Department of Environmental Science
Faculty of Science, Chulalongkorn University

RESEARCH HIGHLIGHTS 2018

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Department of Environmental Science
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PREFACE

Department of Environmental Science was established in 1966 with the original name as General Science Department. In the past more than 50 years, the undergraduate program has reflected a strong faculty commitment to interdisciplinary education through which students develop a capacity for the independent judgment and creative thought that are necessary for life in a complex society and environment.

Entering the new decade, in 2018, the department takes up future challenges of establishing new graduate programs, M.Sc. and Ph.D. in Industrial Toxicology and Risk Assessment. These programs consist of course work and research activities which integrate knowledge of safety, environment and health. An interdisciplinary approach which recognizes theoretically basic science that helps students deal with issues of environment is also emphasized. On behalf of Head of the department, I would like to take this opportunity to thank both former and current faculty members for their endless dedication and contributions to the success of this department.

This Research Highlights was published as an introduction to which research areas that are being conducted by our faculty members. Additionally, their recently selected publications up to year 2018 were summarized. The information can be used as a guideline for students and researchers seeking for collaboration with our faculty members. More comprehensive details and updated publications can be reached on-line via international scientific databases and our department website.

Professor Wanida Jinsart, PhD
Head of the Department of Environmental Science

CONTENT

PROFESSOR

WANIDA JINSART

Professor

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Ph.D.	La Trobe University	1993
M.Sc.	Chulalongkorn University	1986
B.Sc.	Kasetsart University	1981

Areas of Research Interest

Air Pollution, Environmental Health, Environmental Epidemiology and Industrial toxicology

Professional Experiences

Chulalongkorn University staff since 1982
Scientist, 1982-1994
Lecturer, 1994-1996
Assistant Professor, 1996-2001
Associate Professor, 2001-2012
Head department, 2002-2005
Professor, 2012- present
President of Thai Society of Higher Education Institutes on the Environment, 2017-2019
Chair Industrial toxicology impact assessment Post Graduate Program, 2018-present
Editor in chief Environment Asia (Scopus Journal), 2017-present

Research Emphasis

My research focuses on Air pollution and health effect, for more detailed research outcomes see selected publications. Currently, my work is in the application of Air modeling and climate change including the weather and the impact modeling.

Measure of Esteem

Professor award, Chulalongkorn University, 2017

Selected Publications (2014-2018)

1. Thongthammachart, T., Jinsart, W. 2018. Mathematic model prediction of Fine Particulate Matter concentrations in Bangkok: implication for air quality and health. Proceedings of 10th Better Air Quality (BAQ) conference 2018, Kuching, Malaysia.

Selected Publications (2014-2018) *(Cont.)*

2.Jeensorn, T., Apichartwiwat, P., Jinsart, W., 2018. PM10 and PM2.5 from Haze Smog and Visibility Effect in Chiang Mai Province Thailand. Applied Environmental Research. 40(3), 1-10.

3.Thongthammachart, T., Pimkotr, K., Jinsart, W., 2017. Health Risk Assessment of Nitrogen Dioxide and Sulfur Dioxide Exposure from a new developing coal power plant in Thailand. EnvironmentAsia 10(2), 186-194.

4.Mitmark, B., Jinsart, W., 2016. Using GIS tools to estimate health risk from biomass burning in Northern Thailand. Athens Journal of Sciences 3(4), 285–296.

5.Wongprasert, P., Jinsart, W., Paw-Armar,t I., Pala-En, N., 2016. Size-segregated particulate matter and polycyclic aromatic hydrocarbons profiles from biodiesel vehicles emission. Sustainable Energy and Technology Asia (SETA2016), Bangkok, Thailand.

6.Asa, P., Jinsart,W., 2016. Lung function testing of school children living near industrial areas in Rayong, Thailand. EnvironmentAsia 9(2), 178–185.

7.Asa, P., Jinsart, W., 2016. Effects of air pollution related respiratory symptoms in schoolchildren in industrial areas Rayong, Thailand. EnvironmentAsia 9(1), 116–123.

8.Teerapattarada, N., Vathanapanich, Y., Jinsart, W., 2016. Health risk assessment of industrial emissions in Map Ta Phut, Thailand using AERMOD modeling and GIS. International Journal of Geoinformatics 12(1), 57–63.

9.Saengsai, S., Jinsart, W., 2015. Ozone formation potential of oxygenated hydrocarbons: phasing-in of gasohol in Bangkok Thailand. IOSR Journal of Environmental Science, Toxicology and Food Technology 9(1), 35–41.

10.Jinsart, W., Thepanondh, S., 2014. Effects of climate change on heat accumulation and precipitation in Thailand. International Journal of Environmental Science and Development 5(4), 340-343.

11. Pungkhom, P., Jinsart, W., 2014. Health Risk Assessment from bush fire air pollutants using statistical analysis and Geographic Information System: case study in the northern Thailand. International Journal of Geoinformatics 10(1), 17-24.

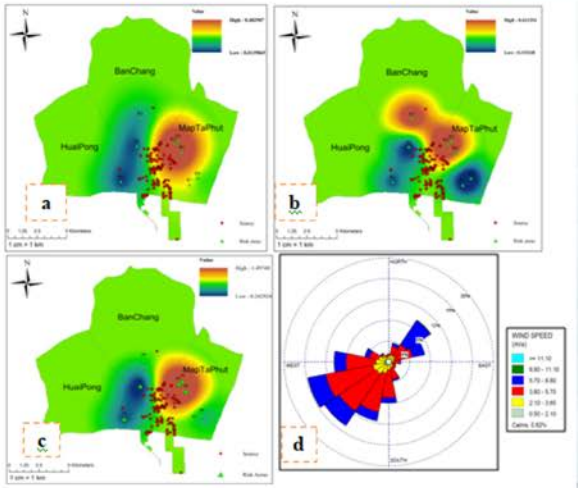

Figure 5 Site Distribution of HI and wind rose: a. Short term in wet season, b. Short term in dry season, c. Long term annual HI d. Annual average wind rose

From Teerapattarada, N., Vathanapanich, Y., Jinsart, W., 2016. Health risk assessment of industrial emissions in Map Ta Phut, Thailand using AERMOD modeling and GIS. International Journal of Geoinformatics 12(1), 57–63.

ASSOCIATE PROFESSOR

NAIYANAN ARIYAKANON

Associate Professor

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Ph.D. The University of Tokyo	2000
M.Sc. Chulalongkorn University	1995
B.Sc. (2nd Honor) Chulalongkorn University	1993

Areas of Research Interest

Phytoremediation, Remediation technology and Soil pollution

Professional Experiences

Associate Professor, Chulalongkorn University, 2017 – present
Assistant Professor, Chulalongkorn University, 2006 – 2016
Lecturer, Chulalongkorn University, 1995 – 2006

Research Emphasis

My research focuses on the removal of pollutants (pesticides, heavy metals and nutrients) from water using aquatic plants including water hyacinth, water lettuce and duckweed. Application of phytoremediation to treat contaminated soil is also my recent study. In wastewater treatment system, applying biochar from agricultural wastes to improve the water quality is another aspect of my research.

Selected Publications (2014-2018)

1. Wattanapanich, C., Ariyakanon, N., 2018. The efficiency of rice straw to treat FOG and TSS in surimi wastewater. The National Environmental Conference.
2. Durongpongtorn, N., Ariyakanon, N., 2018. Fat, oil and grease in domestic wastewater treatment by rice straw. The National Environmental Conference.
3. Bookrue, E., Ariyakanon, N., 2017. Effects of ZnO nanoparticle on plant growth, plant stress, Zn bioaccumulation in water hyacinth (*Eichhornia crassipes*). The 4th EnvironmentAsia International Conference, 601-614.
4. Wanthanaporn, U., Ariyakanon, N., 2017. Removal of ZnO nanoparticle by duck weed (*Lemna minor*) and water lettuce (*Pistia stratiotes*). The 4th EnvironmentAsia International Conference, 1-2.

