

2018

# GSP Research



# GRANTS AND SPONSORED RESEARCH PROJECTS

## Completed Projects

### Assessment of Dioxin Emissions from Point Sources in Thailand

Duration: 1 November 2017 – 31 December 2018  
Investigators: Prof. Nguyen Thi Kim Oanh  
Dr. Ekbordin Winijkul  
Sponsor: Integrated Consultancy on Infrastructure Development and Environmental Conservation (IDEA Consultants, Inc.)  
Amount: Baht 865,500

### Assessment of Impacts to the Emission Reduction Measures of Short-lived Climate Forcing Pollutants on Air Quality and Climate in Southeast Asia

Duration: 1 September 2017 – 30 December 2018  
Investigator: Prof. Nguyen Thi Kim Oanh  
Sponsor: United States Agency for International Development (USAID/National Academy of Sciences (NAS))  
Amount: Baht 1,056,930

### Biogeochemical Changes and Adaptation Mechanisms in Response to Anthropogenic Impacts in Watersheds: A Comparative Study between Jiulong River (China) and Chao Phraya River (Thailand)

Duration: 13 July 2017 – 12 December 2018  
Investigators: Prof. Thammarat Koottatep  
Prof. Rajendra Prasad Shrestha  
Sponsor: National Research Council of Thailand (NRCT)  
Amount: Baht 1,457,583.12

### Community Scale, Decentralized Anaerobic Digestion for Energy and Resource Recovery

Duration: 1 May 2016 – 31 October 2018  
Investigators: Prof. Chettiyappan Visvanathan  
Dr. P. Abdul Salam  
Sponsor: British Council  
Amount: Baht 12,430,000

### Creating Wider Impacts of Rice Straw Derived Fuel Use as Cooking

Duration: 1 July 2017 – 15 June 2018  
Investigator: Prof. Nguyen Thi Kim Oanh  
Sponsor: Stockholm Environment Institute (SEI) Asia Centre  
Amount: Baht 184,821.66

### Develop a Comprehensive Background Paper on “Water Quality and Security in Asia-Pacific – What 3R and Circular Economy Can Offer?” and Substantive input to Eighth Regional 3R Forum in Asia and the Pacific

Duration: 1 August 2017 – 31 December 2018  
Investigator: Prof. Chettiyappan Visvanathan  
Sponsor: United Nations (UN)  
Amount: Baht 463,000

### Developing an Operational Framework for River Health Assessment in the Mekong River Basin

Duration: 1 December 2014 – 1 December 2018  
Investigators: Prof. Mukand S. Babel  
Dr. Oleg Shipin  
Dr. Sangam Shrestha  
Dr. Victor Shinde  
Sponsor: Consultative Group on International Agricultural Research (CGIAR)  
Amount: Baht 12,899,700

### Developing Policy Framework and Business Model to Promote Sustainable Use of Biomass Briquettes in Nepal

Duration: 1 September 2017 – 31 December 2018  
Investigators: Dr. P. Abdul Salam  
Dr. Shobhakar Dhakal  
Sponsor: CTCN-PCA  
Amount: Baht 1,650,000

## Completed Projects

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### **Development and Dissemination of Fecal Sludge Management Toolkit for Investors, Planners and Consultants**

Duration: 1 October 2014 – 30 June 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: Bill & Melinda Gates Foundation  
Amount: Baht 35,305,799.77

### **Development of a Thermophilic Anaerobic Membrane Bioreactor by Using PTFE Membrane for Wastewater Treatment and Biogas Production**

Duration: 1 October 2017 – 30 September 2018  
Investigator: Prof. Chettiyappan Visvanathan  
Sponsor: Sumitomo Electric Industries, Ltd., Japan  
Amount: Baht 213,562.50

### **Establishment of Fecal Sludge Management Twinning Program**

Duration: 7 September 2017 – 31 December 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: Bill and Melinda Gates Foundation  
Amount: Baht 29,975,970.61

### **Exposure visit FSM in Thailand**

Duration: 24 October 2017 – 30 April 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: East Meets West Foundation  
Amount: Baht 139,179

### **Evaluating the Performance of Mitsubishi Membrane Aerated Biofilm Reactor (MABR) Lab Scale Membrane Modules**

Duration: 1 June 2017 – 6 June 2018  
Investigator: Prof. Chettiyappan Visvanathan  
Sponsor: Mitsubishi Chemical Aqua Solutions Co., Ltd.  
Amount: Baht 145,794.60



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### **Foundations for Climate Resilient and Sustainable Growing Settlements (U-Res)**

Duration: March 2017- August 2018  
Investigator: Dr. Shobhakar Dhakal  
Sponsor: NERC/ Tyndall Center  
Amount: Baht 436,383.58

### **Global Science, Technology and Innovation Conference**

Duration: July 2017- September 2018  
Investigator: Dr. Shobhakar Dhakal  
Sponsor: VITO, Belgium  
Amount: Baht 360,804.56

