

## CV of Prof. Nguyen Thi Kim Oanh (2021)

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**AREAS OF SPECIALIZATION:** Air pollution data and assessment (Inventory, Modelling, Monitoring, Exposure Assessment); Climate and air quality interaction; Co-benefit assessment for SLCP emission reduction; Air pollution meteorology; Monitoring and control of trace organic pollutants in the environment; Integrated industrial environment management.

**LANGUAGES AND DEGREE OF PROFICIENCY:** English (very good), Russian (very good), Vietnamese (excellent)

### EDUCATION

5/1991-4/1994: Dr. Eng., Environmental Engineering and Management (EEM),  
SERD, AIT, Bangkok, Thailand  
9/1989-4/1991: M. Eng., EEM/SERD, AIT, Bangkok, Graduation Prize  
9/1973-9/1978: Dipl. Eng., Meteorology  
Odessa Hydrometeorology Institute, Ukraine  
First class with Distinction (GPA = 5.0/5.0), First Honors

Web info:

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<https://ecc.ait.ac.th/member/prof-nguyen-thi-kim-oanh/>

### OUTLINE OF RELEVANT EXPERIENCE:

Professor Nguyen Thi Kim Oanh has over 33 years working experience in research, education, consultancy and capacity building and is internationally recognized for her work on air pollution and climate in Asia with a focus on Southeast Asia. She spends untiring efforts to provide a better characterization of air pollution issues in Asian developing countries through field measurements, emission inventory and modelling studies at urban, national and regional scales. She has published 2 books (ed.), 110+ international peer-reviewed scientific papers, 46 book chapters and 60 important development reports. With her extensive experience and professional networking capacity she has conducted, as PI or Co-PI, of 55+ regional collaboration research projects. She also organized, co-organized and served as a key resource person for above 200 training courses in air quality and climate related topics. Under her supervision as the advisor, as of 2020, there are 140 Master and 15 Ph D AIT graduates who are now working in over 20 countries in Asia and beyond. Professor Kim Oanh has taken sabbaticals at the University of Washington in Seattle and University of Illinois at Urbana-Champaign, USA (2004), and Institute for Advanced Sustainability Studies, Germany (2012).

### EMPLOYMENT HISTORY

**2009-Present:** Professor, Environmental Engineering and Management (EEM), AIT  
**2015-Present:** Adjunct Professor, Ton Duc Thang University, Vietnam  
**2001- 2009:** Associate Professor, EEM, AIT  
**1997- 2000:** Assistant Professor, EEM, AIT  
**1996-1997:** Coordinator of AIT-SIDA Environment Programme  
**1994-1997:** Research Specialist and Co-PI in the AIT-SIDA Environment Programme  
**1979-1989:** Lecturer at the Faculty of Meteorology, Vietnam National University, Hanoi, Vietnam

## **EDUCATIONAL BACKGROUND**

- Ph D, Environmental Technology and Management (ETM). AIT, Thailand (1994)
- M Eng, ETM (Honours, graduation prize). AIT, Thailand (1991)
- Dipl Eng, Meteorology (First Honours), Odessa Hydrometeorology Institute, Ukraine (1978)

## **SELECTED HONOURS AND APPOINTMENTS**

- Current member of the Science Panel of the Asia Pacific Clean Air Partnership (APCAP)
- Current WHO expert in the Guideline Development Group for the update of the WHO Global Air Quality Guidelines
- Member of the Scientific Steering Committee of the IGAC and Co-chair of IGAC-MANGO (IGAC Monsoon Asia & Oceania Networking Group), 2015-2019;
- Coordinating lead author of a chapter in “UNEP Regional Assessment Report on Atmospheric Pollution in the Asia Pacific”, 2017-2019;
- Vice-chair of the UNEP-WMO “Integrated Assessment of Black Carbon and Tropospheric Ozone”, 2009-2011;
- Visiting scholar at Institute of Advanced Sustainability Studies, Germany (Jul-Sep 2012)
- Visiting scholar, University of Illinois at Urbana-Champaign, 2004;
- Fogarty visiting scholar, University of Washington, Seattle, 2004;

**AWARDS AND PRIZES:** Recipient of “Distinguished Researcher Awards for Senior Research Leader” by AIT, 2015; several highly cited paper awards (2014, 2016), “Air quality hero” (2010) and “Extra Mile” (2008) from BAQ conferences, teaching awards from School of Environment, Resources and Development (1988, 2003). Her master and Ph D students got 22 the best paper awards for students from the West Coast Section of A&WMA (USA), 2001-2017.

