

# HOT NEWS

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WASWAC

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Editor: Pengfei DU	

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

### **IRTECS Governing Board Meeting Successfully Held**

The Governing Board Meeting of the International Research and Training Center on Erosion and Sedimentation (IRTCES) was held on 27 July 2023. The meeting was conducted both in-person in Beijing and online. Mr. Tian Xuebin, the Vice Minister of the Ministry Water Resources of China (MWR) and the President of IRTCES Governing Board, was present at the meeting and gave a speech. Mr. Shahabaz Khan, Representative and Director of the UNESCO Multisectoral Regional Office for East Asia, Ms. Cui Ying, Deputy Secretary-General of the Chinese National Commission for UNESCO, Mr. Jin Hai, Director General of the Department of International Cooperation, Science and Technology of MWR, Mr. Shu Qingpeng, Director General of the Hydrology

Department of MWR, Mr. Zhang Xinyu, Director General of the Department of Soil and Water Conservation of MWR, Ms. Peng Jing, President of the China Institute of Water Resources and Hydropower Research (IWHR) and Director of IRTCES, Mr. Hu Chunhong, academician of Chinese Academy of Engineering(CAE) and professor of IWHR, Mr. Cui Peng, academician of Chinese Academy of Sciences (CAS) and researcher of the Institute of Mountain Hazards and Environment of CAS and MWR, Mr. Helmut Habersack, President of the World Association for Sedimentation and Erosion Research (WASER), Mr. Miodrag Zlatic, the former President of the World Association of Soil and Water Conservation (WSWAC), and other representatives



were present at the meeting.

Tian Xuebin has praised the achievements of IRTECS over the past 39 years since its establishment. He pointed out that as the first UNESCO category II centre in the world and the first international water-related centre in China, under the guidance and support of the Chinese government and UNESCO, IRTCES continues to develop and innovate. It has made significant contributions to promote the development of the sedimentation and soil and water conservation worldwide, assist in the construction of ecological civilization, and facilitate foreign exchanges and cooperation in water conservancy of China by carrying out rich and varied of international exchange activities, which have gained a good international reputation.

Tian Xuebin emphasized that sustainable development has become a shared objective among the global community. Water plays a crucial role in supporting this goal and has cross-cutting linkages. The problem of sedimentation and soil erosion is a universal challenge that is closely linked to various objectives of the UN's 2030 Agenda for Sustainable Development. It is also a critical component of the ninth phase of UNESCO IHP's strategy (2022-2029). IRTCES has a solid foundation and has made significant achievements. It should capitalize on new opportunities to further its contributions in promoting global sediment and soil conservation, implementing UNESCO's priority development programs, and achieving relevant goals of the UN's 2030 Agenda for Sustainable Development. To



achieve this, IRTCES should conscientiously implement the council-approved work plan and carry out various tasks. It should also leverage its technological advantages and serve as a bridge and link to promote international exchanges, focus on sustainable water development, and strengthen its global leading and driving role. Finally, it should prioritize self-construction and consolidate the foundation of its development.

During the meeting, the board members reviewed and approved several report, including the "IRTCES Activity Report (2020-2022) ", "IRTCES Financial Report (2020-2022)", "IRTCES Long-Term Plan (2023-2030)", and "IRTCES Work Plan (2023-2024)". They also made suggestions on IRTCES's future development, such as responding to UNESCO's strategy, analyzing scientific research hotspots, improving cooperation among UNESCO category II centres, and enhancing promotion and publicity efforts.

Peng Jing emphasized that IRTCES, as a member of the global network of UNESCO category II centres and a global academic group, should focus on strategic positioning, strengthen its own capacity building, and act as a bridge and link to promote international academic exchanges and cooperation. Furthermore, the center should actively participate in global governance, contribute to the waterrelated goals of UN's sustainable development agenda, and strive to become a model of cooperation between the Chinese Government and the United Nations.

(The IRTCES is the first UNESCO category II centre in the world, the secretariat of WASWAC is located in IRTCES.)



