

Workshop on Nexus-based Catchment Environmental Management for Future Asia

(Oct. 19, 2016, Tsukuba, Japan)

Opening Address

(Chair: **IMAI, Akio**, Director, Center for Regional Environmental Research, NIES)

09:00-09:05 **SUMI, Akimasa**, President, National Institute for Environmental Studies (NIES)

09:05-09:10 **FU, Bojie**, Academician, Chinese Academy of Sciences (CAS)

Key-note Speeches

(Chair: **IMAI, Akio**, Director, Center for Regional Environmental Research, NIES)

09:10-09:40 **FU, Bojie**, Academician, Chinese Academy of Sciences (CAS)

Ecosystem Services in the Changing Land Use

09:40-10:10 **KASUGA, Fumiko**, Global Hub Director - Japan, Future Earth Secretariat and Senior Fellow, NIES

Future Earth---its Progress and Future Perspectives and Prospective

10:10-10:40 **TANIGUCHI, Makoto**, Deputy Director, Research Institute for Humanity and Nature

Water, Energy, and Food Security in the Asia Pacific Region

Photo Shoot & Coffee Break

Key-note Research Presentations

(Chair: **IMAI, Akio**, Director, Center for Regional Environmental Research, NIES)

11:00-11:30 **WANG, Qinxue**, Center for Regional Environmental Research, NIES

A Case Study on the Nexus-based Catchment Environment Management --- Taking the Yangtze River Basin as an Example

11:30-12:00 **YANG, Yonghui**, Center for Agricultural Resources, CAS

A Case Study on the Nexus-based Catchment Environment Management --- Taking the Haihe River Basin as an Example

Research Presentations by Chinese-Side

(Chair: **YANG, Yonghui**, Deputy Director, Center for Agricultural Resources, CAS)

13:00-13:25 **WANG, Kelin**, Institute of Subtropical Agriculture (ISA), CAS

Improving the Ecosystem Services in the Karst Regions in the upper Pearl River Basin

13:25-13:50 **WU, Jinshui**, Institute of Subtropical Agriculture (ISA), CAS

Sources, Transfers and Environmental Impacts of Nitrogen and Phosphorus in a Subtropical Water Catchment

and the Related Countermeasures Practices against Surface Water Pollution

13:50-14:15 **XIANG, Bao**, Chinese Research Academy of Environmental Sciences (CRAES)

Spatial and Temporal Simulation of Water Pollution Accident in the Songhua River

14:15-14:40 **WANG, Tong**, Research Academy of Environmental Sciences of Liaoning Province, China

Water Environment Problems and their Countermeasures in the Liao River Basin, China

Coffee Break (20 minutes)

Research Presentations by Japanese-Side

(Chair: **Qinxue WANG**, Principal Researcher, Center for Regional Environmental Research, NIES)

15:00-15:25 **HANASAKI, Naota**, Center for Global Environmental Research, NIES

Promoting Application of the Global Water Resources Model H08 to Major Rivers in Asia

15:25-15:50 **FUKUSHIMA, Michio**, Center for Environmental Biology and Ecosystem Studies, NIES

Ecosystem services and their conservation in the Mekong River Basin

15:50-16:15 **NAKAYAMA, Tadanobu**, Center for Global Environmental Research, NIES

Development of Advanced Process-Based Model towards Water-Energy- Carbon Nexus

16:15-16:40 **OKADERA, Tomohiro**, Center for Regional Environmental Research, NIES

A Case Study on Water-Energy Nexus in Mongolia --- Water Scarcity by Power Generation

Discussion on Research Proposal for Future Cooperation

(Chair: **Qinxue WANG**, Principal Researcher, Center for Regional Environmental Research, NIES)

(Chair: **YANG, Yonghui**, Deputy Director, Center for Agricultural Resources, CAS)

Closing Address

(Chair: **IMAI, Akio**, Director, Center for Regional Environmental Research, NIES)

17:20-17:30 **HARASAWA, Hideo**, Vice-President, National Institute for Environmental Studies (NIES)