## **PROFESSIONAL MEMBERSHIP**

- Member of the Science Panel of the Asia Pacific Clean Air Partnership (APCAP), since 2016
- Member of the “International Global Atmospheric Chemistry” (IGAC) since 2015
- Member of the Scientific Steering Committee of IGAC, 2015-2019
- Member of the American Geography Union (AGU), 2004 and 2015-2020
- Member of the Air and Waste Management Association (AWMA), since 1998
- Member of Clean Air Initiatives in Asia (CAI-Asia), since 2002

**STUDENT RESEARCH SUPERVISION:** In total, she was the advisor to over 140 master graduates and 15 Ph D graduates; the field advisor to 13 master/Ph D exchange students from Europe; advisor to over 30 special studies; a committee member for 27 Ph D and over 160 students.

### ***Doctoral Graduates (Advisor):***

- 1) Kok Sothea “Development of Integrated Approach to Assess and Prioritize the Emission Reduction Measures of Air Pollution: A Case in Urban Area of Phnom Penh, Cambodia”. Graduated in May 2019.
- 2) Nguyen Hong Phuc “Development of Framework for Assessment of Human Health Effects from Traffic Air Pollution in Urban Area”, graduated in Dec 2018.
- 3) Ngo Thanh Danh “Assessing Impact of Surface Ozone Exposure on Major Crops Production in Southern Vietnam and Mitigation Strategies”, Graduated May 2017.
- 4) Aishajiang Aili “Sand-Dust Storm Patterns in Northeast Edge of Taklimakan Desert in relation to the meteorology and development processes”, Graduated May 2016.
- 5) Nguyen Duy Binh “Treatment for soil contaminated with dioxin using nano-assisted photodegradation and biological technologies”. Graduated May 2014.
- 6) Muhammad Zeeshan Ali Khan “Improvement of satellite monitoring for ground particulate matter pollution using synoptic climatological classification”. Graduated Dec. 2013.
- 7) Didin Agustian Permadi “Co-benefit study of black carbon emission reduction on climate and air quality in Asia”. Graduated in Dec. 2013.
- 8) Thipsakorn Khumsaeng “Assessment of stockpile POPs destruction technologies by Life Cycle

- Analysis”. Graduated in May 2013.
- 9) Amornpon Changsuphan “Application of Nanoscale Metallic Particles for Removal of VOCs in Contaminated Air”. Graduated in Dec. 2012.
  - 10) Thongchai Kanabkaew “Effects of Biomass Open Burning on Atmospheric Aerosols and Climate Conditions”. Graduated in Dec. 2011.
  - 11) Prapat Pemtawan “Indoor-Outdoor Levels and Fate of Persistent Organic Air Pollutants and Associated Health Risks”. Graduated in Dec. 2008.
  - 12) Aungsiri Klinmalee “Development of Assessment Method for Exposure to Open Rice Straw Burning Emission”. Graduated in August 2008.
  - 13) Le Hoang Nghiem “Photochemical Smog Modeling for Simulation of Ground-Level Ozone over the Continental Southeast Asian Region to Assess Potential Impacts on Rice Crop”. Graduated in 2008.
  - 14) Prapat Pongkiatkul “Development of Hybrid Receptor Models for Air Pollutions Source Apportionment Study”. Graduated Dec. 2006.
  - 15) Zhang Bao Ninh “Photochemical Smog Modeling for Air Quality Management of Bangkok Metropolitan Region”. Graduated in 2002.

