</b>										
- Vetiver Planting	90	12	16	18	136	14	1	3	-	18
- Products from Vetiver Leaves										
- General Public	30	2	2	-	34	9	3	1	-	13
- Designer	13	-	77	-		-	-	13	-	13
<b>Total</b>	<b>133</b>	<b>14</b>	<b>95</b>	<b>18</b>	<b>260</b>	<b>23</b>	<b>4</b>	<b>17</b>	<b>-</b>	<b>44</b>
<b>Total/Works</b>	<b>1,034</b>	<b>75</b>	<b>511</b>	<b>267</b>	<b>1,933</b>	<b>131</b>	<b>19</b>	<b>65</b>	<b>20</b>	<b>235</b>

### 3. Designs and Development of Vetiver Leaf Products

It was expected that an increased use of vetiver grass leaves would motivate increased planting of vetiver. PTT established the curriculum for putting into practice the development of vetiver products as follows:

#### 1. Introductory Knowledge Curriculum 1 - One Day

Introductory knowledge in preparing raw materials, developing products, understanding the scope of creating a supplementary-income and submitting their work into the competition.

#### 2. Basic Knowledge Curriculum 1 - Two Days/One Night

Basic knowledge in preparing and adding value to raw materials, handicrafts, concept development, selling for extra income and competition submission.

#### 3. Basic Knowledge Curriculum 2 - Three Days/Two Nights

Basic knowledge in preparing raw materials, design, product development and marketing fundamentals, and setting up professional career groups.



#### 4. Student Design Camp - Four Days/Three Nights

The use of vetiver in preserving soil and water, preparing raw materials, design, and product development.



#### 5. In-Depth Development Curriculum - Three Days/Two Nights)

Communities form a product group and shop to sell produce. PTT acts as group consultant and provides designers and staff on-site to follow-up and up-close advice. PTT can select products to be sold under the Pat-Pat brand of the Chaipattana Foundation. Current graduates of the course are competent enough to become community lecturers on vetiver products. In 2010, seven communities were involved.

- 1) Vetiver Product Group of Ban Kae-mai, Phusang District, Phayao Province
- 2) Vetiver Product Group of Tambon Huay Ka-yeng, Thong Phaphumi District, Kanchanaburi Province
- 3) Vetiver Product Group of Ban Choknasam, Prasat District, Surin Province
- 4) Reed and Vetiver Product Group of Ban Kok-prong, Vichianburi District, Phetchaboon Province
- 5) Saijathai Women's Co-op Group, Srinakorn District, Sukhothai Province
- 6) Handicraft Group of Ban Sakaew, Nam-pong District, Khon Kaen Province



7) Vetiver Product Group of Ban Kohsawat, Takbai District, Narathiwat Province

6. Site Visit

To follow-up on the work of the vetiver products network, and to select choice products to be sold at Pat Pat stores of the Chaipattana Foundation, as well as to develop community markets.



**Conclusion of Execution Trainings for Vetiver Product Develop 2007 – 2010**

Activity	Year/ Class	Parti cipants	Expected Results
1 Introductory Knowledge Curriculum 1 (Duration 1 Day)	2007/7Class	350	- Adding value to vetiver leaves - Alternative career
2 Basic Knowledge Curriculum 1 Land Development Department Network (Duration 2 Days/1Night)	2008/ 6 Classes	334	- Increased planting to preserve soil and water - Add value to vetiver leaves - Alternative Career
3 Basic Knowledge Curriculum 2 84 Tambons on a Sufficiency Path Network (Duration 3 Days/2 Nights)	2008/ 5 Classes	167	- Farmers who grow vetiver have knowledge in vetiver products development - Increase value of Vetiver Leaves - Alternative Career Create - Community Career Group
4 Student Design Camp (Duration 4 Days/3nights)	2008/1 Class	56	- Knowledge of preserving soil and water with vetiver - Submitting work to competition
5 Basic Knowledge Curriculum 2 Vetiver Conservation Network (Duration 3 Days/2 Nights)	2009/ 5 Classes	201	- Create Community Career Group
6 Student Design Camp (Duration 4 Days/3 Nights)	2009/1 Class	60	- Knowledge of preserving soil and water with vetiver - Train new designers of vetiver leaf products - Submitting work to competition
7 In-depth Knowledge Curriculum to develop into Careers Pat Pat products network (Duration 4 Days/3 Nights)	2009/1 Class	32*	- Increase handicraft skills - Increase design skills - New concept products developed for sale
8 Site Visit (5 Communities /3Visits Each per year)	2009/15 visits	32* same group in no.7	- 5 Communities gaining greater skills
9 Basic Knowledge Curriculum 1 (Duration 2 Days/1 Night)	2010/ 6 Classes	222	- Add value to Vetiver leaves - Create product network