Selected Publications (2014-2018) *(Cont.)*

5.Jewpattankul, C., Ariyakanon, N., 2017. Comparison of effects of LED light on zinc absorbtion by water lettuce (*Pistia stratiotes*). The 16th National Environmental Conference. 18R3-03, 1-7.

6.Rojanapithayakorn, D., Ariyakanon, N., 2016. Electrokinetic Enhancement on Phytoremediation in Zinc Contaminated Soil by Ruzi Grass. EnvironmentAsia 9(1), 92–98.

7.Anudechakul, C., Vangnai, A.S., Ariyakanon, N., 2015. Removal of Chlorpyrifos by Water Hyacinth (*Eichhornia crassipes*) and the Role of a Plant-Associated Bacterium. International Journal of Phytoremediation 17(7), 678–685.

Book

1.Ariyakanon, N., 2015. Phytoremediation, 1st ed. Bangkok, Chulalongkorn University Press. 197 p.

ASSISTANT PROFESSOR

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M.Sc. Chulalongkorn University 1992
B.Sc. Thammasat University 1989

Areas of Research Interest

Air pollution control, Noise pollution and occupational noise assessment and control and Vibration exposure

Professional Experiences

Assistant Professor, Chulalongkorn University, 2006 – present
Lecturer, Chulongkorn University, 1996 – 2006

Research Emphasis

Noise, disturbing and unpleasant sound, does not affect only hearing organs, but also physiological body functions e.g. disruptive effects on concentration and sleep, heart rate, blood pressure, and respiratory rate. Excessive noise and impulse noise particularly cause occupational diseases. People can find low noise levels annoying as well. On the other hand, vibration exposures are transferred from a tool/machine to individual's body. Typical symptoms from vibration include white finger, numbness, lower back pain. What people exposes to noise and vibration is up to the individual. The assessments of noise and vibration are crucial not only to comply with the National Occupational Safety and Health legislation to specifies safety zone for workplace exposure levels, but also demands the employer's responsibilities to protect their workers' health.

Textbook

Department of Environmental Science. 2013. Environmental science laboratory. Chulalongkorn University Press, 160 pages (in Thai).

Supervised Senior Projects (2013-2018)

1.Chanprasit, K. and Yachusri, C., 2015. Efficiency of microalgae Chlorella sp. on the removal of pollutants from canteen wastewater.

2.Charatchiripat, K. and Yachusri, C., 2015. Sound absorption coefficient of rubber concrete mixed with fly ash.

Supervised Senior Projects (2013-2018) *(Cont.)*

3.Kaewpradap, N. and Yachusri, C., 2014. Efficiency of acoustic absorption board from bagasse filled natural rubber latex foam.

4.Mueanaop, A. and Yachusri, C., 2013. Determined nitrogen dioxide concentration on buses in Bangkok using passive gas sampler.

5.Lelaphaisan, K., Sukgosa, A. and Yachusri, C., 2013. The Study of efficiency of acoustic board produced by Rice husk and Coir fibers.

6.Intharapong, N. and Yachusri, C., 2013. Contents of heavy metals in particulate matter less than 2.5 micronsexpose to police and pedestrians around Bangkok's intersections.

7.Kaechat, P. and Yachusri, C., 2013. Exposure of parking lot security guards to particulate matter less than 2.5 microns in Bangkok.

TASSANEE PRUEKSASIT

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Ph.D. The University of Tokyo 2001
M.Sc. Chulalongkorn University 1996
B.Sc. Chulalongkorn University 1992

Areas of Research Interest

Ambient and indoor air pollution and Environmental health risk assessment

Professional Experiences

Assistant Professor, Chulalongkorn University, 2014 – present
Lecturer, Chulalongkorn University, 1997 – 2013

Research Emphasis

My research focuses on air pollution either in ambient or indoor air environments. The examples listed below highlight my research topics related to air pollution and health risk assessment.

- Determination of ambient and indoor air concentrations of particulate matters, gases and volatile organic compounds
- Analysis of inorganic and organic composition (i.e. heavy metals, polycyclic aromatic hydrocarbons, etc.) of particulate matters distributed both in indoor and outdoor environments.
- Investigation on spatial and temporal variation of air pollutants particularly in urban air environment
- Estimation of inhalation exposure and health risk levels to key pollutants released from indoor and outdoor sources of residential, workplace, industrial and general areas

Selected Publications (2014-2018)

1. Rattanajongjitrakorn, R., Prueksasit, T., 2014. Temporal Variation of BTEX at the Area of Petrol Station in Bangkok, Thailand. 5th International Conference on Environmental Science and Development (ICESD2014). APCBEE Procedia, Volume 10, 37–41.
2. Tunsaringkarn, T., Prueksasit, T., Sematong, S., Siriwong, W., Kanjanasiranont, N., Zapuang, K., Morknoy, D., Rungsiyothin, A., 2014 Volatile Organic Compounds Exposure and Health Risks among Street Venders in Urban Area, Bangkok. J Environ Occup Sci 3(1), 31-38.
3. Tunsaringkarn, T., Prueksasit, T., Morknoy, D., Siriwong, W., Kanjanasiranont, N., Saowanee, S., Rungsiyothin, A., Zapaung, K., 2014. Health Risk Assessment and Symptoms of Outdoor Workers in Central Bangkok, Thailand. Int. J. Res. Chem. Environ. Vol.4, 72-78.

Selected Publications (2014-2018) *(Cont.)*

4.Pengthamkeerati, P., Senkaew, S., Modtada, A., Prueksasit, T., 2014. Cassava (Manihot esculenta Crantz) Yields, Soil Nitrous Oxide Emission, and Soil Nitrogen Transformation Affected by Nitrification Inhibitors in Loamy Sand Soil in Thailand. Communications in Soil Science and Plant Analysis 45(12), 1646-1657. DOI: 10.1080/00103624.2014.907912.

5.Kanjanasiranont, N., Prueksasit, T., Morknoy, D., Tunsaringkarn, T., Sematong, S., Siriwong, W., Zapaung, K., Rungsiyothin, A., 2016. Determination of ambient air concentrations and personal exposure risk levels of outdoor workers to carbonyl compounds and BTEX in the inner city of Bangkok, Thailand. Atmospheric Pollution Research 7, 268-277.

6.Sahanavin, N., Tantrakarnapa, K., Prueksasit, T., 2016. Ambient PM10 and PM2.5 concentrations at different high traffic-related street configurations in Bangkok, Thailand. The Southeast Asian Journal of Tropical Medicine and Public Health 47(3), 528-535.

7.Kanjanasiranont, N., Prueksasit, T., Morknoy, D., 2017. Inhalation exposure and health risk levels to BTEX and carbonyl compounds of traffic policeman working in the inner city of Bangkok, Thailand. Atmospheric Environment 152, 111–120.