### Forum of Sustainable Erosion Control and Sediment Management in a Change Climate Held Successfully

On July 27, 2023, with the Governing Board Meeting of International Research and Training Center on Erosion and Sedimentation (IRTCES), four distinguished scientists were invited to give lectures on "sustainable erosion control and sediment management in a change climate": Prof. Helmut Habersack, the President of the World Association for Sedimentation and Erosion Research (WASER) and Professor at the University of Natural Resources and Life Sciences in Vienna; Prof. Cui

Peng, Academician of the Chinese Academy of Sciences (CAS) and Researcher at the Institute of Mountain Hazards and Environment of the CAS and the Ministry of Water Resources of China; Prof. Shahbaz Khan, Representative of UNESCO in China and Director of the Multisectoral Regional Office for East Asia; Prof. Miodrag Zlatic, the former President of World Association of Soil and Water Conservation (WASWAC) and Professor at the University of Belgrade, Serbia.



Prof. Helmut Habersack gave a presentation on the World's large river initiative. He provided an overview of the initiative's background, five major activities, and how it integrates with the International Plan of Action. Using the Danube, Niger and Mekong rivers as examples, he shared research findings on hydrology, sediment transport and morphology, ecology and water quality, and explained their socio-economic impacts.



Academician Cui Peng gave a presentation on Flash flood and debris flow early warning and risk forecasting. He introduced the great hazards of flash floods and debris flow disasters and analyzed their process and mechanism. He also shared practical examples of the data support, parameter setting, algorithm efficiency, multi-scale forecasting and warning systems used for early warning and risk forecasting.

Prof. Shahbaz Khan presented with the topic of "Open science and open data for a water secure world". He outlined the water-related objectives of the United Nations 2030 Agenda for Sustainable Development, as well as the priority areas of the ninth phase of the UNESCO Intergovernmental Hydrological Programme. Prof. Shahbaz Khan analyzed the gaps in the fields of science, technology, knowledge and data. He also elaborated the new technologies including artificial intelligence. He emphasized the importance and implementation of open science and open data.



Prof. Miodrag Zlatic gave a presentation on the Importance of disaster risk reduction and sustainable land management on the survival of soil and water resources. He introduced the significance of soil and water resources and provided insight into how disaster risk can be reduced and sustainable land management can be developed based on successful experiences of organization such as UNESCO, FAO, Global Environment Fund (GEF) and Swedish International Development Cooperation Agency (SIDA).

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This meeting was hosted by the IRTCES, and more than 50 researchers, postgraduates and international students in related fields attended the meeting. In-depth discussions between the presenters and participants were developed on the issues of soil and water resources management, early warning and prediction of water hazards, etc.



### 5th International Conference on Sustainable Natural Resource Management Under Global Climate Change



November 7-10, 2023, at NASC Complex, New Delhi, India

Organized by

### SOIL CONSERVATION SOCIETY OF INDIA, NEW DELHI

In collaboration with









### Themes

Theme 1: Natural Resource Management towards achieving Sustainable Development Goals

Theme 2: Scientific tools for land resource inventory, hydrologic assessment and decision sup-

port systems for effective management of natural resources

Theme 3: Vulnerability, resilience and mitigation of climate change impact on water resources systems

Theme 4: Sustainable management of Groundwater

Theme 5: Planning of efficient Soil and Water management

Theme 6: Hydrology and digital application for management of Watersheds

Theme 7: Ecosystem and their valuation including Biodiversity conservation and management

### **Important Dates**

Last date of abstract submission	:	31 August 2023
Intimation of acceptance of abstracts	:	15 September 2023
Submission of full length papers	:	30 September 2023
Last date for registration (without late fees)	:	31 October 2023

### **Organizing Committee**

- Chairman: Dr Suraj Bhan, President, SCSI, New Delhi
- Co-Chairs: Prof. Ildefanso Pla Sentis, Coordinator, ISCO, Spain Prof. Edardo Costantini, President IUSS, Italy

Prof Ning Duihu, President, WASWAC, Beijing, China

#### Details at: http://scsi.org.in

http://www.waswac.org.cn/waswac/rootfiles/2023/06/11/1687907418034624-1687907567633975.pdf

### **5 International No-Till Legends Honored**

Roberto Peiretti, our association's vice-president received the No-Till Legends honored. In addition, Prof. Amir Kassam, the winner of WASWAC Distinguished Extensionist Award in 2019 also received this honor. Congratulations!