10	In-depth Products Development Curriculum Duration 4 Days/3 Nights	2010/ 1 Class	44*	- Increase handicraft skills - Increase design skills - New concept products to market - Exchange experience on problems, obstacles and group management
11	Site Visit (7 Communities/3 visits each per year)	2010/21 visits	44* same group in no.10	- communities increasing their skills to produce quality products - Can assume lecturer role to pass on knowledge
<b>Total</b>		<b>3 years/ 59 visits</b>	<b>1,434</b>	

#### 4. Research and Development for Product Development from Vetiver

PTT has worked on *Thai Thai rural research to develop handicraft work from vetiver leaves* by linking students in design institutes with community members skilled in handicraft work. PTT acts as moderator and advisor in design and development jointly with the institutions.

In 2009, research work was done in 4 areas:

- 1) Thammasat University, Lampang Campus the Ban Workaew, Hang Chart District, Lampang Province, produced the *Lampshade Design Project for Decoration with Vetiver Grass in Combination with Local Materials*. This created the following skill sets:
  1. The management of fibers in solving problems with the natural fiber in the center of the grass, which is firm and dry. When it is rolled or folded, the vetiver stem, which has been dried naturally without undergoing any process, breaks. The results of studies and experiments to solve this problem were as follows:
    - Vetiver leaves that are less than 2 months old produce softer leaf fibers than more mature leaves
    - Boiling vetiver leaves in vinegar or soaking in vinegar for 1 week expedites the breakdown of proteins in leaf fibers and prevents brittle leaves
  - 2) Experiments in coloring dried vetiver grass leaves in natural tones can be concluded as follows: Vetiver leaves that are less than 2 months old must be used and the coloring process is as follows:
    - Drying vetiver leaves for varying amounts of time produces inconsistent colors
    - Exposing dried vetiver to sunlight for several days produces golden-yellow leaves
    - Baking vetiver in sulfur produces leaves that are lighter in color, with a pale yellow, greenish-yellow or green coloring
  - 3) There are 2 techniques to increase the durability of leaf fibers and reduce the sharpness or coarseness of the leaf surface, which are to twist and cut as well as tie into knots
  - 4) Building onto rattan or frames using heat from at a certain temperature and for a certain time will produce rattan and bamboo which will not break or tear when bent