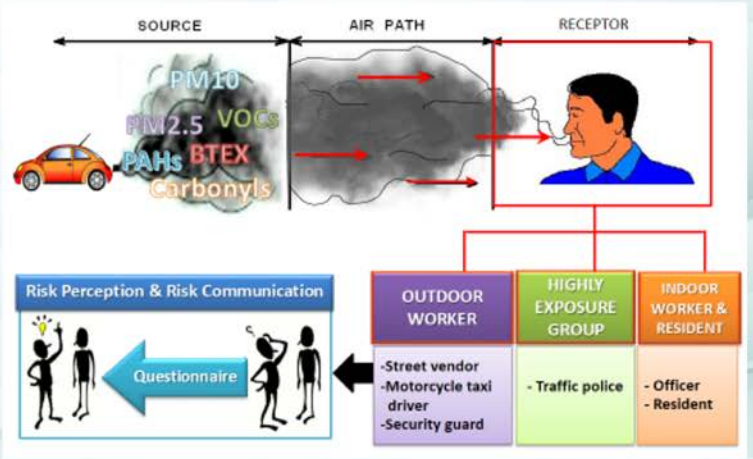
8.Sangpongchai, S., Prueksasit, T., 2017. Adsorption Efficiency of the Activated Charcoal Produced from Spent Coffee Ground for Removal of the BTEX Released from Indoor Paint. EnvironmentAsia 10(1), 99-108.

9.Sahanavin, N., Prueksasit, T., Tantrakarnapa, K., Relationship between PM10 and PM2.5 levels in high-traffic area determined using path analysis and linear regression. Journal of Environmental Sciences. DOI.org/10.1016/ j.jes.2017.01.017.

10.Thongkaow, P., Prueksasit, T., Siriwong, W., 2017. Material flow of informal electronic waste dismantling in rural area of Northeastern Thailand. Proceeding of International Conference on Natural Science and Environment (ICNSE), Osaka, Japan.

11.Bungadaeng, S., Prueksasit, T., Siriwong, W., 2017. The Occupational Inhalation Exposure of Fine (PM2.5) and Coarse (PM2.5-10) Particulate Matter Emitted from E-Waste Burning Activity in Local E-waste Dismantling Site, Buriram Province, Thailand. Proceeding of International Conference on Natural Science and Environment (ICNSE), Osaka, Japan.

12.Siriratruengsuk, W., Furuuchi, M., Prueksasit, T., Luepromchai, E., 2017. Potential of Pyrene Removal from Urban Environments by the Activities of Bacteria and Biosurfactant on Ornamental Plant Leaves. Water Air Soil Pollut 228:264, DOI 10.1007/s11270-017-3435-0.



NUTA SUPAKATA

Assistant Professor

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Ph.D.	Kasetsart University	2011
M.S.	Colorado School of Mines	1999
B.Ed.	Chulalongkorn University	1995

Areas of Research Interest

Waste utilization and Environmental communication and education

Professional Experiences

Assistant Professor, Chulalongkorn University, 2014-present
Lecturer, Chulalongkorn University, 2000-2014

Research Emphasis

My research addresses two broad topics: the waste utilization; and the environmental communication and education. Here is a description of my current research areas:
Waste Utilization - My current work on this topic focuses on alternative management for community and industrial waste. This includes the application of using waste for renewable energy and construction materials.
Environmental Communication and Education - My current work on this topic focuses on exploring the application/media and practices of motivation to increase waste separation and reduction to community/public

Measure of Esteem

Honorary Award in Academic Teaching from Faculty of Science, Chulalongkorn University, 2014
Outstanding Young Lecturer Award from Chulalongkorn University, 2014

Selected Publications (2014-2018)

1.Supakata, N., 2018. Bin monsters for promoting waste separation. Applied Environmental Education and Communication. DOI: 10.1080/1533015X.2017.1415774.
2.Apithanyasai, S., Nooaek, P., Supakata N., 2018. The utilization of concrete residue with electric arc furnace slag in the production of geopolymer bricks. Engineering Journal. https://doi.org/10.4186/ej.2018.22.1.1.

Selected Publications (2014-2018) *(Cont.)*

3.Namchan, J., Supakata, N., 2018. The Use of Dredged Sediment from the Watsongpeenong Canal with Paper Mill Residue to Produce Facing Bricks. Applied Environmental Research 40(1), 17-26.

4.Sirikingkaew, S., Supakata, N., 2017. Utilization of Fly Ash and Concrete Residue in the Production of Geopolymer Bricks. Journal of Green Building 12, 63-77.

5.Siriruekratana, S., Supakata, N., 2017. Development of geopolymer bricks from synergistic use of bagasse ash and concrete residue as an alternative for industrial waste management. Naresuan Journal 25, 69-78.

6.Sagdinakiadtikul, T., Supakata, N., 2016. The Application of Using Rice Straw Coconut Shell and Rice Husk for Briquette and Charcoal Production. International Journal of Energy, Environment and Economics 24, 283-292.

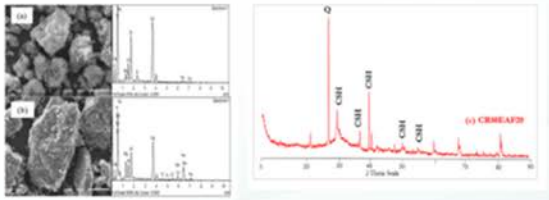
7.Supakata, N., Prachapadoong, P., Chaisuparut, P., Papong, S., 2016. Characteristics and Environmental Assessment of Facing Bricks Produced from Dredged Sediments and Waste Glasses. Materials Science Forum 883, 37-45.

8.Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. Applied Environmental Education and Communication 15, 184-194.

9.Supakata, N., Kuwong, N., Thaisuwan, J., Papong, S., 2015. The application of using rice husk and caggage waste for producing fuel briquette. International Journal of Renewable Energy 10, 27-36.

10. Jaikaew, S., Papong S., Supakata, N., 2014. Life cycle assessment (LCA) of brick made from dredged sediments and rice husks: case study from Lumsai canal community. APCBEE Procedia.

11. Tangprasert, W., Jaikaew, S., Supakata, N., 2014. Utilization of Dredged Sediments from Lumsai Canal with Rice Husks to Produce Bricks. Journal of Environmental Science and Development.



The use of industrial waste for geopolymer brick production

The use of community waste for briquette production

Environmental communication and education

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Ph.D. Chulalongkorn University	2003
M.Sc. Chulalongkorn University	1999
B.Sc. Chiang Mai University	1996

Areas of Research Interest

Polymeric substrate for environmental applications, Biopolymers in environment and Polymer synthesis

Professional Experiences

Assistant Professor, Chulalongkorn University, 2010-present
Lecturer, Chulalongkorn University, 2004-2010

Research Emphasis

1. To fabricate the composite polymeric materials for environmental applications
2. To establish membrane emulsification techniques on the design of polymeric and biopolymeric materials with the purposes of maintaining and controlling the bio-activity of essential oil for cosmetics and drug applications.

Measure of Esteem

Chulalongkorn University Distinguished Award in Student Affairs (Academic Year 2015, March 22, 2016)

Selected Publications (2014-2018)

1.Noppakundilograt, S., Piboon, P., Graisuwan, W., Nuisin, R., Kiatkamjornwong, S., 2018. Encapsulated eucalyptus oil in ionically cross-linked alginate microcapsules and its controlled release. Carbohydrate Polymers 131, 23–33.
2.Siralertmukul, K., Watcharamul, S., Wicheanpaisan, N., Nuisin, R., 2015., Potential antibacterial activity of polystyrene nanoparticles/chitosan coated on cotton fabrics. Macromolecular Symposia 354(1), 324–333.
3.Nuisin, R., Krongsin, J., Noppakundilograt, S., Kiatkamjornwong, S., 2013. Microencapsulation of menthol by crosslinked chitosan via porous glass membrane emulsification technique and their controlled release properties. Journal of Microencapsulation 30(5), 498–509.

