WASWAC

HOT NEWS

ISSUE 03, 2023

HOT NEWS

ISSUE 03

WASWAC

CONTENTS

Editor: Pengfei DU

Assistant Editors: Li LI, Donghao HUANG, Xiaofei NIE, Silian PAN

First Announcement of The 9th International Symposium on Gully Erosion

1. Introduction

Gully erosion has been recognized as an important environmental threat throughout the world affecting several soil and land functions. There is ample physical evidence of intense gully erosion occurring at various times in the past in different parts of the world. Gullies are one of the few sources of morphological evidence in the landscape of past phases of erosion reflecting the impact of environmental change (e.g., land use, extreme climatic events).

Gully erosion represents a major sediment source although gully channels often occupy less than 5% of a catchment. The development of gullies increases runoff and sediment connectivity in the landscape, hence increasing the risk of flooding and reservoir sedimentation. Assessing the interactions between environmental change (e.g., land use, climate) and land degradation remains a key issue for environmental scientists, land managers and policy makers. Over the last decades, significant progress has been made in understanding gully morphological development, controlling factors and erosion impact. However, many research questions relating to gully erosion mechanisms, consequences of gully erosion including impact of human interactions, and conservation control measures remain unclear and represent major challenges for the scientific community. Since 2000 the International Symposium on Gully Erosion (ISGE) series has become established as the key research conference on the topic. This 9th ISGE follows earlier events that are listed below:

No.	Date	Location	Publication
1	2000	Leuven, Belgium	2003, Catena 50(2–4): 87–562
2	2002	Chengdu, China	2005, Catena 63(2):129-328
3	2004	Oxford, USA	2005, International Journal of Sediment Research 20(3,4): 157–365
4	2007	Pamplona, Spain	2009, Earth Surface Processes and Landforms 34(14): 1839–1984
5	2010	Lublin, Poland	2011, Landform Analysis 17: 3–235
6	2013	Iasi, Romania	2015, Natural Hazards 79(S1): 1–315
7	2016	West Lafayette, USA	2019, Earth Surface Processes and Landforms, Special Issue on Gully Erosion: Intergrating Monitoring, Modelling and Management
8	2019	Townsville, Australia	2023, Earth Surface Processes and Landforms, Special Issue on the 8th International Symposium on Gully Erosion

*Modified from Bennett and Wells (2019) Earth Surface Processes and Landforms 44, 46-53.

During the last International Symposium on Gully Erosion held in July 2019 at Townsville, Australia, several contemporary challenges were identified and are highlighted below:

- ◇ What are the appropriate measuring and experimental techniques to monitor the initiation and development of gullies at various temporal and spatial scales?
- ◇ What are the topographic thresholds for gully head development and channel infilling?
- ◇ Modelling the incision, development and infilling of gullies, and validation of the models in different environments.
- ◇ Prediction of gully erosion rates.
- ◇ The practical application of research findings informing land management, such as identifying effective and efficient gully prevention and gully control measures and associated policies.
- ◇ The need for more detailed studies of historical gullies, and the environmental and socio-economic conditions leading to their development, and their consequences.

The 9th International Symposium on Gully Erosion (9th ISGE) will be held **in November 2023 in Chengdu, China** and continue to conduct in-depth discussion on the latest advances of the above issues on gully erosion. The symposium could also be anticipated to greatly promote the good communications and potential academic collaborations with more than 280 national and international researchers and scholars from all over the world.

2. Objectives

This symposium seeks to bring together leading and emerging expert scientists and practitioners actively engaged in gully-erosion research in a wide range of environments and from diverse perspectives. While major themes have been selected based on key phenomena and the various methods adopted, the contributors will be asked to highlight new and innovative approaches to monitor and measure gully erosion processes, to discuss the important geomorphic, pedologic and hydrologic processes affecting gully development and evolution, to present new theory and models to predict soil losses and landscape processes, and to critically assess land-management practices and anthropogenic activities and their broader implications under intense global changes and human activities.