***Doctoral Students Under Supervision (Co-Advisor):***

- 1) Lai Nguyen Huy “Development of Air Emission Inventory over Southeast Asia Region and Application of Inverse Modeling for Uncertainty Analysis”. Candidacy exam in October 2019. Co-chair with Dr. Ekbordin.
- 2) Nguyen Nhat Ha Chi “Integrated assessment of impacts resulting from emission reduction on ambient air quality and atmospheric deposition fluxes in Greater Mekong Subregion”. Candidacy in April 2020. Co-chair with Dr. Ekbordin.
- 3) Sompoke Kingkaew. “Application of wireless sensor network system for air quality monitoring and air quality management”. Enrolled August 2015. Candidacy exam in November 2017. Co-chair with Dr. Ekbordin.

**RESEARCH PROJECTS:** Totally Dr. Kim Oanh handles/handled 55 projects at AIT in the capacity of PI or Co-PI of which more than 15 are/were regional networks. She was the PI of the AIRPET (*Asian Regional Air Pollution Research Network for Improvement of Air Quality*) phase 1 and 2 (2001-2010), involving 6 Asian countries; Co-PI of the 3 projects (POC from energy sources, Transport sector, Biomass energy) of ARPEEC (*Asian Regional Research Network for Energy, Environment and Climate*), 1995-2001. She is also the team leaders of a number of consultancy projects on the topic of air quality management in Southeast Asia.

**CURRENT SPONSORED RESEARCH PROJECTS (on-going)**

- 1) USAID-NSF, PEER-9 “Nano-assisted bioremediation of diffused dioxins in soil and sediment in Vietnam” (Dioxin-bioremediation). This project aims to reduce residual dioxins contaminated in soils/sediments from the past use of Agent Orange during the Vietnam War. Dioxins in soils/sediments are ultimately destroyed by indigenous microorganisms in a novel stepwise procedure of sequential anaerobic-aerobic biodegradation. In cooperation with Van Lang university and University of Science and Technology in Hochiminh City. 2020-2022. PI.
- 2) UNEP ROAP funded project “UNEP Clean Air Solutions Tracker with focus on Child-centered Solutions”. The main objectives: i) identify and promote child-centered clean air solutions and strengthen implementation uptake of the clean air measures and ii) analyze the current and potential implementation of UNEP recommended 25 clean air measures in Vietnam and Myanmar. 2020-2021. PI.
- 3) PCD (Pollution Control Department of Thailand) funded PM<sub>2.5</sub> research project “Development of web-based emission inventory for major emission sources of PM<sub>2.5</sub> in Thailand”. 2020. A collaborative project which aims to develop a web-based emission inventory database template customized for Thailand. PI, in collaboration with Dr. Ekbordin (Co-PI).
- 4) SEI-SUMERNET (Sida) funded project “Atmospheric deposition to large river basins and potential effects on the water environment; DEPOSITION”, 2020-2021. This is a collaborative

research consortium led by AIT in collaboration with the Royal University of Phnom Penh (RUPP), Cambodia and Nong Lam University (NLU), Ho Chi Minh City, Vietnam. The multiple benefits of the air emission reduction to the river water quality, ecosystems, air quality and climate can be demonstrated with the ultimate goal to safeguard human right to clean water, clean air and climate justice. PI.

- 5) ISC ROAP (International Science Council, Regional Office for Asia and the Pacific), funded project “Assessment of the emissions of street cooking activities in Bangkok and subsequent effects on ambient PM<sub>2.5</sub> and human health”. This project focuses on emission inventory and the use of sensors for monitoring exposure to street cooking smoke in Bangkok. 2020-21. PI.
- 6) EU funded project “MONTUS- Master On New Technologies Using Services: BigData/CloudComputing for Environmental Data” (2018-2021). This project aims at developing a Master Study Program on Cloud Computing for Environmental Data. It is a continuation of the TORUS project. With the partners from Europe (France, Italy, Belgium) and Southeast Asia (Thailand, Vietnam and Cambodia). AIT team leader.
- 7) International Scientific Coordination Network – South (GDRI-Sud) funded project “Impact of Black Carbon in South East Asia (SOOT SEA), 2018-2021. Euros 570,000. The project is coordinated by Dr. Benjamin Guinot, CNRS (CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE), France. Co-ordinator of SEA partners.