Textbooks

1.Department of Environmental Science Academic Staff, 2013. Kinetics of the decomposition of pollutants in the environment with an application to plasticizers. in Environmental Science Laboratory Manual, Chulalongkorn University Press: Thailand, 110-121. (in Thai)

2.Department of Environmental Science Academic Staff, 2018. Total phosphorus in Aquatic Environmental Science Laboratory Manual, Chulalongkorn University Press, 180 pages. (in Thai). In Press.

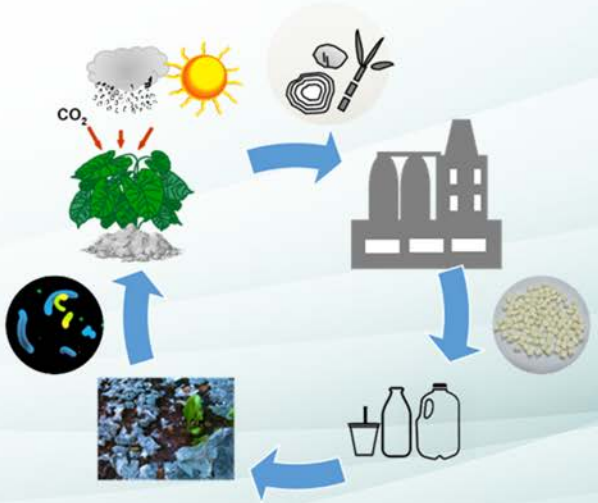
Review Articles

1.Nuisin, R., Kiatkamjornwong, S., 2018. Essential Oils: Extension of Service Lifespans and Delivery Systems. Journal of the Royal Society of Thailand 43(3), 338-349.

2.Watcharamul, S., Nuisin, R., 2018. Energy and Sustainable Future: Opportunities and Challenges, Journal of Environmental Management Year 14(1), 86-103. DOI: 10.14456/jem.2018.6.

Patent

Nuisin, R., Watcharamul, S., Lakkana, C., Kittiratrakarn, T., Chuaytong, P., Kanchaitit, P., 2014. Method to prepare copper nanoparticles from guava extracted and antibacterial of product from mentioned method, Application no. 1401003517.



SARAWUT SRITHONGOUTHAI

Assistant Professor

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Ph.D. Ehime University	2004
M.Sc. Kagawa University	2001
B.Sc. Kasetsart University	1996

Areas of Research Interest

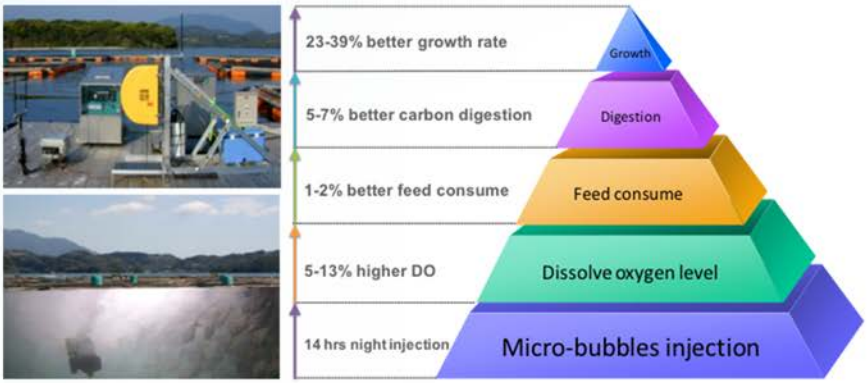
Water pollution and thier effects on aquatic ecology, Aquatic toxicology and risk assessment, Eco-friendly technologies for wastewater treatment and Applied microscopic bubbles for mari-culture management

Professional Experiences

Assistant Professor, Department of Environmental Science, Chulalongkorn University, 2016-present
Lecturer, Department of Environmental Science, Chulalongkorn University, 2008-2016
Post Doctorial Researcher, Prefectural University of Kumamoto, Japan, 2004-2008

Research Emphasis

Microscopic bubbles (MB) injection in the polluted cage farms was improved 5-13% higher DO, 1-2% better feed consumption, 5-7% better carbon digestion and 23-39% better growth rate. Subsequently, the MB injection makes more food, good profit and improves better environment.



Selected Publications (2016-2018)

1.Vibhatabandhu, P., Srithongouthai, S., 2018. Biosorption of Cr (III) and Ni (II) from an aqueous solution using cuttlebone and application for battery manufacturing wastewater treatment. EnvironmentAsia 11(1), 1–14.

2.Chaikaew, P., Nawatrairat, N., Srithongouthai, S., 2017. Modeling spatio-vertical distribution of sulfate and total sulfide based on sediment properties and environmental covariates along the mangrove intertidal zone. EnvironmentAsia 10(2), 1–8.

3.Srithongouthai, S., Tada, K., 2017. Impacts of organic waste from a yellowtail cage farm on surface sediment and bottom water in Shido Bay (the Seto Inland Sea, Japan)" Aquaculture 471, 140–145.

4.Vibhatabandhu, P., Srithongouthai, S., 2017. Removal of Pb (II) from an aqueous solution using modified cuttlebone as a biosorbent. EnvironmentAsia 10(1), 34–43.

5.Vibhatabandhu, P., Srithongouthai, S., 2016. Removal of copper (II) from aqueous solutions using cuttlebone as bio-adsorbent. Applied Environmental Research 38(3), 39–47.

6.Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. Applied Environmental Education & Communication 15(2), 84–194.

Academic Articles

1.Srithongouthai, S., 2016. Microscopic bubbles development for aquaculture. Environmental Journal Volume 20, Issue 3, 51–57. (in Thai).

2.Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Supakata, N., Saengkaew, T., Pantama, J., Vibhatabandhu, P., 2016. Management of solid, food, plastic and glass wastes. Journal of Science, Volume 70, Issue 4, 83–77. (in Thai)

Textbooks

1.Supakata, N., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Wattananukulkij, R., 2017, Strategy of Life. Chulalongkorn University Press, 166 pages (in Thai).

2.Tsutsumi, H., Srithongouthai, S., Hama, D., Takase, I., and Nishi, T., 2014. Chapter 8: Application of a microbubble generator to aquaculture farming. In: Micro– and nanobubbles–fundamentals and applications 2014, Taylor&Francis, ISBN 978-981-4463-10-2, 12–25.

3.Department of Environmental Science. 2013. Environmental science laboratory. Chulalongkorn University Press, 160 pages (in Thai).

PASICHA CHAIKAEW

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Ph.D.	University of Florida	2014
M.Sc.	Mahidol University	2005
BBA.	Maejo University	2004

Areas of Research Interest

Pedometrics, Environmental mapping and modeling, Soil security and Sediment contamination

Professional Experiences

Assistant Professor, Chulalongkorn University, 2017 – present
Lecturer, Chulongkorn University, 2014 – 2017

Research Emphasis

My research focuses on the application of statistical and geostatistical methods applicable to empirical and legacy data analysis in large scale areas of: 1) soil security, and 2) sediment contamination. Applying geostatistics in soil science addresses keys to understand the pattern of soil quality distribution and change in soil fertility due to environmental and/or anthropogenic forces. Assessing behavior of sediment contamination (nutrient enrichment, acid volatile sulfide, and heavy metals) in sediment is another aspect of my recent studies. The implication ranges from a small scale farming to the extent of regional and national levels.