3. Themes

- ◇ Innovative field and laboratory techniques and approaches to gully erosion research.
- ◇ Gully development characteristics, controlling factors and erosion impacts.
- ◇ Gully erosion processes and mechanisms.
- ◇ Gully erosion modelling and prediction.
- ◇ Gully erosion and landscape evolution due to anthropogenic and climatic forcing.
- ◇ Gully erosion control, land management and their social-economic impacts.

4. Program

Friday 3 November 2023

Arrival of participants (registration and reception)

Saturday 4 November 2023

Opening ceremony

Oral and poster presentations

Gala dinner

Sunday 5 November 2023

Oral and poster presentations

Monday 6 November 2023

Mid-conference field trip: Visiting Gully Erosion Sites in Wenchuan Earthquake-hit Area and famous Dujiangyan Irrigation System

Tuesday 7 November 2023

Oral and poster presentations

Closing ceremony

Post-conference field trip (self-funded and optional)

- ◇ Route 1: Visiting Gully Erosion Sites in Yuanmou Dry-hot Valleys and Qionghai Lake in Xichang City (Three days trip)
- ◇ Route 2: Visiting the world-famous scenic spot Jiuzhaigou National Park (Three days trip)
- ◇ Route 3: Visiting the world heritage sites Leshan Giant Buddha and Mt. Emei (Two days trip)

5. Organizers

Organizer: Institute of Mountain Hazards & Environment, Chinese Academy of Sciences

Co-organizers: To be updated

6. Scientific Committee

Scott Wilkinson (CSIRO Land and Water,)

Robert Wells (United States Department of Agriculture)

Anita Bernatek-Jakiel (Jagiellonian University)

Matthias Vanmaercke (KU Leuven)

Javier Casalí (Public University of Navarre)

Sean Bennett (University at Buffalo)

Valentin Golosov (Laboratory for Soil Erosion and Fluvial Processes)

Wojciech Zglobicki (Maria Curie-Skłodowska University)

FU Bojie (Research Center for Eco-Environmental Sciences, CAS)

CUI Peng (Institute of Mountain Hazards & Environment, CAS)

LI Rui (Institute of Soil and Water Conservation, CAS)

CAI Qiangguo (Institute of Geographic Sciences and Natural Resources, CAS)

ZHANG Xinbao (Institute of Mountain Hazards and Environment, CAS)

LIU Baoyuan (Beijing Normal University)

ZHENG Fenli (Northwest Agriculture and Forest University)

YU Xinxiao (Beijing Forestry University)

LI Zhanbin (Xi'an University of Technology)

HUANG Yanhe (Fujian Agriculture and Forestry University)

CAI Chongfa (Huazhong Agricultural University)

ZHANG Guanghui (Beijing Normal University)

NING Duihu (International Research and Training Center on Erosion and Sedimentation)

ZHANG Xingyi (Northeast Institute of Geography and Agroecology, CAS)

WANG Wenlong (Northwest Agriculture and Forest University)

DUAN Xingwu (Yunnan University)

7. Organizing Committee

◇ WEN Anbang, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Chengdu 610299, China, wabang@imde.ac.cn

◇ GE Yonggang, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Chengdu 610299, China, gyg@imde.ac.cn

◇ XIONG Donghong (Chair), Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Chengdu 610299, China, dhxiong@imde.ac.cn
◇ SU Zheng'an, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Chengdu 610299, China, suzhengan@imde.ac.cn
◇ ZHANG Yan, Beijing Forestry University, Beijing 100083, China, zhangyan9@bjfu.edu.cn
◇ XU Xiangzhou, Dalian University of Technology, Dalian 116024, China, xzxu@dlut.edu.cn
◇ FAN Haoming, Shenyang Agricultural University, Shenyang 110866, China, fanhaoming@syau.edu.cn
◇ SHI Liangtao, Institute of Tropical Eco-agriculture, Yunnan Academy of Agricultural Sciences, Yuanmou 651300, China, 282547489@qq.com
◇ ZHANG Bin, China West Normal University, Nanchong 637009, China, envgeo@163.com
◇ DONG Yifan, Institute of International Rivers and Eco-security, Yunnan University, Kunming 650091, China, tommydong@163.com