Major Participants of Japanese Side



Dr. Akimasa SUMI,
President, National Institute for
Environmental Studies (NIES)

Dr. Akimasa Sumi received his Ph. D. in meteorology from University of Tokyo in 1985. Then he became associate professor at the Geophysical Institute at the University of Tokyo until 1991, and then be promoted as a professor of the Center for Climate System Research at the University. Since 1994, he has been the director of the Center for Climate System Research. Dr. Sumi also served as a leading member of various committees, such as, the Joint Scientific Committee of WCRP; the CLIVAR Monsoon Panel and Scientific Steering Groups; the TOGA-COARE Science Group and TOGA-Scientific Steering Groups; Vice Chairman of the TAO Implementation Panel. Currently, Dr. Sumi continues on as a Board Member of the Meteorological Society of Japan, Program Scientist of ADEOS-2, a member of JOINT TRMM Science Team, and as Coordinator of the University of Tokyo for AGS.



Dr. Hideo HARASAWA,
Vice-President, National Institute for
Environmental Studies (NIES)

Dr. Hideo Harasawa graduated from Tokyo University (MA) and started to work in the NIES in 1978. He obtained his Ph. D in Kyoto University in 1985, and became the Research Program Manager of the Center for Global Environmental Research of NIES in 1992. Dr. Harasawa became the Section Head of the Environmental Planning Section, Social and Environmental System Division (SESD) /NIES in 1994, and then the Director of SESD/NIES in 2005. He also severed as IPCC (Intergovernmental Panel on Climate Change, Coordinating Lead Author (CLA) for Third Assessment Report published in 2001, and CLA for Fourth Assessment Report to be published in 2007.



Dr. Fumiko KASUGA,
Global Hub Director - Japan, Future
Earth Secretariat; Senior Fellow, NIES

Dr. Fumiko Kasuga received a Ph.D. degree in agricultural science from The University of Tokyo in 1988. After worked as a researcher expertized in food safety at National Institute of Infectious Diseases and at National Institute of Health Sciences, she joined NIES as Senior Fellow in 2016. She was Vice-President of Science Council of Japan (SCJ) in charge of international activities from 2011 to 2014 and was involved in establishing globally-distributed Future Earth Secretariat. Since May 2015, she also serves as Future Earth Global Hub Director - Japan, hosted in The University of Tokyo.



Dr. Makoto TANIGUCHI,
Deputy Director-General, Research
Institute for Humanity and Nature

Dr. Makoto TANIGUCHI received his Ph.D. in Hydrology (1987) in University of Tsukuba, Japan. He once worked in Nara University of Education as Research Associate, Associate Professor, and Professor. Prof. TANIGUCHI moved to Research Institute for Humanity and Nature since 2003, and his research fields are environmental dynamic analysis, hydrology, weather and oceanic physics. He also severed as many academic society memberships, such as AGU, IAHS, IAH, JAGH, JAHS, JSEG, JSR, AJG and JSL. Now he is one of the major scientists, who try to promote the research activities for Future Earth.



Dr. Akio IMAI,
Director, Center for Regional
Environmental Research (CRER),
NIES

Dr. Akio IMAI earned a Ph.D. degree in civil engineering from the University of Texas at Austin, USA, in 1988 and then joined National Institute for Environmental Studies (NIES), Japan, as Researcher (1988-1992), Senior researcher (1992-1997), Section Leader (1997-2012) and Director of CRER (2013-present). He has been studying dissolved organic matter (DOM) in water environments since around 1995. Research topics are wide in variety: characteristics and origins of DOM in lake and river, effects of DOM on algal blooming cyanobacteria, characterization of DOM in effluent from wastewater treatment plants, growth characteristics of water-bloom forming cyanobacteria, iron speciation in water environments, molecular size determination of freshwater and marine DOM with TOC detection, and so on. He also served many societies such as JSWE, JSL, JSCE, IWA, ACS, and ASLO.