Selected Publications (2014-2018)

1. Chaikaew, P., Sompongchaiyakul, P., 2018. Acid volatile sulfide estimation using spatial sediment covariates in the Eastern Upper Gulf of Thailand: Multiple geostatistical approaches. Oceanologia. https://doi.org/10.1016/j.oceano.2018.03.003.
2. Chaikaew, P., Hodges, A.W., Grunwald, S., 2017. Estimating the value of ecosystem services in a mixed-used watershed: a choice experiment approach. Ecosystem Services 23, 228-237.
3. Chaikaew, P., Chavanich, P., 2017. Spatial variability and relationship of mangrove soil organic matter to organic carbon. Applied and Environmental Soil Science. Article ID 4010381, 9 pages.
4. Chaikaew, P., 2017. Evolution of digital soil mapping in a changing world. Naresuan Phayao Journal 10(2), 57-64.

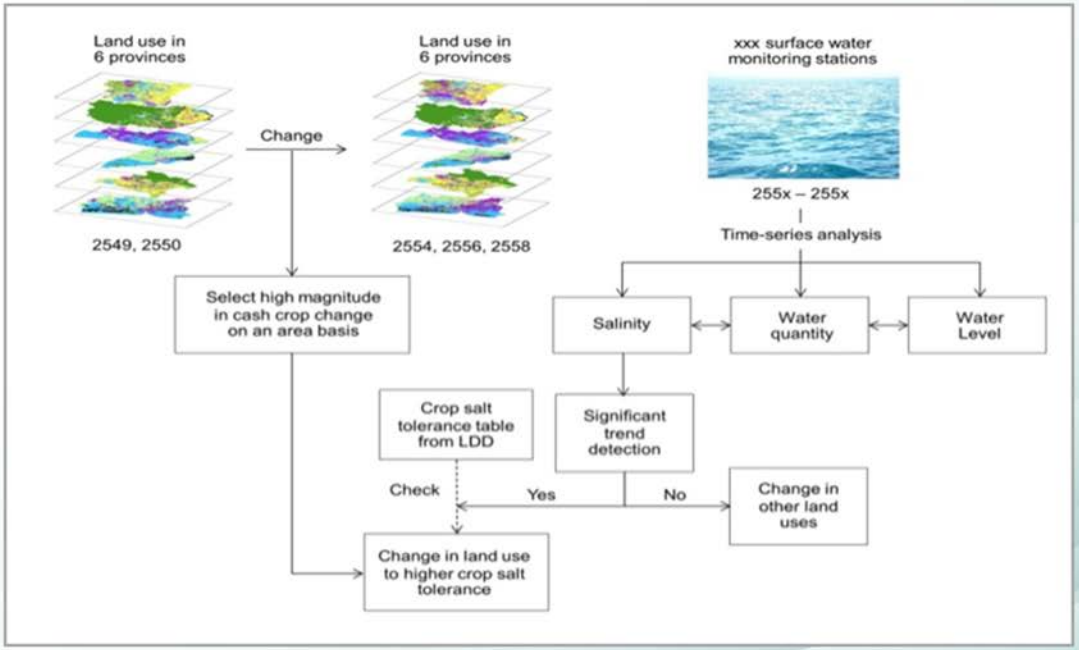
Selected Publications (2014-2018) *(Cont.)*

5.Chaikaew, P., Nawatrairat, N., Srithongouthai, S., 2017. Modeling spatio-vertical distribution of sulfate and total sulfide based on sediment properties and environmental covariates along the mangrove intertidal zone. EnvironmentAsia 10(2), 228-237.

6.Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. Applied Environmental Education & Communication 15(2), 184-194.

7.Chaikaew, P., Grunwald, S., Xiong, X., 2016. Chapter 13: Estimation of the actual and attainable terrestrial carbon budget. In: Digital Soil Mapping Across Paradigms, Scales and Boundaries, 153-164.

8.Grunwald, S., Chaikaew, P., Cao, B., Xiong, X., Vasques, G.M., Kim, J., Ross, C.W., Clingensmith, C.M., Xu, Y., Gavilan, C., 2016. Chapter 14: The meta soil model – An integrative framework to model soil carbon across various ecosystems and scales. In: Digital Soil Mapping Across Paradigms, Scales and Boundaries, 165-179.



LECTURER

SUPAWIN WATCHRAMUL

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Ph.D.	University of Newcastle upon Tyne	2005
M.Sc.	Chulalongkorn University	1996
B.Sc.	Chulalongkorn University	1992

Areas of Research Interest

Environmental biotechnology, Biodegradation and bioremediation, Environmental toxicology and Soil microbial ecology

Professional Experiences

Lecturer, Chulalongkorn University, 1996 – present

Research Emphasis

The plant cell wall (PCW) is a complex macromolecule comprising crystalline cellulose imbedded in matrix polysaccharides such as pectins, xylans and mannans. In view of the complex nature of the substrate, PCW-degrading microorganisms synthesize a vast array of different glycoside hydrolases and esterases, which act synergistically to elicit complete saccharification of this recalcitrant macromolecule. Typically, PCW-degrading bacteria express endo-acting mannanases, cellulases (endoglucanases and cellobiohydrolases), xylanases, polygalacturonic acid hydrolases (and lyases) rhamnogalacturan hydrolases (and lyases) and an array of biocatalysts that remove the side chains from decorated hemicellulases and pectins. In addition, PCW-degrading microorganisms express numerous iso-forms of all the major endo-acting and certain key side-chain cleaving enzyme species. These iso-enzymes are not derivatives of a specific protein but are encoded by extensive multigene families. My research emphasizes on the diversity of these cellulases in Thai rice-field soils as determined using environmental cloning techniques in which community DNA extracted directly from a range of Thai soils has been amplified using PCR primers designed to target cellulases which belong to Glycosyl Hydrolase Families. Following construction of a clone library in pCR-TOPO, the clones were screened using a combination of denaturing gradient gel electrophoresis (DGGE) and restriction digest analysis to identify unique clones. Unique clones were sequenced and analyzed phylogenetically. These sequences have been used to design nucleic acid probes and these have been used in combination with phospholipid fatty acid analysis (PLFA), BIOLOG and microbial biomass analysis to monitor changes in the size, activity and diversity of microbial communities during the decomposition of rice straw. These highlights are providing new insights into the microbiology of decomposition in tropical soils and provide exciting new opportunities for the biotechnological exploitation of cellulases in Thailand.

Measure of Esteem

Distinguished Award of Student Affairs, Faculty of Science, Chulalongkorn University (Academic Year 2012)

Selected Publications (2012-2018)

1.Treeratanajaru, W., Watcharamul, S., Lipikorn, R., 2016. Comparison of ANN and SVM for prediction of biochemical oxygen demand in Chaophraya River, Proceedings of the 31st International Technical Conference on Circuits/Systems, Computers and Communications, pp. 791-793.

2.Siralertmukul, K., Watcharamul, S., Wicheanpaisan, N., Nuisin, R., 2015. Potential antibacterial activity of polystyrene nanoparticles/chitosan coated on cotton fabrics. Macromolecular Symposia 354(1), 324–333.

3.Treeratanajaru, W., Watcharamul, S., Lipikorn, R., 2012. Degenerate primer design system for gene biodiversity study using dynamic pattern matching". HIBIT 2012, the 7th International Symposium Health Informatics and Bioinformatics, IEEE, 102-106. DOI:10.1109/HIBIT.2012.6209050.