8. Important Dates

First Announcement released on 20th, April 2023

Registration and abstract submission available till 20th, June 2023

Notification of acceptance of abstracts before 20th, July 2023

Second Announcement released on 24th, July 2023

Third Announcement released on 16th, October 2023

Arrival of participants (registration & reception) on 3rd, November 2023

9. Abstract submission

Persons who wish to present a paper or poster at the symposium are asked to submit a concise abstract focusing on one of the symposium topics using web page (*https://gullyerosion2023.casconf.cn/)* or by e-mail (gullyerosion2023@imde.ac.cn). The abstract should not exceed one A4 page and should be accompanied by 3-5 keywords. All abstracts should be produced in Word, using TNR 12 font, single spacing and 2.5 cm margins, following the template provided later in webpage.

The abstract should provide the screening committee with sufficient information on the content of the proposed paper. Introductory and general information should not be included. If accepted by the Scientific Committee, the abstracts will be reproduced in the Book of Abstracts.

Given the number of papers anticipated and the need to provide ample time for discussion, the number of papers that can be accepted for oral presentation will be limited. Authors who would prefer to present their papers in a poster session are requested to indicate this preference on the form provided later. Authors will be informed by 20th July 2023 whether their papers have been accepted for oral or poster presentation.

The size of the poster should not exceed 1.5 m (vertical) length and 1.0 m (horizontal) width. A participant can submit a maximum of two abstracts as the lead or presenting author.

10. Registration Fee

All persons wishing to participate in the 9th International Symposium on Gully Erosion - 2023 are requested to register online in advance using "https://gullyerosion2023.casconf.cn/" web page (Under Construction). In addition, they must complete a Participation Form provided later and forward this with copies of payment documents by e-mail to gullyerosion2023@imde.ac.cn.

The registration fee includes:

Access to conference, exhibition and poster sessions

Lunch, refreshment breaks and gala dinner as scheduled in the conference program

Book of abstracts

Mid-conference field trip during the symposium

It does not cover the fee for post-conference trip. Detailed payment method would be given later.

	Early Bird (Before 20th August, 2023)	**After 20th August, 2023**	**Onsite registration**
Regular participant	US$300 (¥2000)	US$350 (¥2200)	US$400 (¥2400)
Student	US$150 (¥1000)	US$200 (¥1200)	US$250 (¥1400)
Accompanying person*	US$120 (¥800)	Same as early bird	Same as early bird

* The accompanying person's fee only includes Lunch and Dinners during the conference.

The Local Organizing Committee will be pleased to provide pro forma letters of invitation to the symposium, to assist participants in applying for financial support to attend the meeting. These letters of invitation provide no financial commitment on the part of the Organizing Committee. The Local Organizing Committee will not be able to provide financial support to participants. Please register as soon as possible after receiving confirmation of acceptance of your abstract.

Accommodation is not included in the registration fee! Payment of the registration fee is requested to complete online system. Please indicate your name and add the words "Gully Erosion 2023" in the message box. Invoices will be issued either by the e-mail after receiving the payment confirmation or at the registration desk on site.

11. Accommodation

Detailed information on accommodation and other administrative details will be provided by both the second announcement and the symposium website in advance of the symposium.

12. Working Language

The working language of the symposium will be English.

13. Symposium Secretariat

If you have any queries regarding Symposium, please do not hesitate to contact one of these colleagues:

(1) Institute of Mountain Hazards & Environments, Chinese Academy of Sciences

◇ Dr. & Associate Prof. ZHANG Baojun

Tel: +86-185-8391-5835 (Cell Phone)

E-mail: bjzhang@imde.ac.cn

◇ HU Ying

Tel: +86- 135-5028-1984 (Cell Phone)

E-mail: huying@imde.ac.cn

◇ GAN Lu

Tel: +86-180-8472-4394 (Cell Phone)