Dr. Qinxue WANG,
Principal Researcher, CRER, NIES

Dr. Qinxue WANG once worked in Institute of Geographical Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences (CAS), China. After moving to Japan in 1994, he achieved his Ph.D. from Hokkaido University, and then worked in NIES, Japan as a Senior Researcher, Chief of Asian Water Environment Section, and the Principal Researcher of CRER, NIES. Dr. Wang has been working on developing systems for the observation and evaluation of regional water and material cycles in East Asia. He led several national projects, such as "Establishment of Network for Early Detection of the Global Warming Impact" and "Vulnerability Assessment and Adaptation Strategies for Permafrost Regions in Mongolia" funded by MOE, Japan.



Dr. Naota HANASAKI,
Senior Researcher, CGER, NIES

Dr. Naota HANASAKI is senior researcher of Center for Global Environmental Research at National Institute for Environmental Studies (NIES). Dr. Hanasaki earned a B.Eng./M.Eng./Dr.Eng. in Civil Engineering from the University of Tokyo. His current research focuses on hydrology and water resources engineering, particularly development of a macro scale physically-based hydrological model incorporating major human activities such as irrigation, water withdrawal, and reservoir operation. He applies it for various global change issues including climate change impact assessment and global sustainable development. He has authored or co-authored more than 40 peer reviewed research papers.



Dr. Tadanobu NAKAYAMA,
Senior Researcher, CGER, NIES

Dr. Tadanobu NAKAYAMA received his Ph.D. in Turbulence from Kyoto University in 2000. Since then, he has developed a process-based National Integrated Catchment-based Eco-hydrology (NICE) model, which includes feedback between hydrologic-geomorphic-ecological processes from local, regional, to continental scales. He was a visiting scientist at Centre for Ecology & Hydrology in UK. He is the author of many books and papers in eco-hydrological system including wetland ecosystem and nature restoration, urban environment and water resources, and global eco-hydrology. He is also a member of editorial boards in two journals, "Ecohydrology" published by Wiley and "Ecohydrology & Hydrobiology" published by Elsevier.



Dr. Michio FUKUSHIMA,
Senior Researcher, Center for
Environmental Biology and Ecosystem
Studies (CEBES), NIES

Dr. Fukushima obtained Ph.D. in fisheries science from University of Alaska Fairbanks in 1996. He has since worked in National Institute for Environmental Studies where he conducted research in Japan, China, Russia and the countries of the Mekong River. His research interests include freshwater fish ecology, migratory fish and habitat connectivity, nutrient cycling and food webs, and human impacts to biodiversity and ecosystem services. His current research focuses on the elucidation of fish migrations using stable isotope techniques, mapping freshwater fish distributions using environmental DNA techniques, and assessing the impacts of artificial barriers such as dams on fish distributions using a geographical information system.



Dr. Tomohiro OKADERA,
Senior Researcher, Center for Regional
Environmental Research (CRER),
NIES

Dr. Tomohiro Okadera is a senior researcher of Center for Regional Environmental Research, National Institute for Environmental Studies (NIES). He specializes in environmental engineering and economics, in particular having a considerable interest in interrelationship between human activities and water ecosystems in a regional scale. He has developed the method of water inventories of the Yangtze River and Tokyo-bay area by using the input-output analysis models, water footprint analysis of energy production in both China and Thailand, and valuation of water ecosystems in Japan. Recently he attempts to apply water-energy nexus approaches to the study on implementation and adaptation of innovative energy-environmental technology systems for Asia-Pacific regions.

Major Participants of Chinese Side



Dr. Bojie FU,
Academician, Chinese Academy of
Sciences (CAS)

Dr. Bojie Fu is professor in geography and landscape ecology at the Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences. He is Member of Chinese Academy of Sciences, Fellow of the Academy of Sciences for Developing World (TWAS) and Corresponding Fellow of the Royal Society Edinburgh UK. Dr Fu is the President of Chinese Geographical Society, Vice President of International Association for Ecology (INTECOL), MEP member of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), Deputy Director of scientific committee of Chinese Ecosystem Research Network and Vice Chair of CNC- Future Earth. His research focuses on interactions between human beings and the environments. He published more than 400 scientific papers and 10 books, over 190 in international journals including Science. He is one of pioneers for the development of landscape ecology in China. His achievements made significant contributions to the understanding of interactions between landscape pattern and ecological processes, land use change and ecological effects, and ecosystem services assessment and management. His researches won the China National Natural Sciences Prize in 2005, National Sciences & Technology Advanced Prize in 2012, and Award of Distinguished Service of International Association for Landscape Ecology in 2011.



