

JFS Matchmaking Event: Speaker



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Brief background and current position

Currently, I am lecturer at Department of Information and Communication Technology (ICT), Faculty of Sciences and Liberal Arts, RMUTI, Nakhon Ratchasima province. My major duties/responsibilities include as follows:

1. **Teaching:** I focus on field of using GIScience for managing natural resources and environment. I have teaching in both undergraduate (bachelor's degree) and graduate level (Master's and Doctor's degree). In undergraduate level, I am assigned for teaching **seminar about presentation of their research projects** while, in graduate level (for Master and Doctoral degrees), I have involved in teaching subjects as: **seminar, organizational administration by smart system, intelligent business system, and 3 groups of elective course: 1) agricultural development, education and mass communication courses, 2) business development, information technology management and public health courses and 3) tourism innovation development courses.**



Brief background and current position (Con't)

2. **Researching:** My research focuses on natural resources and environmental management from 2012 to the present), have been funded by Thailand Science Research and Innovation (TSRI). As a result of this research work, I received honor trophy and certificate of excellence **“The King of Thailand Vetiver Awards”** in Recognition of “Participation of Asian Graduate Students for Geo-information Project-based Learning: Designing Analysis Framework of Degraded Areas for Implementing Vetiver Grass to Support Restoration” as an Outstanding People Participation in the field of Disaster Mitigation or Environmental Protection Given at the Seventh International Conference on Vetiver (ICV-7), Chiang Mai, Thailand held between 29 May – 1 June 2023, was conducted by Chaipattana Foundation, Office of the Royal Development Projects Board (ORDPB), The Vetiver Network International (TVNI) and Pacific Rim Vetiver Network (PRVN).



Brief background and current position (Con't)

Consequently, I presently **focus on the sustainable utilization of vetiver in both soil and water conservation and other potential economic values. This is one of four missions of my institution (in response to the royally initiated projects and to preserve the arts and culture to develop the local society towards sustainability).** Furthermore, I am applying approach of the Bio-Circular-Green (BCG) or BCG model and using Sustainable Development Goals or SDGS for the utilization of vetiver especially the potential economic values.



Some examples of applying for funding

1st Example



Submitted for
Office of the Royal Development Projects Board (ORDPB)
<https://www.rdpb.go.th/th>

Proposal

หญ้าแฝกเพื่อการอนุรักษ์ดินและน้ำ: กรณีศึกษา ดันแบบภาคสนามของ
การใช้ประโยชน์จากหญ้าแฝกยั่งยืน สำหรับการป้องกันและลดตะกอน
ดินทับถมลงพื้นที่รับน้ำของอ่างเก็บน้ำห้วยแดง จังหวัดเพชรบูรณ์

Vetiver grass for soil and water conservation: Case Study Field
Prototype of Sustainable Vetiver Utilization for Preventing and
Reducing Sediment Deposition into Catchment Area of Pa
Daeng Reservoir at Phetchabun province

2nd Example

Submitted for
The Swedish Collegium for Advanced Study (SCAS)
www.swedishcollegium.se

Proposal

management based on coexistence of vetiver grass
and native plant species facilitate locally forest
slope regeneration

Introduction for Institution



**Rajamangala University of Technology Isan or short name, "RMUTI" and website at www.rmuti.ac.th.
RMUTI locates in Nakhon Ratchasima province of Northeastern Thailand.**

RMUTI working for:

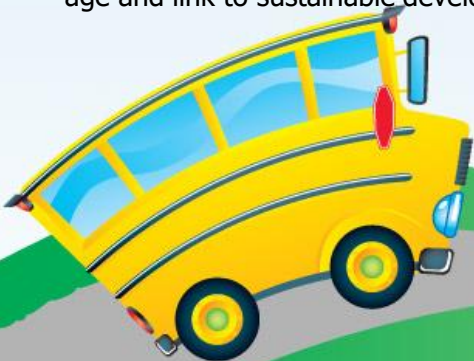
- **RMUTI** is the higher educational institution under supervision from Ministry of Higher Education, Science, Research and Innovation (MHESI), Thailand.