- 2) Narasuan University, Phitsanulok Province and Saijaithai Women's Co-op Group, Srinakorn District, Sukhothai Province jointly designed and set up work plans. Some of the elderly suffered from health problems with the 2009 flu pandemic so the researchers included this project into one semester of academic curriculum for Year 2 architectural students. The community instead acted as advisers under the topic name *Vetiver Leaves Handicraft Development through the perspective of New Generation Youth*. The resulting works are as follows:
1. Pet carriers, women's handbags and belts
  2. Watches and turtle-shaped decorations
  3. Vetiver chairs and giraffe-design height measurement
  4. Egg-shaped lampshades
  5. Knowledge that the students received from their study and research are as follows:
    - Learning about selection and preparation of vetiver leaves
    - Learning techniques and processes in vetiver finishing in furniture making with twist and cut techniques and using vetiver strips to maintain vetiver fibers etc.
    - Learning about market-target groups
- 3) Khon Kaen University, Khon Kaen Province and Ban Sakaew, Nampong District, Khon Kaen Province, coordinated *Development of Appliances, Home Decors from Vetiver Leaves in combination with local materials*. The knowledge developed during the research is as follows:
1. Leaf dying techniques in natural tones by using chemical paint. Colors range from light to dark when dyed vetiver leaves are soaked in boiling water for 10 to 15 minutes. The longer the vetiver is soaked the darker the shade. When dipping the boiled and dyed vetiver in cold water the colors become highly durable. The colored vetiver is then dried and collected so that the colors are long-lasting.
  2. Vetiver coloring techniques to change the natural vetiver colors, as well as diluting the starch and sugar within the liquid of the fiber vessels to reduce problems with moths and molds.

Experiments coloring vetiver without dying were as follows:

- 2.1 Selecting vetiver leaves that vary in age and exposing them to equal amounts of sunlight to produce a range shades. The sunlight exposure can produce a golden-yellow color.
- 2.2 Vetiver leaves of varying age exposed to unequal amounts of sunlight and collected in a shaded area produce a range of colors from yellow to greenish shades.
- 2.3 Fresh vetiver, boiled and dried in sunlight produces a blackish-green color. Soaking in cold water immediately after boiling and then drying in sunlight produces a natural-looking green color. However, over time the green color fades and turns to yellow.
- 2.4 Vetiver leaves that are dried and soaked in water produce darker colors. If soaked for 2 to 3 days the leaves become darkish-grey.
3. Experiments on coloring techniques produced the following results:
  - 3.1 Vetiver leaves that are covered with mud produce a grayish-black color.
  - 3.2 Dying vetiver in boiling water with young teak leaves produces a light-brown color.

- 3.3 Dying vetiver in boiling water with neem plant husk produces a yellowish-green color.
4. Research in sewing techniques produced the following results:
- 4.1 Soaking dried vetiver in water increases moisture and softness and will not break when sewn. After sewing, vetiver leaves dry-out and curl slightly but. If left to dry while sewing, they become brittle and break.
- 4) Rajamangala University of Technology Rattanakosin, Salaya Campus, Nakhon Pathom Province in co-ordination with the Ban Tako-lang village community and school in the Suan Pung District of Ratchaburi Province, worked on the topic: *Innovation of Vetiver use for Spas with Aromatherapy Herbs*. The idea was to develop vetiver spa products using aromatic herbs along with other natural fibers using knitting, weaving and tying knots. The products were for health spas as well as Buddhist ceremonies. The results were as follow:
1. Vetiver potpourri.
  2. Fragrant twisted vetiver
  3. Herbal vetiver balm
  4. Fragrant vetiver balls
  5. Techniques and knowledge learned from practical application

PTT expanded and passed on the knowledge of the *Thai Ban Rural Research* results of 2009 by publishing 3,000 books about the research and findings. After conducting the research in 2009, the people of Ban Sakaew village in the Nampong District of Khon Kaen Province and the University of Khon Kaen continued to work together to produce higher quality results. PTT has reviewed the products and selected some to be sold under the Pat Pat brand, motivated the community to develop their design skills further and generate income. Education institutes such as University Khon Kaen include vetiver handicrafts as part of the curriculum.

Between 2010 and 2012, PTT has been continuing to carry out research on 13 topics:

### **Research on Soil and Water**

The project plan from 2010 to 2012 is connecting with *Vetiver Conservation* in 9 areas that have received awards from the competition in the category of *Vetiver Planting and Vetiver Planting Promotion*. This is to accumulate academic works stemming from the research project to be used as reference materials to scientifically support farmer projects in the following 2 areas:

1. Study and research to develop the use of vetiver grass in a sustainable way. Farmers' roles are in preserving soil and water and in ecological variety along with the Land Development Department of the Ministry of Agriculture and Cooperatives, the Faculty of Horticulture and the Faculty of Agriculture at Kasetsart University.
2. Study and research to develop the use of vetiver grass in a sustainable way. Farmers' roles are in socio-economics along with the Office of Agricultural Economics, the Ministry of Agriculture and Cooperatives, the Department of Horticulture and the Faculty of Agriculture at Kasetsart University.