Textbooks

1.Department of Environmental Science Academic Staff, 2013. Microorganisms in Environment in Environmental Science Laboratory Manual, Chulalongkorn University Press: Thailand, 79-87. (in Thai)

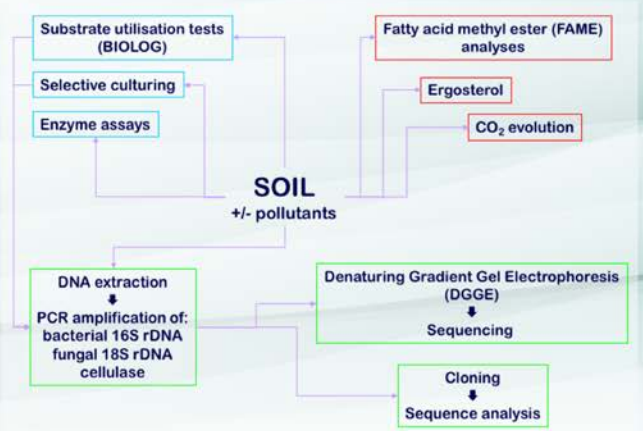
2.Department of Environmental Science Academic Staff, 2018. Most Probable Number, MPN or Multiple Tube Method in Aquatic Environmental Science Laboratory Manual, Chulalongkorn University Press, 180 pages. (in Thai). In Press.

Review Article

Watcharamul, S., Nuisin, R., 2018. Energy and Sustainable Future: Opportunities and Challenges, Journal of Environmental Management Year 14(1), 86-103. DOI: 10.14456/jem.2018.6.

Patent

Nuisin, R., Watcharamul, S., Lakkana, C., Kittiratrakarn, T., Chuaytong, P., Kanchaitit, P., 2014. Method to prepare copper nanoparticles from guava extracted and antibacterial of product from mentioned method, Application no. 1401003517.



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Ph.D. University College London 1999
B.Sc. Chiangmai University 1994

Areas of Research Interest

Ecotoxicology and Environmental risk assessment

Professional Experiences

Lecturer, Chulalongkorn University, 2000 – present

Research Emphasis

My research interest is to determine toxicological effect of pollutants on ecosystems especially on terrestrial plants. My recent studies also focus on assessing impact and ecological risk of pollutants derived from municipal solid waste.

Measure of Esteem

Development and Promotion of Science and Technology Talents Project (DPST) Scholarship, Royal Government of Thailand, 1990-1999

Selected Publications (2014-2018)

1. Klinsawathom, T., Songsakunrungrueng, B., Pattanamahakul, P., 2017. Heavy metal concentration and risk assessment of soil and rice in and around an open dumpsite in Thailand. EnvironmentAsia 10(2), 53-64.
2. Klinsawathom, T., Songsakunrungrueng, B., Pattanamahakul, P., 2017. Pollution status and potential ecological risk assessment of heavy metals in soils from a municipal solid waste open dumpsite in Thailand. Proceedings of the 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics, Bangkok, Thailand, 314-326.
3. Suksomboon, B., Pattanamahakul, P., 2017. Assessments of heavy metal concentration and toxicity of dust from a parking building in Bangkok. Proceedings of the 7th International Conference on Chemical, Agricultural, Biological and Environmental Sciences (CABES-17) Thailand, 120-124. https://doi.org/10.17758/EAP.DIR0717210.

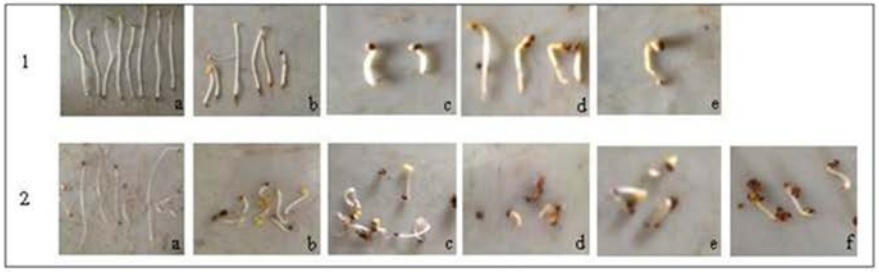

Fig. 1 Choysum grown in PFOS-treated soils: (1) SS soil and (2) PT soil at concentrations of (a) 0, (b) 200, (c) 400, (d) 600, (e) 800 and (f) 1,000 mg PFOS per kg dry-soil.

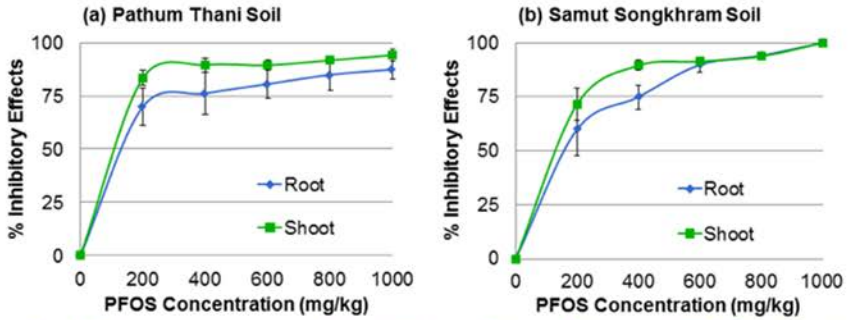

Fig. 2 Dose–response curves of the inhibitory effects on Choysum of PFOS treated into (a) Pathum Thani Soil and (b) Samut Songkhram Soil.

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Ph.D.	University of North Carolina at Chapel Hill	2006
M.Sc.	University of North Carolina at Chapel Hill	2002
M.Sc.	Mahidol University	1999
B.Sc.	Mahidol University	1995

Areas of Research Interest

Climate change to enhance air pollution, Health risk assessment related to occupational and air pollution exposure and Environmental epidemiology of landfill and electronic waste communities

Professional Experiences

Board of Directors, The Thai Society of Higher Education Institute on Environment, 2013-present
Head, Department of Environmental Science, Chulalongkorn University, 2014-2018
Working committee, The 2nd, 3rd and 4th EnvironmentAsia International Conferences, 2013, 2015, and 2017
Working committee of Thai Qualifications Framework for Higher Education (Environmental Science), The Higher Education Commission, 2013-2014
Environmental and Health Impact Assessment (EHIA) working committee of The Independent Commission on Environment and Health to review a Phenol Production Facility (Extension 2) by PTT Phenol Company Limited, 2012
Secretary, Department of Environmental Science, Chulalongkorn University, 2006-2010
Occupational Health and Safety Officer, The CPAC Roof Tile Company Limited, Siam Cement Group, 1995-1996

Research Emphasis

I am currently working on how to predict ambient air pollutants such as ozone and fine particulate matters using data over decades of their co-pollutants and metrological parameters through multivariate regression models. Results can be used to understand how these pollutants would be fluctuating over different climate change conditions and for authorities to plan to mitigate community's related health risks. Also, I have recently investigated the associated increased risks of sensitive population residing in communities of solid-waste landfills and electronic waste sites such as pre-school and school children and pregnant women of unfavorable outcomes of nervous system disorders, respiratory symptoms, and adverse birth outcomes. Its findings could be used for policy makers to alleviate specific factors posting to health risks of those.

Selected Publications (2014-2018)

1.Theapiriyakit, J., Suwannakoot, S., Puangthonghtub, S., 2017. Multiple Linear Regression in Modeling of Day Time Ozone and Daily Maximum Ozone in Bangkok and Samutprakarn EnvironmentAsia 10(2), 105-117.

2.Suksabayjai, W., Puangthonghtub, S., 2017. Adverse Birth Outcomes among Infants Born to Women Living Near a Sanitary Landfill Site in Nonthaburi, Thailand. Paper presented at The 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics; Bangkok, Thailand. 2017, 468-479.

3.Charoenchua, P., Puangthonghtub, S., 2017. Respiratory Hospitalizations of Children Living near a Sanitary Landfill in Nonthaburi, Thailand: A Case Control Study. Paper presented at The 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics; Bangkok, Thailand. 2017, 480-490.