By Frank Lessiter

## These global growers & educators have played a key role in growing no-till to more than 510 million acres around the world

Back in 2017, we recognized 43 North American farmer and educators as No-Till Legends. In addition, 11 international honorees from seven countries outside of North America were also recognized as No-Till Legends. Since that time, we've been asked numerous times why we haven't added to the list of international farmers and educators who are well deserving of this recognition.

As a result, we're introducing a program to honor the accomplishments of additional international farmers and educators. To kick off the program, we're honoring five global educators and growers who are featured in this article. Our goal is to honor three internationally known farmers and educators in the no-till and conservation agriculture (CA) movements to this honor roll each year.

Earlier this year, several international conservation ag colleagues assembled a comprehensive list of worldwide no-till pioneers and champions exclusively for No-Till Farmer. This list includes 52 individuals who have made significant contribution to developing, promoting and spreading the word about the many benefits of no-tillage and CA internationally.

This year's five honorees were selected by a panel of judges from that list. To view this list, go to: *https://www.no-tillfarmer.com/international* 

If you would like to nominate other well-deserving international farmers or educators for future No-Till Legend awards, please write a 1-2-page letter that outlines their accomplishments and email it to me at *lessitef@lessitermedia.com* **before May 30, 2024**.

### International No-Till Farming Pioneers Roberto Peiretti, Argentina



A fourth-generation farmer, Roberto Peiretti no-tills corn, soybeans, wheat, barley, oats, sorghum and sunflowers on 20,000 acres in Argentina with up to 35% of the acreage double-cropped each year.

Trained as an agronomist, Peiretti has worked internationally and continues to advise, design and monitor the implementation of CA and no-till on 25,000 acres in other areas of Argentina and Uruguay.

As a speaker at the 2020 National No-Tillage Conference in St. Louis, Peiretti shared the main principles of his systemic approach to no-tilling honed over the past 40 years in Argentina. This included the benefits of integrating crop rotations, cover crops, carbon sequestration, fertilizer use and nutrient placement to create an efficient, high-powered notill system. He also offered valuable insights on measuring the nutrients and biomass that cover crops contribute to the soil profile, along with critical mistakes no-tillers should avoid when reducing fertilizer rates. Manoel Henrique Nonô Pereira, Brazil



Manoel Henrique Nonô Pereira was one of the three most remarkable and passionate notillage pioneers in Brazil, along with Herbert Bartz and Frank Dijkstra, two No-Till Legends honored in 2017 during the 25th anniversary of the National No-Tillage Conference (see sidebar).

In 1976, Nonô Pereira helped establish 50 acres of no-tilled soybeans at a demonstration farm in Brazil. Based on the success of that experience, he never stopped no-tilling.

Among the CA pioneers not only in Brazil and South America, this now deceased farmer helped spread the word around the world about the many benefits of no-till. He organized hundreds of lectures and field visits that showed why no-till provides a solid basis for achieving sustainable agriculture.

Although the knowledge, dissemination and acceptance of no-tillage had help from countless people and institutions in different places and times, Nonô Pereira played a key role in

its worldwide adoption. He was always willing to share his on-farm experiences with farmers, researchers and technical assistants in numerous countries. Endless efforts undertaken by Nonô Pereira and his fellow farmer companions contributed decisively to spreading the benefits of CA (often known as "no-till into the straw") throughout South America.

As a founder and four-time president of the first major no-till group in Brazil, he also served as the president of the American Confederation of Sustainable Agriculture Farmers' Associations.

Throughout his farming career, he was recognized internationally while serving as a missionary for no-till and good soil management practices. An extraordinary no-tillage museum on the family's farm is maintained by his son, Manoel Henrique Pereira Jr.