### **Study and Research to Develop Products from Vetiver Grass**

*Thai Ban* is a rural communities research project that PTT conducts with design institutes and community members skilled in handicraft. Handicraft vetiver products are developed collaboratively. There are 13 topics as follows:

- 1) Using vetiver mixed with recycled paper to deal with weight in the process of making household and home décor products, along with the Fine Arts Department at Chiangmai University and the *Royal Vetiver Group* of Ban Sang village in the Mae Rim District of Chiang Mai Province
- 2) Designing products by using vetiver mixed with natural fibers, (cotton and silk), through weaving process, to create a new and modern texture. This is done in cooperation with Loei Vocational College and the Thai Textile Group in Loei, in Ban Kangpla village, in the Muang District of Loei Province
- 3) Study and develop the production process of creating artificial wood material from vetiver, as well as plastic waste to modify in designing home décor products. This is done in co-operation with King Mongkut's Institute of Technology Latkrabang and Ban Huay Namsai community in Sanamchaiket District of Chachoengsao Province.
- 4) Study on the use of vetiver with leftover agricultural materials and rubber by heating, in the design of household products. This is done in co-ordination with King Mongkut's Institute of Technology Latkrabang and Ban Huay Namsai community, Sanamchaiket District of Chachoengsao Province.
- 5) \*Designing tools for twisting vetiver grass automatically, created jointly with educational institutes and communities in Huay Ka-yeng Tambon, in the Thong Phaphumi District of Kanchanaburi Province.
- 6) Researching vetiver fiber and designing products for the international market in 5 areas:
  - Vetiver fiber weaving techniques
  - Vetiver fiber molding techniques using a template
  - Vetiver fiber finishing techniques
  - Vetiver fiber traditional weaving and knitting techniques

PTT co-operates with Kongprong community in the Vichianburi District of Petchaboon Province and the community of Huay Ka-yeng Tambon in the Thong Phaphumi District of Kanchanaburi Province.

Work on all topics will be completed in 2011, excluding point No. 5, which will be completed in 2012 because of a change in the research team. PTT will print material promoting future research.

## **5 Vetiver Conservation Network**

In 2008, PTT organized a forum for winners in the category of *Vetiver Planting and Vetiver Planting Promotion*, which was formed into the *Vetiver Conservation Network* to drive forward the work on vetiver in the community, and to develop vetiver work supported by the Government. Currently, this is designated as a working group at a regional level in 5 regions, which are North, Central, South, East and North East regions. There are 266 registered members who exchange experiences and learning on the various uses of vetiver in the agricultural and non-agricultural sectors. Mobile seminars are rotated in various member areas in each region to motivate the use of vetiver and improve understanding, by using personal case studies to pass on this knowledge. There have been 15 mobile seminars with 3 in each region per year. There have been a total of 580 members and non-members who have participated. Furthermore, there have been 6 national-level seminars among members, 2 of which are held each year. In total about 600 persons take part in the seminars each year.

The mobile seminars of the *Vetiver Conservation Network* have motivated local seminar attendees to gain confidence and sharpen their skills to become lecturers and provide knowledge to others. They use their own land as case study plots for the community in their areas and region. In 2010, these case study plots of skilled members were selected to become model study sites of vetiver utilization in soil deterioration to pass on vetiver product development technology to supplement income. The target of expansion in 2013 is the *Study Center and Proliferation of Comprehensive Vetiver Technology*.

## 6 Distribution and Public Relations

The project was carried out between 2006 and 2010.