- **RMUTI** missions consist of **(1)** build and develop the potential of learners who focus on teaching and learning with real-world practice to develop high-level competences and skills at work and have knowledge and expertise in technology to be able to apply knowledge to create innovation product development and social services; **(2)** create innovation from research for commercial or public use To create added value throughout the value chain in the manufacturing, trade and service sectors; **(3)** promote the role of cooperation with the government and private sectors both domestically and internationally to support and develop technology and innovation; **(4)** in response to the royally-initiated projects and to preserve the arts and culture to develop the local society towards sustainability.

- From missions above to strategic issues, goals and policies, there are 4 Issues: **(1)** Transforming Modern Teaching to create highly skilled practitioners Innovators and Entrepreneurs; **(2)** Raise the level of research work and bring technology and innovation to commercialization; **(3)** Integrate cooperation with multilateral both at home and abroad; **(4)** Transforming the organizational management system to the digital age and link to sustainable development.

The main (research) areas are active in:

RMUTI set the main research area that focuses on developing industry according to the Bio-Circular-Green (BCG) BCG model (such as agriculture and food, medical and health, tourism, energy, and materials and biological chemicals) to upgrade to a circular economy (Circular Economy).



Project Ideas



What are the thematic field and what shall be done?

- For 28 years, vetiver has proven to be an effective and low-cost technique which readily be practiced by farmers for slowing water-runoff, reducing erosion, and increasing the soil moisture for crop and plant growth.
- Therefore, I would like to prove circular economy approach for other potential economic values of vetiver such as biofuel, biochar, fodder, mulch, essential oils, animal bedding and handicrafts.
- In this project, **I have idea about valorization of spent vetiver wastes for biochar generation.** Vetiver is widely used to produce medical and economic values e.g., essential oils in aromatherapy industry and handicrafts in textile industry. After the extraction of such industries, components of vetiver are disposed of as waste.
- **The main objective of this project proposes the conversion of this waste into a resource using a scalable circular economy framework based on the use of local place-based knowledge to develop a scalable circular economy that enables positive social impact within such industries (e.g., aromatherapy and textile industries).**

What is the international/bi-regional (Southeast Asia - Europe) aspect of the project?

We will contribute **to design a scalable circular economy framework and research operation of valorization of spent vetiver waste for biochar generation.** Moreover, this vetiver biochar will be taken to the community for use and for transferring this knowledge and technology of biochar generation-based vetiver.

What is the innovative aspect of the project?

- Introducing **vetiver biochar** for an alternative innovative carbon storage solution, the new climate-friendly **black vetiver power**.
- In other words, climate change has become one of the most pressing challenges of our time. The massive greenhouse gas (GHG) emissions resulting from the use of fossil fuels are severely impacting our planet. Yet a glimmer of hope is emerging in the form of a revolutionary material called **vetiver biochar**, which could well be our new "**black vetiver power**" in the fight against climate change.

Valorization of spent vetiver wastes for (nano) biochar generation using scalable circular economy

Vetiver waste from economic values



Fodder



Mulch



Essential oil



Animal bedding



Handicraft

Pyrolysis

Nano-biochar
synthesis

If possible

Crop growth
enhancement

Crop growth
enhancement

Plant protection

Soil remediation

Wastewater
treatment

Carbon
sequestration

Greenhouse gas
mitigation







Participation

Who are you looking for to cooperate with.....

I still looking for team of partner experts for contributing to share value knowledge and experience for designing **the scalable circular economy framework based on the use of local place-based knowledge that enables positive social impact within the aromatherapy and textile industries.** Moreover, this designed framework will focus on using Sustainable Development Goals or SDGS.



Contact (Me and my Thai partners)

Name and current position	Contact	Photo
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5. Mr. Pakawat Boonpakob Head of Centre for promoting the use of vetiver grass under the royal initiative from Royal Initiative Project and Special Affairs Office of Royal Forest Department	Address: Royal Forest Department, Bangkaen, Bangkok 10900 Thailand Email: pakawat.forest57@gmail.com	
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Thank you for your attention