*International No-Till Educators* **Theodor Friedrich, Bolivia** 



An agricultural engineer working in international agricultural development for more than 3 decades in more than 75 countries, Theodor Friedrich's first experience with no-till equipment came with cotton in Nicaragua in the early 1990s.

Since the mid-1990s, he has been involved in the creation and promotion of no-till and CA throughout the world from Bolivia, where reduced tillage is helping curb erosion in dryland areas where soil losses have reached as high as 220 tons per acre each year.

Now retired, Friedrich served as a senior officer of the Food and Agriculture Organization (FAO), was a founding member of the group's CA working group, and represented the United Nations in Cuba and Bolivia with agricultural assignments. He also developed the CA global email list in 2009.

Amir Kassam, United Kingdom



Born in Tanzania, Amir Kassam received his bachelor's degree in agriculture and a doctorate in agroecology from the University of Reading in England and a master's degree in irrigation from the University of California-Davis.

He is an internationally recognized scientist who has held leadership positions with several national and international agricultural development and research institutions around the world. The author of numerous publications and books on sustainable agriculture, he has published extensively on the merits of conservation agriculture.

Kassam serves as the moderator of the Global Platform for the No-Till Conservation Agriculture Community of Practice, which is hosted by the United Nations FAO group.

### Gottlieb Basch, Portugal



spent four decades researching how environmental, agronomic, soil health, biodiversity, carbon sequestration, greenhouse gas emissions reduction and economic situations in CA systems compare with conventional tillage systems.

Since 1991, Basch has been a member of the Institute of Mediterranean Agricultural and Environmental Sciences at the University of Évora in Portugal working on soil conservation and soil carbon dynamics. He is the author or co-author of more than 40 research papers in international journals and several book chapters.

He has served as a board member of the Portuguese Association for Conservation Tillage, president of the European Conservation Agriculture Federation and a member of the International Conservation Agriculture Advisory Panel for Africa. He also has been involved with several international reduced tillage projects in the European Union and Africa.

Gottlieb Basch holds a doctorate degree in agricultural sciences from Georg-August-University in Göttingen, Germany. In 1984, his thesis compared the use of no-till and diversified crop rotations with the conventional tillage systems used in the south of Portugal. Based on the promising results, Basch has Appropriate Targets for Soil Erosion Control at the National Scale Determined in China

An article published in River authored by Wenhong Cao, Wei Qin and Dandan Wang illustrated well about the soil erosion control targets at the national scale of China.

Soil erosion in China is particularly stern and the country has tackled this challenge unremittingly for over 70 years. The outcome speaks for itself: the national soil erosion area (with soil erosion modulus exceeding soil loss tolerance of corresponding region, e.g., 1000 t/km<sup>2</sup> a in the Northwest Loess Plateau, 500 t/km<sup>2</sup> a in the Southern Red Soil Area, and 200 t/km<sup>2</sup> a in the Northeast Black Soil Area) has dropped from 3,670,300 km<sup>2</sup> in the mid-tolate 1980s to 2,949,100 km<sup>2</sup> in 2011 and further to 2,674,200 km<sup>2</sup> in 2021, registering an accumulative reduction of over 1/4; and the proportion of soil erosion area at "moderate and above" level (with soil erosion modulus exceeding 2500 t/km<sup>2</sup>·a) has decreased from 49.32% to 35.58%, meaning both erosion area and the intensity have declined .

The Chinese government has attached great importance to ecological improvement amid its rapid economic and social development throughout the years. Both the understanding of this issue and the investment for it are growing. In 2017, China called for

"fundamentally improving the ecological environment and largely achieving the goal of a beautiful China by 2035; and comprehensively advancing ecological progress by 2050"; and the ecological civilization and the ecological civilization concept of "pursuing green development and promoting harmony between humanity and nature" was again highlighted in 2022. As a fundamental measure for the ecological protection and restoration of rivers and lakes systems, soil erosion and water loss control is taken as an important element of pursuing ecological progress and has become a fundamental state policy to be upheld in the long run. Therefore, to what extent is soil erosion control considered adequate to meet China's goal of achieving ecological progress and the vision of a beautiful China by 2035 and 2050 is a question that warrants speedy response.