**SELECTED PUBLICATIONS:** Prof. Kim Oanh has published 2 books, 110+ peer-reviewed papers, 46 book chapters, and more 55 development reports. Full publication list at ([https://www.researchgate.net/profile/Nguyen\\_Thi\\_Oanh](https://www.researchgate.net/profile/Nguyen_Thi_Oanh)). Scopus h-index: 32; Total Scopus citations: 3925 (Feb. 2021).

- 1) **Book:** *Integrated air quality management: Asian Case Studies*. Kim Oanh N. T. (ed). 2012. ISBN 9781439862254. CRC Press. 440 p.
- 2) **Book:** *Improving Air Quality in Asian Developing Countries: Compilation of research findings*. Kim Oanh N. T. (ed). 2014. ISBN: 9786049044106. NARENCA. 435 p.
- 3) **Development report:** “*Air Pollution in Asia and the Pacific: Science-Based Solutions*,” Published by UNEP, Asia Pacific Clean Air Partnership and Climate and Clean Air Coalition. Jan 2019. Coordinating lead author.
- 4) **Development report:** *Integrated Assessment of Black Carbon and Tropospheric Ozone*, UNEP-WMO (2011). Nairobi, Kenya. ISBN: 92-807-3141-6 (Vice-chair and lead/contributing author).
- 5) **Development report:** UNEP (2011). *Near-term climate protection and clean air benefits: actions for controlling short-lived climate forcers*, UNEP, Nairobi, Kenya, 78pp, ISBN: 978-92-807-3232-0. (Contributing author).
- 6) **Development report:** *The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People (2019)*. (The review editor of *Chapter 10. Air Pollution in the Hindu Kush Himalaya*).

**Peer-reviewed international papers:**

- 1) Nguyen Nhat Ha Chi and N. T. Kim Oanh (2020). Photochemical Smog Modeling of PM<sub>2.5</sub> for Assessment of Associated Health Impacts in Crowded Urban Area of Southeast Asia. *Environmental Technology & Innovation*. <https://doi.org/10.1016/j.eti.2020.101241>.
- 2) Lai Nguyen Huy, N.T. Kim Oanh, Nguyen Hong Phuc, Chu Phuong Nhung (2020). Survey-based inventory for atmospheric emissions from residential combustion in Vietnam. *Environmental Science and Pollution Research*; <https://doi.org/10.1007/s11356-020-11067-6>.
- 3) Van Tai Tang, N. T. Kim Oanh, Eldon R. Rene & Tran Ngoc Binh (2020). Analysis of roadside air pollutant concentrations and potential health risk of exposure in Hanoi, Vietnam. *J. Environmental Science and Health, Part A*. <https://doi.org/10.1080/10934529.2020.1763091>
- 4) Lai Nguyen Huy and Nguyen Thi Kim Oanh (2020). Emission Control for Volatile Organic Compounds from Gasoline Stations and Implication on Ozone-forming Potential. *Atmospheric Pollution Research*. <https://doi.org/10.1016/j.apr.2020.03.002>
- 5) Lai Nguyen Huy, Nguyen Thi Kim Oanh, Thiri Tin Htut, Ohnmar May Tin Hlaing (2019). Emission inventory for on-road traffic fleets in Greater Yangon, Myanmar. *Atmospheric Pollution Research*. <https://doi.org/10.1016/j.apr.2019.12.021>.