Dr. Jinshui WU,
Director, Institute of Subtropical
Agriculture (ISA), CAS

Dr. Jinshui Wu got his Ph. D in Soil Science from the Rothamsted Experimental Station, UK in 1990, and Diploma of the University of Reading UK in 1991. Before he returned to China, Dr. Wu once worked in the University of Newcastle upon Tyne as a Research Associate (1990-1995) and Senior Research Associate (1995-1998). After he returned to CAS, he worked in ISA, CAS as a professor since 2004 and the Director in Chief since 2013. Prof. Wu's research areas are soil biology and biochemistry, soil fertility, and resources and environment management, with the specialty in microbial transformations of organic C, N and P, and soil carbon sequestration on agricultural systems. In recent years, he has taken charge of one issue of National Science Fund for Distinguished Young Scholars, National Science Foundation of China (NSF), the Knowledge Innovation Program of CAS and National Key Basic Research Specific Foundation (973 program), respectively.



Dr. Kelin WANG,
Former Director, Institute of
Subtropical Agriculture (ISA), CAS

Prof. Kelin Wang served as the Former Director of ISA, CAS, an executive director of the Ecological Society of China and Chinese Ecological Economics Society, the chairman of Ecological Society and the vice-chairman of Natural Resources Institute of Hunan Province, the editor-in-chief of Research of Agricultural Modernization Periodical, and the members of the editorial board of Chinese Journal of Eco-agriculture and Resources and Environment in the Yangtze River Basin. He had published more than 100 articles, won the second prize of scientific and technological progress by Chinese Academy of Sciences in 2001 and the first prize of Hunan scientific and technological progress in 2008. Prof. Wang has engaged in the researches on regional ecology and patterns of agricultural development. On the study of environmental migration and ecological restoration in Guangxi Karst regions, Prof. Wang, leading his research group, established demonstration area on the environmental migration which has a greater impact in China.



Dr. Yonghui YANG,
Deputy Director, Center for
Agricultural Resources Research,
Institute of Genetics and
Developmental Biology (IGDB),
CAS

Dr. Yonghui YANG is vice director of Center for Agricultural Resources Research, Institute of Genetics and Developmental Biology of CAS. He served as the former head of CAS Key Laboratory of Agricultural Water Resources and deputy director of Research Center for Water Resource of CAS. He is selected as "Hundred Talent Young Professor" of CAS, and is ranked A at its recent assessment. He has been in charge of several research projects in national level including National 973, NSFC, and International Collaborative Projects, projects from CAS, and so on. His major researches include: regional agricultural water monitoring and modeling, prediction the influence of global change on irrigation, changes in water cycle affected by LUCC, modeling of agricultural and groundwater coupled systems, and water consumption physical process in arid oasis regions. He has published 60 papers in international journals, such as Journal of Geophysical Research, Journal of Hydrology, Water Resources Research, Hydrological Processes and Agricultural Water Management, and etc.



Dr. XIANG BAO
Professor, Chinese Research Academy of Environmental Research (CRAES)

Dr. XIANG BAO got his Ph.D in Institute of Remote Sensing Applications, CAS, and once worked in NIES as post-doctoral for two years. After back to China, he worked in Institute of Ecology and State Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environmental Research (CRAES) as a professor since 2008. Prof. Xiang's research areas are agricultural non-point source pollution management, resources and environment management, and the impacts on rural environment. In recent 5 years, he has taken charge several national projects, such as "Plan Project of Science and Technology Support of China", "Major Science and Technology Program for Water Pollution Control and Treatment", and "National Key Research and Development Plan".