E-mail: ganlu@imde.ac.cn

(2)China West Normal University,

◇ Dr. & Associate Prof. Yang Dan

Tel: +86-185-8338-9850 (Cell Phone)

E-mail: danyang_mh@cwnu.edu.cn

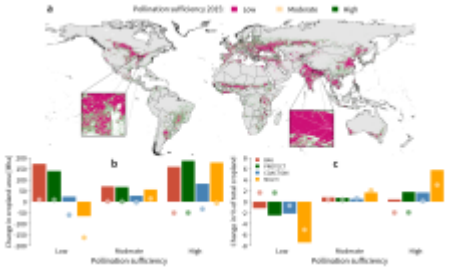
Academic exchange news report: A special session at EGU23 for the EU-Chinese collaborated project TUdi

By Weinan Sun

At European Geosciences Union (EGU) Conference 2023, a special session (SSS 9.12) was successfully moderated by the EU-China Cooperative Project (TUdi). This session was entitled "Challenges in cooperative research between EU-China on sustainable use of soil and water resources in agricultural systems". About 30 scientists from China, Spain, Czech and Hungary particitated. The presentations were mainly focused on soil degradation assessment, soil erosion process, optimal utilization of soil and water resources, and so on. Overall, TUdi's project partners made a strong showing at EGU 2023, demonstrating their commitment to advancing sustainable soil and water resource management in agriculture through innovative research and collaboration.

Project TUdi is one of the Horizon 2020 project (EU) that aims to develop, upscale and popularize soil healing strategies in three major agricultural systems and farm typologies across Europe, China and New Zealand. It is co-funded by European Commission and Chinese Ministry of Science and Technology (MOST), TUdi relies on 15 research institutions and SMEs from all over the world, as well as a network of 42 cooperating organizations and 66 long-term experiments and monitoring farms in the participating countries. The project will facilitate and the exchanges between Chinese and European research teams in areas related to soil and water conservation, especially the comparison of strategies for optimal use of water-soil resources in different agricultural systems, environments and scales.

Projected Land Conservation Impacts on Global Soil Erosion and Pollination Sufficiency



Title: Projected Land Conservation Impacts on Global Soil Erosion and Pollination Sufficiency

Description: We combine the open-source land-system model MAgPIE (Model of Agricultural Production and its Impact on the Environment) with the Spatial Economic Allocation Landscape Simulator (SEALS) and the Global Soil Erosion Modelling (GloSEM) platform to assess how different land conservation measures focused on climate and biodiversity protection could drive changes in soil loss by water erosion, pollination and landscape heterogeneity.

MAgPIE utilizes a cost-optimization approach to simulate the dynamics of the global land system throughout the 21st century. It integrates a wide range of socio-economic and spatially explicit biophysical information from the LPJmL model, which includes data on yield patterns, water availability, and carbon stocks. This information is represented at a resolution of 0.5 degrees, which corresponds to approximately 55 km × 55 km at the equator. The SEALS model downscales the simulated land-cover changes derived from MAgPIE to a finer spatial resolution of 10 arc seconds (equivalent to approximately 300 m × 300 m at the equator). The downscaling is driven by adjacency relationships, physical suitability, and conversion eligibility.

Modelled scenarios: We compare a "business-as-usual" (BAU) scenario with three different land-system interventions aligned with the goals of the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework of the Convention on Biological Diversity (GBF).

- ◇ The BAU scenario represents the reference case, following the "middle-of-the-road" shared socioeconomic pathway for land use sector (SSP2). It considers moderate population and income growth, along with currently implemented land conservation policies.
- ◇ The PROTECT scenario focuses on area-based conservation action, aiming to protect 30% of the land surface in conservation priority areas (Biodiversity Hotspots and Intact Forest Landscapes) by 2030 in line with the GBF.

- The COACTION scenario combines ambitious action for carbon-focused land restoration in line with the Paris Agreement and area-based conservation action.
- In the MULTI scenario we add a quantitative target to conserve at least 20% of semi-natural habitat in agricultural landscapes to the previous interventions, in order to conserve biodiversity and to support crucial ecosystem functions in agroecosystems.