- 6) Aungsiri Tipayarom and Nguyen Thi Kim Oanh (2019). Influence of rice straw open burning on levels and profiles of semi-volatile organic compounds in ambient air. *Chemosphere*. <https://doi.org/10.1016/j.chemosphere.2019.125379>.
- 7) Daiju Narita, N. T. Kim Oanh, Keiichi Sato, Mingqun Huo, D. A. Permadi, N. N. Nhat Ha Chi, T. Ratanajaratroj and Ittipol Pawarmart (2019). Pollution Characteristics and Policy Actions on Fine Particulate Matter in a Growing Asian Economy: The Case of Bangkok Metropolitan Region. *Atmosphere*, 10(5), 227; <https://doi.org/10.3390/atmos10050227>.
- 8) Phuc N. H. and Kim Oanh N. T. (2018). Determining factors for levels of volatile organic compounds measured in different microenvironments of a heavy traffic urban area. *Science of the Total Environment*, 627 (2018) 290–303.
- 9) Permadi D. A., Kim Oanh N. T., Vautard R. (2018). Integrated emission inventory and modeling to assess distribution of particulate matter mass and black carbon composition in Southeast Asia. *Atmos. Chem. Phys.*, 18, 2725–2747, 2018.
- 10) Permadi D. A., Kim Oanh N. T., Vautard R. (2018). Assessment of emission scenarios for 2030 and impacts of black carbon emission reduction measures on air quality and radiative forcing in Southeast Asia. *Atmos. Chem. Phys.*, 18, 2018.
- 11) Ketsiri L. and Kim Oanh N.T. (2017). Mapping exposure to particulate pollution during severe haze episode using improved MODIS AOT-PM<sub>10</sub> regression model with synoptic meteorology clarification. *GeoHealth*, 1, 165–179.
- 12) Huy L. N. and Kim Oanh N. T. (2017). Assessment of national emissions of air pollutants and climate forcers from thermal power plants and industrial activities in Vietnam. *Atmospheric Pollution Research* (8) 3.
- 13) Tran Thu Trang, Huynh Hai Van, N. T. Kim Oanh (2015). Traffic emission inventory for estimation of air quality and climate co-benefits of faster vehicle technology intrusion in Hanoi, Vietnam. *Carbon Management* 6(3):1-12.
- 14) T. N. Huong Giang and N. T. Kim Oanh (2014). Roadside levels and traffic emission rates of PM<sub>2.5</sub> and BTEX in Ho Chi Minh City, Vietnam. *Atmospheric Environment*, 94: 806–816.
- 15) N. T. Quang Hung, et al., N.T. Kim Oanh, et al. (2014). Characterization of black carbon at roadside sites and along vehicle roadways in the Bangkok Metropolitan Region. *Atmospheric Environment*, 92: 231-239.
- 16) Reid, J.S., Hyer, E.... Oanh, N.T.K., et al. (2013). Observing and understanding the Southeast Asian aerosol system by remote sensing: An initial review and analysis for the Seven Southeast Asian Studies (7SEAS) program (Review). *Atmospheric Research*. 122. pp. 403-468.
- 17) Shindell D, ....., Kim Oanh NT, et al. (2012). Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security. *Science*, 13 January 2012: 183-189.
- 18) Kim Oanh N. T., Phuong M. T. T. and Permadi D. A. (2012). Analysis of motorcycle fleet in Hanoi for estimation of air pollution emission and climate mitigation co-benefit of technology implementation. *Atmospheric Environment*, 59: 438 – 448.
- 19) Vo Thi Quynh Truc and Nguyen Thi Kim Oanh (2007). “Roadside BTEX and other gaseous air pollutants in relation to emission sources”. *Atmospheric Environment*, 41, 7685-7697.
- 20) Kim Oanh N. T., Upadhyay N., Zhuang Y-H., Hao Z-P., Murthy D.V.S., Lestari P., Villarin J.T., Chengchua K., H. X. Co., Dung N. T., Lindgren E. S. (2006). Particulate Air Pollution in Six Asian Cities: Spatial and Temporal Distributions, and Associated Sources. *Atmospheric Environment*, 40, 3367-3380.
- 21) Kim Oanh N T, Bætz Reutergårdh L and Dung N T (1999). Emission of Polycyclic Aromatic Hydrocarbons and Particulate Matter from Domestic Combustion of Selected Fuels, *Environ. Sci. and Technol.*, 33, 2703-2709.
- 22) Kim Oanh N. T. and Bengtsson B-E (1995), Toxicity to Microtox, Micro-algae and Duckweed of Effluents from the Bai Bang Paper Company, a Vietnamese Bleached Kraft Pulp and Paper Mill, *Environmental Pollution*, 90/3: 391-399.