### **Green 3R Wall/Roofs Development on AIT Campus**

Duration: 2 April 2018 - 2 May 2018  
Investigator: Dr. Oleg Shipin  
Sponsor: Thai Pipe Industry Co., Ltd.  
Amount: Baht 57,690

### **Reports on Drinking Water Services and Technologies in Asian Countries - Phase III**

Duration: 1 April 2017 - 30 September 2018  
Investigator: Prof. Chettiyappan Visvanathan  
Sponsor: Japan Water Research Center (JWRC)  
Amount: Baht 179,000

### **Solar Energy Storage in Nanomaterial Enhanced Batteries**

Duration: 31 August 2017 - 31 December 2018  
Investigators: Prof. Weerakorn Ongsakul  
Dr. Louis Hornyak  
Sponsor: White Group Public Company Limited  
Amount: Baht 1,000,000

### **Solar Power Plugged in Hybrid Electric Vehicle**

Duration: 31 August 2017 - 31 December 2018  
Investigator: Prof. Weerakorn Ongsakul  
Sponsor: GMS Power Public Company Limited  
Amount: Baht 1,000,000

### **Sustainable Decentralized Wastewater Management in Developing Countries**

Duration: 15 October 2011 - 30 June 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: Bill & Melinda Gates Foundation  
Amount: Baht 164,917,116.54

### **Technology Needs Assessment (Phase II) for Asia and CS Region - Missions**

Duration: 8 January 2015 - 28 February 2018  
Investigators: Prof. Sivanappan Kumar  
Prof. Rajendra Prasad Shrestha  
Dr. P. Abdul Salam  
Sponsor: UNEP-DTU Partnership, Denmark  
Amount: Baht 320,000

### **Technology Needs Assessment (Phase II) for Asia and CS Region - Technical**

Duration: 8 January 2015 - 28 February 2018  
Investigators: Prof. Sivanappan Kumar  
Prof. Rajendra Prasad Shrestha  
Dr. P. Abdul Salam  
Sponsor: UNEP-DTU Partnership, Denmark  
Amount: Baht 2,514,000

### **Technology Needs Assessment (Phase II) for Asia and CS Region - Workshop**

Duration: 8 January 2015 - 28 February 2018  
Investigators: Prof. Sivanappan Kumar  
Prof. Rajendra Prasad Shrestha  
Dr. P. Abdul Salam  
Sponsor: UNEP-DTU Partnership, Denmark  
Amount: Baht 1,744,000

## Ongoing Projects

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### **AIT BORDA Collaboration**

**Duration:** 1 January 2017 – 30 December 2019  
**Investigator:** Prof. Thammarat Koottatep  
**Sponsor:** Bermen Overseas Research Association  
**Amount:** Baht 5,550,000

### **ICUE 2018 - Green Energy for Sustainable Development**

**Duration:** 1 October 2017 – 31 March 2019  
**Investigators:** Dr. Jai Govind Singh  
Dr. Shobhakar Dhakal  
Prof. Weerakorn Ongsakul  
Prof. S. Kumar  
Dr. P. Abdul Salam  
**Sponsor:** ICUE 2018  
**Amount:** Baht 1,753,830.63

### **Innovative Toilet City: From Reinventing to Realization at Scale**

**Duration:** 1 September 2016 – 28 February 2019  
**Investigator:** Prof. Thammarat Koottatep  
**Sponsor:** The Thailand Research Fund (TRF)  
**Amount:** Baht 5,044,150

### **Knowledge and Innovation Support for Asian Development Bank's Water Financing Program**

**Duration:** 17 July 2017 – 31 March 2019  
**Investigator:** Prof. Thammarat Koottatep  
**Sponsor:** Asian Development Bank (ADB)  
**Amount:** Baht 2,038,634

### **Optimizing Decentralised Low-cost Wastewater Infrastructure by Managing the Microbes**

**Duration:** 1 May 2017 – 30 April 2020  
**Investigator:** Prof. Thammarat Koottatep  
**Sponsor:** Engineering and Physical Sciences Research Council (EPSRC GCRF)  
**Amount:** Baht 12,616,798.50



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## Ongoing Projects

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### Provincial Electricity Authority (PEA) – AIT Scholarship Program

Duration: 15 February 2016 – 14 February 2020  
Investigator: Prof. Weerakorn Ongsakul  
Sponsor: Provincial Electricity Authority (PEA)  
Amount: Baht 20,212,000

### Short Term Actions 2017, BMGF project 106990

Duration: 22 November 2017 – 31 December 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: Subgrant from UNESCO IHE – BMGF Grant  
Amount: Baht 954,093.66

### Standard Methods for the Analysis of Faecal Sludge

Duration: 30 June 2017 – 31 December 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: University of KwaZulu-Natal (UKZN) – BMGF Grant  
Amount: Baht 1,400,000

### Technical Assistance for Technology transfer and commercialization support of the AIT Toilet Innovations

Duration: 7 November 2017 – 30 April 2019  
Investigator: Prof. Thammarat Koottatep  
Sponsor: Bill and Melinda Gates Foundation  
Amount: Baht 51,283,398.95