Main findings:

- Important synergies exist between carbon uptake on land and soil erosion by water. Land-based climate mitigation caused a 75% reduction of soil loss at the global scale as compared to a reference scenario without climate action.
- Despite clearly reducing soil loss in historical cropland landscapes, the results also show that the landscape policy intervention of the MULTI scenario could lead to slightly higher overall soil loss as compared to the COACTION scenario. This is the result of cropland relocation to areas with a higher susceptibility to water erosion due to the restrictions at the landscape scale.
- At the global scale, pollination supply and landscape heterogeneity were further decreased in the BAU and PROTECT scenario and did not improve in the COACTION scenario. However, the results also show that conserving at least 20% of permanent habitats would lead to more diverse landscapes with a higher supply of key nature's contributions to people (NCP) without additional net carbon losses, primary land conversion or reductions in agricultural productivity.

Pixel size: 300m.

Measurement Unit: t ha-1 yr-1 (for soil erosion) - Values in the range of 0 - 1 for Pollination sufficiency.

Projection: WGS_1984

Temporal coverage: 2015 and 2050 (future projections)

Data

Global Soil Erosion data

The data includes the spatially-explicit soil loss estimates for all scenarios (shown in Fig. 7 of the paper) and the R code used to process the input data.Changes in soil loss by water erosion are used as a measure for soil degradation and estimated based on the Global Soil Erosion Modelling (GloSEM) platform (Borrelli et al., 2017, 2020).

Spatial data on pollination sufficiency scores

Pollination sufficiency scores are calculated based on the extent of (semi-)natural habitat

within the foraging distance of cropland areas, following the approach by Chaplin-Kramer et al. (2019). The pollination sufficiency scores are derived from reclassified ESA CCI data (2015) and MAgPIE-SEALS land-use/land-cover projections (2050). Projected land-use patterns from MAgPIE are first downscaled to 10 arcseconds with the SEALS model. To estimate pollination sufficiency scores, cropland pixels are ranked by values between 0 and 1. 1 indicates >30% semi-natural habitat within 2 km around cropland, while values between 0 and 1 indicate a relative proportion from 0 to 30%. This threshold is based on empirical studies that have demonstrated the reliable prediction of pollination supply based on the area of (semi-)natural habitat surrounding cropland. The data is displayed in Fig.6 of the paper.

MAgPIE output

The data includes all modelled outputs (food demand, agricultural production, emissions etc.) from 1995 to 2100 for the BAU, PROTECT, COACTION and MULTI scenarios at the spatial cluster level (fulldata.gdx) and at the regional level (report.mif).The NetCDFs contain the disaggregated land-use projections until 2100, while the fulldata.gdx contains the actual model outputs at MAgPIE's native resolution (accessible via the GAMS software or e.g. via R).

References

von Jeetze, P. J., Weindl, I., Johnson, J. A., Borrelli, P., Panagos, P., Molina Bacca, E. J., Karstens, K., Humpenöder, F., Dietrich, J. P., Minoli, S., Müller, C., Lotze-Campen, H., & Popp, A. (2023). Projected landscape-scale repercussions of global action for climate and biodiversity protection. Nature Communications, 14, Article number: 2515. https://doi.org/10.1038/s41467-023-38043-1

Requested form:

https://esdac.jrc.ec.europa.eu/content/projected-land-conservation-impacts-global-soil-erosion-and-pollination-sufficiency#tabs-0-description=1

Slowly Vanishing – Over 50% of the World's Largest Lakes Are Losing Water

Looking northeast, the Imperial Valley and Salton Sea in southern California is photographed from the Earth-orbiting Gemini-5 spacecraft. Credit: NASA.

A revolutionary evaluation recently published in the journal Science reveals that over half of the world's biggest lakes are experiencing water depletion. The primary causes, predictably, are the effects of climate change and unsustainable water usage by humans.