4.Pratooma, N., Puangthonghtub, S., 2017. Health Survey of Primary-School Children in the Vicinity of a Sanitary Landfill in Nonthaburi Thailand Paper presented at The 4th EnvironmentAsia International Conference on Practical Global Policy and Environmental Dynamics; Bangkok, Thailand. 2017, 432-445.

5.Loonsamrong, W., Taneepanichskul, N., Puangthongthub, S., Tungsaringkarn, T., 2015. Health Risk Assessment and BTEX Exposure among Car Park Workers at a Parking Structure in Bangkok, Thailand. Journal of Health Research 29(4), 285-292.

6.Apismajarakul, B., Puangthongthub, S., 2014. Meteorological Effects on Urban Ground-levels Ozone Concentrations Metrics in Bangkok Metropolis Regions. International Journal of Environmental Engineering 1, 17-23.

VORAPOT KANOKKANTAPONG

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Ph.D.	Chulalongkorn University	2005
M.Eng.	Kasetsart University	2001
B.Eng.	Kasetsart University	1998
B.PH.	Sukhothai Thammathirat Open University	2006

Areas of Research Interest

Wastewater treatment technology, Industrial waste utilization, Solid waste management, Biomass utilization and Life cycle assessment

Professional Experiences

Lecturer, Chulalongkorn University, 2014 – Present
Lecturer, Mahidol University, 2012 – 2014
Lecturer, Huachiew Chalermprakiet University, 2004 – 2010

Selected Publications (2015-2018)

1.Poopa, T., Pavasant, P., Kanokkantapong, V., Panyapinyopol, B., 2015. Fractionation and Mobility of Lead in Klity Creek Riverbank Sediments Kanchanaburi, Thailand. Applied Environmental Research 37(1), 1-10.

2.Poopa, T., Pavasant, P., Kanokkantapong, V., Panyapinyopol, B., 2015. Spatial distribution and mobility factor of lead in agricultural soil in the vicinity of abandoned ore dressing plant, Thailand. EnvironmentAsia 8(2), 94-108.

3.Rawichayasub, W., Prechthai, T., Sihabut, T., Kanokkantapong, V., 2015. Management of Fat Oil and Grease by Cocomposting Process with Night Soil and Sawdust. Journal of Public Health Special Issue, 117-126. (in Thai).

4.Supakata, N., Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., 2016. Environmental camp as a comprehensive communication tool to promote the RRR concept to elementary education students at Koh Si Chang School. Applied Environmental Education & Communication 15(2), 184-194.

5.Nakason, K., Panyapinyopol, B., Kanokkantapong, V., Viriya-empikul, N., Kraithong, W. Pavasant, P., 2017. Hydrothermal carbonization of unwanted biomass materials: Effect of process temperature and retention time on hydrochar and liquid fraction. Journal of the Energy Institute. In press, 1-11.

Selected Publications (2015-2018) *(Cont.)*

6.Intang, K., Kanokkantapong, V., 2017. Utilization of Citric Acid Manufacture Residue for Producing Mortar and Insulation. The 4th EnvironmentAsia International Conference. June 21-23, 2017 Bangkok, Thailand.

7.Jan-Uthai, V., Kanokkantapong, V., 2017. Light factors affecting antioxidant production and growth of sprout sunflower. The 4th EnvironmentAsia International Conference. June 21-23, 2017 Bangkok, Thailand.

8.Nakason, K., Panyapinyopol, B., Kanokkantapong, V., Viriya-empikul, N., Kraithong, W., Pavasant, P., 2018. Characteristics of hydrochar and liquid fraction from hydrothermal carbonization of cassava rhizome. Journal of the Energy Institute 61(2), 184-193.

9.Nakason, K., Panyapinyopol, B., Kanokkantapong, V., Viriya-empikul, N., Kraithong, W., Pavasant P., 2018. Characteristics of hydrochar and hydrothermal liquid products from hydrothermal carbonization of corncob. Biomass Conversion and Biorefinery 8(1), 199-220.

Academic Article

Puangthongthub, S., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Supakata, N., Saengkaew, T., Pantama, J., Vibhatabandhu, P., 2016. Management of solid, food, plastic and glass wastes. Journal of Science, Volume 70, Issue 4, 83–77. (in Thai)

Textbooks

Supakata, N., Srithongouthai, S., Kanokkantapong, V., Chaikaew, P., Wattananukulkit, R., 2017. Strategy of Life. Chulalongkorn University Press: Thailand, 166. (in Thai).

Department of Environmental Science Academic Staff, 2018. Jar test in Aquatic Environmental Science Laboratory Manual, Chulalongkorn University Press, 180 pages. (in Thai). In Press.

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Ph.D. Chulalongkorn University 2013
M.Sc. Chulalongkorn University 2009
B.Sc. Chulalongkorn University 2007

Areas of Research Interest

Wastewater treatment technology by Advanced Oxidation Processes (AOPs) and membrane technology

Professional Experiences

Lecturer, Chulalongkorn University, 2015 – present

Research Emphasis

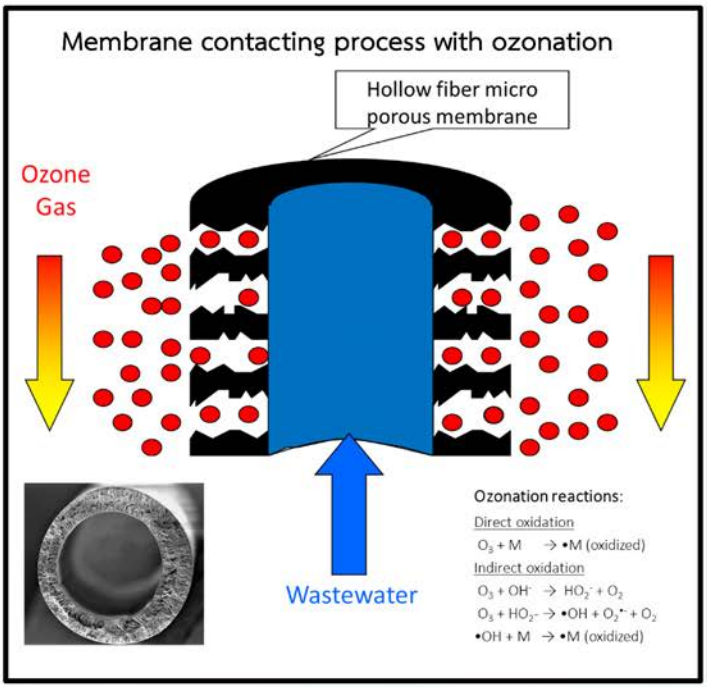
As a consequence of the wastewater issues, control of wastewater emission from the industries is very important on these days. My research focus is to treat wastewater from the various industries such as textile industry by Advanced Oxidation Processes (AOPs) including Fenton processes and photocatalytic oxidation. Recently, AOPs and membrane technologies have received great attention to combine for increase the efficiency of wastewater treatment such as photocatalytic membrane and membrane contacting process with ozonation. The great efforts are to modify the suitable membrane properties for application. Modification is focused on addition of modifying agents or metals on the membrane surface and functionalization of membrane surface via chemical methods.