Public Relations Media	Channel	Amount
- Public Media	- Television and Radio - Newspapers	Spot 30 second, 5 Channels Per Year 3-5 Newspapers Per year
- Competition Posters	- Direct Mail	150,000 sets
- Exhibitions	- Mobile Exhibition - Competition Awarding - Ceremony Narration	10 times/ year 1 times/year Average 100 times/ year
- Printed Media and Vetiver Promotion Documents	- Pamphlets - CDs - Vetiver Planting Handbook - Competition Submitted Works Handbook - Vetiver Products Development Handbook - Thai Ban Rural Research Book 2009 - Vetiver Loves Newsletter (3-times per year) - Competition Compilation CD	120,000 2,500 30,000 11,400 3,000 3,000 18,000 10,500
- Project Souvenirs	- T-shirts - Jackets - Hats and Bags - Stationary and mementos	30,000 600 12,000 22,000

## Conclusion

PTT's work on vetiver planting projects bringing together knowledge and technology in using vetiver as a tool in preserving soil and water in an appropriate way and participation by communities. From the objective and target of the research, the management of knowledge, as well impact of as promotion and publicity works, conclusions are as follows:

- 1) The project's duration from 1996 to 2010 saw a total of 21,473,750 vetiver planted. In terms of cultivation areas, it is equal to 53,684.375 rai (8,589.5 hectare), these amounts created biomass on soil surface (leaves and plants) about 1,041.69 tons and preserved the biomass underground about 1,039.11 tons. The evaluation of carbon volume preserved on soil surface at 225.42 toncarbon and 194.73 toncarbon underground which totally preserved

840.30 toncarbon. (References: Dr.Pitayakorn Limthong, *Result of Biomass of Vetiver, Humidity, and soil biomass, the 5<sup>th</sup> Seminar Report of the Vetiver, Page 62-68, November 25-26, 2005, Chulabhorn Research Indtitute, Bangkok*)

- 2) PTT development of vetiver products from 2008 to 2010.  
 The curriculum for practical training consists of 6 courses, which took place 59 times and attended by 1,542 persons, which 1,275 were farmers, 116 design students, 44 Pat Pat product network members from 7 communities in 7 provinces.  
 PTT devised the knowledge and technology acquired from the research to develop and appropriately pass on to the communities who participate in all processes. This reduces state budget in capacity development and population careers and assists communities generate income locally without migrating to find work. Presently, each community vetiver group earns 250,000 baht annually while enjoying 20,000 to 30,000 baht monthly cash flow per group. The project is still in its infancy period as members continues to hone their skills and working part-time on earn supplementary income, thus, projections of personal earnings are not accurate. In the long-term, as each group progresses, they will be stronger and production base will expand. This project conserves rural local handicraft and culture while continuing expansion of vetiver cultivation, promotion and utilization.
- 3) The vetiver contests have been organized in every region of the country between 2006 and 2010, can be concluded as follows:
  1. In total, 1,933 works were submitted, 1,034 were from general public, 75 from communities, 9 from temples, 511 from educational institutes and 258 from organizations.
  2. Totally, 235 works received prizes; 131 were from general public, 19 from communities, 20 from organizations and 65 from educational institutes, as follows:
    - *Vetiver Planting Award, Vetiver Planting Promotion Award and Vetiver Planting and Promotion Award* combined to make a total of 112 Awards and 7 Certificates for Special Organization in the category of Planting Promotion awarded from a total of 882 works.
    - Awards for vetiver products were given to 108 works from a total of 896 submissions.
    - Awards for Poster for Vetiver Planting Promotion were given for 8 works from a total of 115 submissions.
- 4) *Vetiver Conservation Network* began in 2008 and now has 226 members. Activities are devised into 5 regional of Thailand to exchange information, knowledge and experiences. Mobile seminars, rotated in all membership areas, were held 21 times and 650 persons took part. There were 15 regional meetings and 6 national forums.
- 5) From the work and research to develop vetiver products, it was found that there is technology that is suitable for the handicrafts and arts of Thailand, which uses resources within local communities. As a result, two educational institutes in the fields of architectural design have launched curriculums for design and development of vetiver products.  
 Research and study is continuously being conducted to assist in design and works alongside the community. This has resulted in commercially

produced works that have been selected to be sold in Pat Pat stores and consequently generate supplementary-incomes for communities.