However, Fangfang Yao, the principal author of the study and a CIRES visiting fellow who is currently a climate fellow at the University of Virginia, suggests the situation isn't all doom and gloom. The introduction of this novel method for monitoring lake water storage trends and their underlying causes allows scientists to offer valuable insights to water management professionals and local communities. This new knowledge can guide them in

effectively safeguarding crucial water resources and preserving vital regional ecosystems.

"This is the first comprehensive assessment of trends and drivers of global lake water storage variability based on an array of satellites and models," Yao said.

He was motivated to do the research by the environmental crises in some of Earth's largest water bodies, such as the drying of the Aral Sea between Kazakhstan and Uzbekistan.

So he and colleagues from the University of Colorado Boulder, Kansas State University, France, and Saudi Arabia created a technique to measure changes in water levels in nearly 2,000 of the world's biggest lakes and reservoirs, which represent 95 percent of the total lake water storage on Earth.

The team combined three decades of observations from an array of satellites with models to quantify and attribute trends in lake storage globally.

Globally, freshwater lakes and reservoirs store 87 percent of the planet's water, making them a valuable resource for both human and Earth ecosystems. Unlike rivers, lakes are not well monitored, yet they provide water for a large part of humanity – even more than rivers.

But despite their value, long-term trends and changes to water levels have been largely unknown – until now.

"We have pretty good information on iconic lakes like the Caspian Sea, Aral Sea, and Salton Sea, but if you want to say something on a global scale, you need reliable estimates of lake levels and volume," said Balaji Rajagopalan, a CIRES fellow, professor of engineering at CU Boulder, and co-author. "With this novel method …we are able to provide insights into global lake level changes with a broader perspective."

For the new paper, the team used 250,000 lake-area snapshots captured by satellites between 1992-2020 to survey the area of 1,972 of Earth's biggest lakes. They collected water levels from nine satellite altimeters and used long-term water levels to reduce any uncertainty. For lakes without a long-term level record, they used recent water measurements made by newer instruments on satellites. Combining recent level measurements with longer-term area measurements allowed scientists to reconstruct the volume of lakes dating back decades.

The results were staggering: 53 percent of lakes globally experienced a decline in water storage. The authors compare this loss with the magnitude of 17 Lake Meads, the largest reservoir in the United States.

To explain the trends in natural lakes, the team leveraged recent advancements in water

use and climate modeling. Climate change and human water consumption dominated the global net decline in natural lake volume and water losses in about 100 large lakes, Yao said. "And many of the human and climate change footprints on lake water losses were previously unknown, such as the desiccations of Lake Good-e-Zareh in Afghanistan and Lake Mar Chiquita in Argentina."

Lakes in both dry and wet areas of the world are losing volume. The losses in humid tropical lakes and Arctic lakes indicate more widespread drying trends than previously understood.

Yao and his colleagues also assessed storage trends in reservoirs. They found that nearly two-thirds of Earth's large reservoirs experienced significant water losses.

"Sedimentation dominated the global storage decline in existing reservoirs," said Ben Livneh, also a co-author, CIRES fellow, and associate professor of engineering at CU Boulder. In long-established reservoirs—those that filled before 1992—sedimentation was more important than droughts and heavy rainfall years.

While the majority of global lakes are shrinking, 24 percent saw significant increases in water storage. Growing lakes tend to be in underpopulated areas in the inner Tibetan Plateau and Northern Great Plains of North America and in areas with new reservoirs such as the Yangtze, Mekong, and Nile river basins.

The authors estimate roughly one-quarter of the world's population, 2 billion people, resides in the basin of a drying lake, indicating an urgent need to incorporate human consumption, climate change, and sedimentation impacts into sustainable water resources management.

And their research offers insight into possible solutions, Livneh said. "If human consumption is a large factor in lake water storage decline, then we can adapt and explore new policies to reduce large-scale declines."

This happened in one of the lakes the team studied, Lake Sevan in Armenia. Lake Sevan has seen an increase in water storage, in the last 20 years, which the authors linked to enforcement of conservation laws on water withdrawal since the early 2000s.