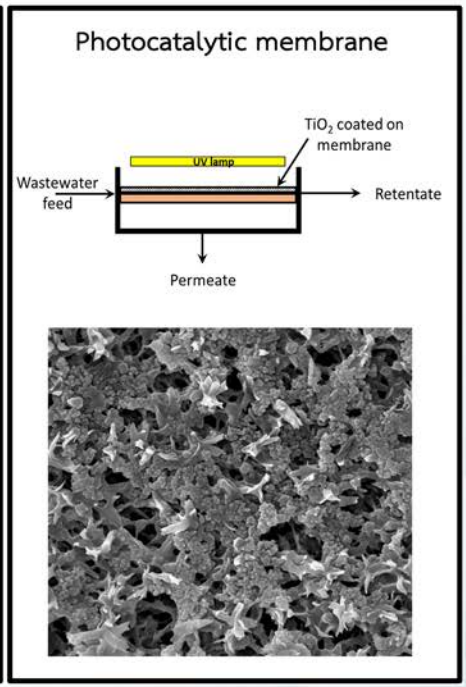
Selected Publications (2014-2018)

1. Sairiam, S., Thuptimdang, P., Painmanakul, P., 2017. Decolorization of Wastewater Containing Reactive Black 5 from Synthetic Wastewater by Fenton Process. Proceedings of the 19th International Conference on Water Pollution and Solutions (ICWPS), Barcelona, Spain, 2992–2994.
2. Sairiam, S., Thuptimdang, P., Painmanakul, P., 2016. Decolorization of Reactive Black 5 Wastewater by Fenton Process" Proceedings of the 5th International Conference on Environmental Engineering, Science and Management, Bangkok, Thailand, 127–128.
3. Suthanan, C., Larpparisudth, O., Sairiam, S., Painmanakul, P., 2016. Analysis of Cutting Oily-wastewater Treatment by Fenton Reaction: Process Type and Oil Concentration" Proceedings of the 15th National Environmental Conference, Bangkok, Thailand, 139-140.

Textbook

Department of Environmental Science Academic Staff, 2018. Advanced Oxidation Process for Wastewater Treatment and Determination of Heavy Metals in Water by Atominc Adsorption Sepectroscopy in Aquatic Environmental Science Laboratory Manual, Chulalongkorn University Press, 180 pages. (in Thai). In Press.





PANTANA TOR-NGERN

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Ph.D.	Duke University	2015
M.S.	Duke University	2010
B.S.E	Duke University	2009

Areas of Research Interest

Hydrologic and carbon cycling, Impacts of climate change and climate variability on terrestrial hydrologic and carbon cycles and Dynamic Global Vegetation Models

Professional Experiences

Lecturer, Chulalongkorn University, 2015 – present

Research Emphasis

My research focuses on water and carbon flows in forest ecosystems and their variations with environmental impacts including climate change, land-use change and extreme events. The main technique is measuring water flow in individual trees with self-constructed probes and then applying modeling approaches to estimate water loss and carbon absorption of forests. This method is performed across spatial scales and with high temporal resolution (at 30-minunte intervals). Findings of mechanisms that control variations of water and carbon flows in forests can be used to improve the modeling of climate-vegetation feedbacks in the earth system models which is used to simulate climate change impacts on water-use and productivity of terrestrial ecosystems.

Measure of Esteem

Outstanding Young Researcher Award in Biological Science 2018, Faculty of Science, Chulalongkorn University

Selected Publications (2014-2018)

1.Tor-ngern, P., Unawong, W., Tancharoenlarp, T., Aunroje, P., Panha, S., 2018. Comparison of water-use characteristics of landscape tree (Tabebuia argentea) and palm (Ptychosperma macarthurii) species in a tropical roof garden with implications for urban water management. Urban Ecosystems. https://doi.org/10.1007/s11252-018-0735-0.

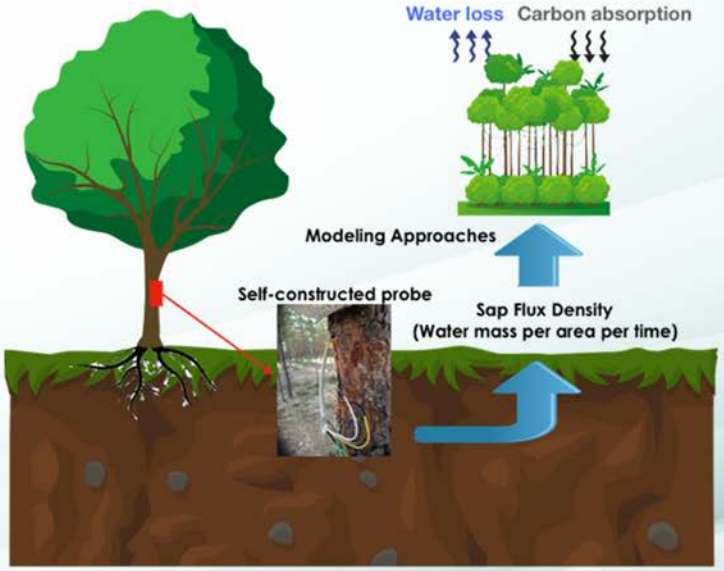
Selected Publications (2014-2018) *(Cont.)*

2.Tor-ngern, P., Oren, R., Palmroth, S., Novick, K., Oishi, A.C., Linder, S., Ottoson-Löfvenius, M., Näsholm, T., 2018. Water balance of pine forests: synthesis of new and published results. Agricultural and Forest Meteorology 295, 107-117.

3.Tor-ngern, P., Oren, R., Oishi, A.C., Uebelherr, J.M., Palmroth, S., Tarvainen, L., Ottoson-Löfvenius, M., Linder, S., Domec, J-C., Näsholm, T., 2017. Ecophysiological variation of transpiration of pine forests: synthesis of new and published results. Ecological Applications 27(1), 118-133.

4.Tor-ngern, P., Oren, R., Ward, E.J., Palmroth, S., McCarthy, H.R., Domec, J-C., 2015. Increases in atmospheric CO2 have little influence on transpiration of a temperate forest canopy. New Phytologist 205(2), 518-525.

5.Lim, H., Oren, R., Palmroth, S., Tor-ngern, P., Mörling, T., Näsholm, T., Lundmark, T., Helmisaari, H-S., Leppälammi-Kujansuu, J., Linder, S., 2015. Inter-annual variability of precipitation constrains the production response of boreal Pinus sylvestris to nitrogen fertilization. Forest Ecology and Management 348, 31-45.



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Ph.D.	The University of North Carolina at Chapel Hill	2014
M.Sc.	Mahidol University	2005
B.Sc.	Thammasat University	2001

Areas of Research Interest

Environmental data analysis and Environmental burden of disease assessment

Professional Experiences

Lecturer, Chulalongkorn University, 2018-present
Lecturer, Mae Fah Luang University, 2014-2018

Selected Publications (2013-2018)

1. Chart-asa, C., 2018. Spatio-temporal Pattern of MODIS Active Fire/hotspot in the Upper Northern Thailand and the Greater Mekong Subregion Countries During 2003-2015. Manuscript in preparation.
2. Manomaivibool, P., Chart-asa, C., Unroj, P., 2016. Measuring the Impacts of a Save Food Campaign to Reduce Food Waste on Campus in Thailand. Applied Environmental Research 38(2), 13-22.
3. Chart-asa, C., MacDonald Gibson, J., 2015. Health impact assessment of traffic-related air pollutionat the urban project scale: influence of variability and uncertainty. Science of the Total Environment 506-507, 409-421.
4. Chart-asa, C., 2013. Quantifying health impacts of traffic-related fine particulate air pollution at the urban project scale (Doctoral dissertation). The University of North Carolina at Chapel Hill North Carolina, USA.
5. Chart-asa, C., Sexton, K.G., MacDonald Gibson, J., 2013. Traffic impacts on fine particulate matter air pollution at the urban project scale: a quantitative assessment. Journal of Environmental Protection 4(12A), 49-62.