- 6) In the area of promotion and PR, PTT had created materials to spread knowledge about the competition, and promote the planting of vetiver. Studies show that that PTT's corporate image in relations with awareness on vetiver cultivation and promotion works under the royal initiative has been highly satisfactory. The study was based on findings from focus groups of 7,000 persons from the general public, PTT clients, academics, leading thinkers, NGOs, politicians, youth, PTT employees, investors and residents near PTT offices across the nation. It was revealed that 60% of focus group participants were aware of the project, and 92% were satisfied with the project. (Reference: *Corporate Image Study PTT 2010, TSN Research International (Thailand) Co., Ltd.*)



**Kean Soisom**

Vetiver Planting Award 2006

President of the *Vetiver Conservation Network*, Central Region

and President of the *Vetiver Conservation Network*, National Level

“The vetiver competition organized by PTT is extremely valuable considered in three respects. Firstly, those who won awards are mostly farmers. It inspires high morale and enthusiasm to receive a royally bestowed award from His Majesty the King. Secondly, the PTT vetiver competition motivates and provides knowledge about the benefits of vetiver, which have expanded widely in communities. As a result, various vetiver-promoting activities have been initiated which have tapped into new target groups other than farmers' groups.

Thirdly, the *Vetiver Conservation Network*, which PTT supports and encourages by providing training, knowledge and practical support, has become a foundation where members can help each other. Some activities that received supporting funds or subsidies stop when the funding dries up. In contrast, our *Vetiver Conservation Network* is growing rapidly regardless. This is of utmost important to our nation.

Personally, winning the award has changed my life. The first thing I felt was confidence and of being accepted in society. I want to create my property into a learning center and sample plot for vetiver. I want to share vetiver plants with those who visit my plot. I want them to love vetiver grass as much as I do.”



Members of the Prasat Group who created vetiver products, 33 Moo 4, Ban Mamiang Village, Tambol Chok Na Sam, Prasat District, Surin Province

“Our community has many ample rural materials that are suitable for designing a variety of products. To be able to take part in a research project on vetiver handicrafts has made me realize that there are materials nearby that we can modify to suit out daily lives.

“In 2008, PTT promoted and encouraged students to join the product training and I learned about vetiver for the first time. In 2009, I joined the Thai Ban rural research project, using my existing knowledge in ceramics and weaving with the skills in the community to produce high quality products. From being a grass that I did not know, it has become something valuable that has exceeded my expectations.”

Brief Personal Profile of Work Submitted

Mr.Auttapol Rerkpiboon, Aged: 45

Position:

- 1) Executive Vice President, Commercial & International Marketing, PTT Plc.
- 2) Acting Vice President, Office of President and Corporate Secretary, PTT Plc.
- 3) Secretariat of the Region Committee, of the Contest for the Development and Encouragement of the Use of Vetiver under Royal Initiative

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Education: M.S.(Development Economics), National Institute of Development Administration (NIDA)

Mr.Prasert Salinla-Umpai, Aged: 53

Position:

- 1) Corporate Social Responsibility Department, Vice President, PTT Plc.
- 2) PTT Vetiver Projects Mamanger
- 3) Secretariat of the Committee, of the Contest for the Development and Encouragement of the Use of Vetiver under Royal Initiative

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Education: Bachelor of Liberal Arts of Faculty, Ramkamhaeng University  
Masters of Exculsive MBA, Rangsit University

Mrs.Srisurang Massirikul, Aged: 54

Position:

- 1) Environmental Improvement Division Manager, PTT Plc.
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Education: B.A. Faculty of Humanities, Chiang Mai university