Dr. Yizhang ZHANG
Professor, Chinese Research Academy of Environmental Research (CRAES)

Dr. Yizhang ZHANG got his Ph.D in Environment sciences from Chiba University, Japan, and once worked in NIES as research assistant for one year. After back to China, he worked in Institute of Water Environment and State Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environmental Research (CRAES). Dr. ZHANG has been working on studying on regional hydrologic processes and environmental behavior of organic pollutants. He has been leading several projects from Natural Science Foundation of China, such as "Effects of inter-basin water transfer on water circulation and nitrogen cycle in receiving water region, eastern route of China's SNWDP : a case study in Nansihu Lake" and "Behavior, fate and modeling Evaluation of selected endocrine disrupting chemicals in surface, ground and soil water continuum of watershed scale".



Dr. Lanxin LIU
Deputy director, Liaoning academy of environmental science (LAES)

Dr. Lanxin LIU got her Ph. D in Dalian University of Technology in 1990, major in environmental engineering. She once worked in Liaoning Publicity and Education Center for Environmental Protection since 2012, and from 2015, moved to Liaoning Academy of Environmental Science (LAES) as a Deputy Director in duty of the water environment and atmosphere environment research. She was also the Project Director of a 12th five-year National Key Water Project "Major Pollutants Control and Management Demonstration System Construction for the Liaohe River Discharge". Dr. Liu also took part in several national and provincial research projects, among them, the research of "Water Quality Management & Technology Demonstration in Liaohe River Basin" won the 3rd prize of provincial science and technology progress in 2015.



Dr. Tong WANG
Director of Environment Research Institute, LAES

Dr. Tong WANG got her Ph.D in Liaoning University in 1996. She worked in Water Environment Research Institute, LAES since 2004, conducting the research on the river basin water environment management and planning. She was once in charge of the 11th five-year National Key Water Project for water pollution control in Liaohe River Basin. Her research project "Water Quality Management and the Optimization of Industrial Structure in Liaohe River Basin" won the Liaoning Province Sciences & Technology Advanced Prize in 2011. She was also in charge of a China-EU Joint Environmental Sustainable Project: "Demonstration of Pollution Discharge Management for Water Quality Improvement in the Songhuajiang-Liaohe River Basin".

日本側の主要メンバー

住 明正	国立研究開発法人 国立環境研究所／理事長 中央環境審議会 地球環境部会／委員 東京大学 サステナビリティ学連携研究機構／教授 文部科学省／技術参与 宇宙航空研究開発機構／技術参与 科学技術振興機構／外部評価委員
原澤 英夫	国立研究開発法人 国立環境研究所／理事 中央環境審議会 地球環境部会／委員
谷口 真人	総合地球環境学研究所／副所長
春日 文子	国立環境研究所／特任フェロー Future Earth 国際事務局日本ハブ／事務局長
今井 章雄	国立環境研究所 地域環境研究センター／センター長 国際湖沼環境委員会／理事
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中山 忠暢	国立環境研究所 地球環境研究センター／主任研究員
福島 路生	国立環境研究所 生物・生態系環境研究センター／主任研究員
岡寺 智大	国立環境研究所 地域環境研究センター／主任研究員
エリデニ	国立環境研究所 地域環境研究センター／特別研究員

中国側の主要メンバー

傅 伯杰	中国科学院 生態環境研究センター／教授・院士 北京大学 都市・環境学院／院長 Future Earth 中国国家委員会／副主席 国家自然科学基金(NSF)委員会 地球科学部／主任 イギリス Royal Society of Edinburgh／外国人院士 第三世界科学院／院士 国際生態学会(INTECOL)／副会長
呉 金水	中国科学院 亜熱帯農業生態研究所／所長 中国土壤学会／副会長
王 克林	中国科学院 亜熱帯農業生態研究所／教授 中国生態学会／副会長 中国生態経済学会／常務理事 中国国家自然科学基金(NSF) 地球科学部／評議員
楊 永輝	中国科学院 遺伝・発育生物学研究所 農業資源研究センター / 副主任 中国科学院 水資源研究センター／副主任
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常 春芝	中国辽宁省环境科学研究院 水環境研究所／教授