### Toward an Open Resources Upon Services: Cloud Computing of Environmental Data TORUS

Duration: 15 October 2015 – 30 June 2019  
Investigator: Prof. Nguyen Thi Kim Oanh  
Sponsor: European Union (Erasmus + Capacity Building)  
Amount: Baht 1,814,296



## Initiated Projects

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### **Biofuel Production from Innovative Algal Bioreactor Treating Domestic Wastewater**

**Duration:** 2 January 2018 – 31 December 2019  
**Investigator:** Prof. Thammarat Koottatep  
**Sponsor:** Bangchak Initiative and Innovation Centre at AIT (BIIC@AIT)  
**Amount:** Baht 2,000,000

### **Capacity Building Activities of the Asia Pacific Clean Air Partnership (APCAP)**

**Duration:** 12 July 2018 – 31 January 2019  
**Investigator:** Prof. Nguyen Thi Kim Oanh  
**Sponsor:** United Nations Environment Programme (UNEP)  
**Amount:** Baht 2,691,100

### **CTCN Incubator Programme for Implementation of Nationally Determined Contributions in Timor-Leste**

**Duration:** 1 September 2018 – 31 July 2019  
**Investigators:** Assoc. Prof. Dr. P. Abdul Salam  
Prof. Mukand S. Babel  
**Sponsor:** CTCN  
**Amount:** Baht 744,352

### **Effective Faecal Sludge Planning to Minimize Environmental Pollution and Protect Public Health**

**Duration:** 1 August 2018 – 31 December 2019  
**Investigator:** Prof. Thammarat Koottatep  
**Sponsor:** The Thailand Research Fund (TRF)  
**Amount:** Baht 5,267,640

### **Effects of Climate Change and Variability on Community Vulnerability and Exposure to Dengue in South East Asia (DENCLIM)**

**Duration:** 1 January 2018 – 31 December 2021  
**Investigator:** Dr. Oleg Shipin  
**Sponsor:** Research Council of Norway  
**Amount:** Baht 3,678,400

Recirculation pipe

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## Initiated Projects

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### **Evaluating the Performance of Mitsubishi Multi-Layer Hollow Fiber Membrane for Membrane Aerated Biofilm Reactor (MABR) Application**

Duration: 1 July 2018 – 30 December 2019  
Investigator: Prof. Chettiyappan Visvanathan  
Sponsor: Mitsubishi Chemical Co., Ltd.  
Amount: Baht 148,500

### **Evidence-based policies for the Sustainable use of Energy Resources in the Asia-Pacific Region**

Duration: 15 November 2018 – 31 July 2019  
Investigators: Dr. Shobhakar Dhakal  
Prof. S. Kumar  
Dr. Ekbordin Winijkul  
Sponsor: UN ESCAP  
Amount: Baht 1,830,576

### **Exposure Visit for Resource Recovery option of Faecal sludge Management (FSM) Value Chain**

Duration: 1 May 2018 – 31 December 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: SNV Asia Bangladesh  
Amount: Baht 787,072

### **Faecal Sludge Management Toolbox Optimisation**

Duration: 1 June 2018 – 31 December 2018  
Investigator: Prof. Thammarat Koottatep  
Sponsor: Athena Infonomics LLC.  
Amount: Baht 2,143,384

### **Forward Osmosis for Nutrient Recovery from Black Water**

Duration: 1 August 2018 – 31 January 2019  
Investigator: Dr. Wenchao Xue  
Sponsor: AIT Research Initiation  
Amount: Baht 50,000

### **Mastering Energy Supply focusing on Isolated Areas (MESfIA)**

Duration: 14 June 2019 – 15 November 2021  
Investigators: Dr. Shobhakar Dhakal  
Prof. S. Kumar  
Sponsor: Erasmus +  
Amount: Baht 345,6588.38

### **Reduced Agrochemicals and Local Food Chain GHG Emissions through Organic Farming and Smart Factories in Thailand**

Duration: 4 December 2018 – 31 March 2019  
Investigator: Dr. Ekbordin Winijkul  
Sponsor: United Nations Industrial Development Organization (UNIDO)  
Amount: Baht 300,000

### **Reports on Drinking Water Services and Technologies in Asian Countries-Phase IV**

Duration: 1 April 2018 – 30 September 2019  
Investigator: Prof. Chettiyappan Visvanathan  
Sponsor: Japan Water Research Center (JWRC)  
Amount: Baht 144,000

### **Retscreen Expert - Trainer**

Duration: 1 March 2018 – 1 December 2018  
Investigator: Prof. S. Kumar  
Sponsor: CanmetEnergy, Canada  
Amount: Baht 120,000

### **Technology Needs Assessments Phase 3 - Technical**

Duration: 1 June 2018 – 31 May 2021  
Investigators: Prof. S. Kumar  
Dr. P. Abdul Salam  
Prof. Rajendra P Shrestha  
Sponsor: UNEP-DTU, Denmark  
Amount: Baht 1,267,200