Reference: "Satellites reveal widespread decline in global lake water storage" by Fangfang Yao, Ben Livneh, Balaji Rajagopalan, Jida Wang, Jean-François Crétaux, Yoshihide Wada and Muriel Berge-Nguyen, 18 May 2023, Science.

https://scitechdaily.com/slowly-vanishing-over-50-of-the-worlds-largest-lakes-are-losing-water/

Researchers Comprehensively Diagnose Black Land in NE China

Black land in NE China

Chinese researchers have conducted a 10-day aerial integrated observation experiment to accurately monitor the quality and condition of black land in northeast China's Heilongjiang Province, according to Tuesday's China Science Daily.

In order to monitor the location, degree, and speed of black land degradation, the researchers carried out sky-ground monitoring on a farm covering 900 square kilometers.

They completed the ground survey of almost 200 quadrats by collecting the scanning images and designed six types of observation quadrats, including black soil, sandy soil, white slurry soil, and meadow soil.

During the observation experiment, black land topography, soil nutrients, soil temperature and humidity, crop properties, and cultivated land quality were diagnosed accurately, facilitated by 15 homemade satellites achieving more than 50 images, according to the report.

Totally 16 organizations, including both the Northeast Institute of Geography and Agroecology and the Aerospace Information Research Institute under the Chinese Academy of Sciences, participated in the observation.

https://english.news.cn/20230509/5253578c3143403caf5e1481e488d260/c.html

WASWAC Advisory Committee

Chi-hua Huang (USA)
Des E. Walling (UK)
Hans Hurni (Switzerland)
James Owino (Kenya)
Jean Poesen (Belgium)
Dingqiang Li (China)
Machito Mihara (Japan)
Rattan Lal (USA)
Rosa M. Poch (Spain)
Samir El-Swaify (USA)
Samran Sombatpanit (Thailand)
William Critchley (UK)
Winfried Blum (Austria)

WASWAC Council Members

Alfred Hartemink (USA)
Annie Melinda Paz-Alberto (Philippines)
Bořivoj Šarapatka (Czech)
Carmelo Dazzi (Italy)
Chinapatana Sukvibool (Thailand)
Clemencia Licona Manzur (Mexico)
Coen Ritsema (Netherlands)
Don Reicosky (USA)
Duihu Ning (China)
Fei Wang (China)
Fenli Zheng (China)
Franco Obando (Colombia)
Gustavo Merten (Brazil)
Ian Hannam (Australia)
Ildefonso Pla Sentís (Spain)
Ivan Blinkov (N. Macedonia)
Jorge A. Delgado (USA)
José Luis Rubio (Spain)
Julian Dumanski (Canada)
Kingshuk Roy (Japan)
Laura Bertha Reyes Sanchez (Mexico)
Mahmoud A. Abdelfattah (Egypt)
Mark Nearing (USA)
Mike Fullen (UK)
Miodrag Zlatic (Serbia)
Moshood Tijani (Nigeria)
Panos Panagos (Greece)
Peter Strauss (Austria)
Rachid Mrabet (Morocco)
Roberto Peiretti (Argentina)
Rui Li (China)
Sanjay Arora (India)
Sergey R. Chalov (Russia)
Sevilay Haciyakupoglu (Turkey)
Seyed Hamidreza Sadeghi (Iran)
Shabbir Shahid (Kuwait)
Suraj Bhan (India)
Surinder Singh Kukal (India)
Syaiful Anwar (Indonesia)
Ted Napier (USA)
Tingwu Lei (China)
Valentin Golosov (Russia)
Velibor Spalevic (Montenegro)
Wanwisa.Pansak (Thailand)
Wencong Zhang (China)
Xiaoying Liu (China)
Zachary Gichuru Mainuri (Kenya)

（Names are arranged in alphabetical order)

WASWAC

The Secretariat of WASWAC
No. 20 Chegongzhuang Road West
Beijing 100048 P.R.China
www.waswac.org.cn
Tel: +86 10 6878 6579
Fax: +86 10 6841 1174
Email: waswac@foxmail.com