Soil erosion is a surficial process that works under the action of natural forces such as water, wind, gravity, and freeze-thaw, as well as human activities. The erosion area and intensity are dynamically changing within a certain area and a period of time. It is neither a static stock that can only be reduced through control, nor is it possible or appropriate to eliminate it completely. There must be a "ceiling"

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for scientific control and an "appropriate degree" determined by comprehensive judgment.

Therefore, to scientifically define soil erosion control targets nationwide and by regions, in 2020, the Ministry of Water Resources of China (MWR) came up with its first ever indicator of "soil and water conservation rate," which is used to proactively and comprehensively characterize the regional soil and water conservation status. The threshold is defined as the appropriate degree of soil erosion control determined in accordance with the laws of nature and deemed necessary to meet the requirements of economic and social development. The indicator of "soil and water conservation rate" has been listed as one of the 22 indicators for the assessment of building a Beautiful. During the period 2020-2022, MWR commissioned 10 research institutions, including the China Institute of Water Resources and Hydropower Research, to conduct a study on soil and water conservation rate thresholds nationwide and by types of areas. Based on the eight national primary subdivisions of oil and water conservation, namely the Northeast Black Soil Area, the Northern Sandy Area, the Northern Rocky Mountain Area, the Northwest Loess Plateau Area, the Southern Red Soil Area, the Southwest Purple Soil Area, the Southwest Karst Area, and the Qinghai - Tibet Plateau Area, a comprehensive analysis of the natural geographic conditions, economic and social development levels and trends of each area were conducted, and the principles of anticipating long-term soil erosion control situation were. The 30m resolution grid was used as the spatial unit. Based on the superposition analysis of geospatial data such as soil erosion classification and grading, land use, elevation, topography, and vegetation cover, existing soil erosion areas were analyzed piece by piece as to which of them do not need to be controlled while others should be, and which can be fully controlled (i.e., the postcontrol soil erosion intensity can be reduced to below "mild" level, making them no longer counted as soil erosion area) and which cannot be fully controlled (i.e., the postcontrol soil erosion intensity can be reduced but remains at "mild or above" level, making them still counted as soil erosion area). Finally, the long-term soil erosion area thresholds nationwide and by types of areas were determined.

The results of the study show that of the existing soil erosion areas in China in 2021, about 1.23 million km<sup>2</sup> either do not require control or are not inappropriate to control due to a combination of natural and social factors.

These are mainly wind erosion area in the desert, the Gobi and the moving sandy hinterland in the northwest, and hydraulic erosion in the alpine and high altitude sparsely populated areas such as the Qinghai-Tibet Plateau and the Hengduan Mountains; the remaining 1.44 million km<sup>2</sup> requires site—appropriate comprehensive and targeted control. The comprehensive analysis and weighing of soil erosion laws, physical and geographical conditions, as well as technical and economic factors in the long term (after 2050) indicate that the soil erosion intensity of about 520,000 km<sup>2</sup> of postcontrol area can be reduced to below "mild" level, which can count as non— erosion area according to the soil erosion classification standards;that of the remaining 920,000 km<sup>2</sup> can be reduced to varying



Distribution of existing soil erosion areas and classification of long - term soil erosion control in China

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degrees but remains at "mild or above" level, making them counted as erosion area in the long term. These are mainly wind erosion in the fixed sandy areas and the transition zone between oasis and desert in northwest China, hydraulic erosion on sloping arable land, garden land and steep-slope forest and grassland in the hilly areas of north, southeast, and southwest China, and the rolling hilly region of Northeast China, mixed hydraulic and gravity erosion on the gullies and steep slopes of the Loess Plateau, and phased anthropogenic soil erosion caused by necessary production and construction activities.

Based on these studies, it is calculated that the national soil erosion area should and can be reduced to 2.15 million km<sup>2</sup> in the long term, and the threshold of soil and water conservation rate (i.e., the proportion of the area under sound soil and water conservation conditions to the national land area) can reach 77.5%. For the first time, appropriate science-based targets for soil erosion control at national scale in the context of advancing ecological civilization and building a beautiful China are determined.

The Special Study took a further step to determine the respective soil and water conservation rate thresholds and erosion control targets for each province based on the provincial spatial distribution data and relevant statistics. To advance soil erosion control in a systemic manner and urge the local governments to act on the responsibilities for soil and water conservation, MWR adopted both top-down and bottom-up approaches: a simultaneous review of all provincial soil and water conservation rate thresholds was conducted, the soil and water conservation rate targets by 2025, 2030, and 2035 in each province were identified, and the national targets for soil erosion control in each stage for the next 15 years was determined.

As a navigating document for strengthening soil and water conservation work in China both for the present and the long run, the Opinions defines the appropriate targets for soil erosion control at the national level and provides leading objectives and guidelines in a scientific and orderly way. It is conducive to promoting high-quality development of soil and water conservation in the new era and offers a template of addressing the common challenge of soil erosion globally.

### For details: *https://doi.org/10.1002/rvr2.43*

### **Innovation Turns Desert Sands into Arable Land**

Were it not for the windblown grains of sand stinging his body, Wang Zhixiang might easily forget that he is farming in the Taklimakan Desert, the largest desert in China and one of the driest regions in the world.

The harsh conditions in the Taklimakan, which is deep within the Xinjiang Uygur autonomous region, make farming in the desert impractical, so locals have traditionally relied on food supplies from other provinces.

However, Wang and his colleagues from Chongqing Jiaotong University want to reverse this situation. Using an innovative technique called "desert soilization", they have turned barren desert sands into productive, farmable land at an affordable cost.

They have patented a process to mix a paste made of plant cellulose with sand and apply it to the desert surface, giving it the same properties as soil — with the same capacity to sustain water, air and fertilizer.

The paste was developed in 2013 by Yi Zhijia. Yi is a scientist specializing in the mechanics of particulate matter at the university in Chongqing, which is a mountainous city with extensive forest coverage, very different from the desert landscape.

In 2016 in the Ulan Buh Desert in Inner Mon-Source: China daily golia, a sandy plot twice the size of a football field was treated with the new method and thus transformed into fertile land, yielding rice, corn, watermelons and sunflowers.

The scientist found that the test plot required less water but bore higher yields than untreated plots of land.

Thereafter, the technology was tested in multiple locations using larger-scale planting experiments. The cost of applying the treatment was between 29,850 yuan and 44,776 yuan (\$4,189 to \$6,283) per hectare, which is within the budget of most growers, Yi said.

These successful trials enabled the team to win over skeptics and receive international accolades, including the Earthshot Prize 2022, an environmental prize founded by the United Kingdom's Prince William, for their efforts to protect and restore nature.

With countries around the world marking World Day to Combat Desertification and Drought on June 17, the desert soilization technology has come under the spotlight once again. Yi's story is a fine example of China's ongoing efforts to employ innovation to curb desert expansion and protect the global ecological environment.

### **Conservation of Arable Soils Through Targeted Erosion Management**



Provided by Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V.

On the high-resolution erosion maps of EROPSPOT, erosion-prone areas including river direction

Arable soils are a valuable resource for our food and biodiversity—and are at risk from drought, storms and heavy rainfall. To help farmers better protect their fields from erosion, the Leibniz Center for Agricultural Landscape Research (ZALF), in cooperation with the Bavarian State Research Center for Agriculture (LfL), has produced erosion maps that identify areas particularly at risk of erosion and thus help to target protective measures where they will have the greatest effect.

As with the recent heavy rains caused by Storm Lambert, farmers seem powerless in the face of increasingly severe weather events. Fields are flooded and fertile topsoil simply washed away. It is not just the harvest that is at risk: the eroded soil often ends up in watercourses. In the worst cases, this can lead to contamination or fish mortality due to lack of oxygen. What can farmers do to protect their harvests and at the same time better conserve biodiversity on land and in water?

After a year of research, the EROSPOT project is providing high-resolution erosion maps to help farmers and advisers plan and implement measures to reduce soil erosion and run -off into surface waters. The main aim is to locate erosion-prone areas in the field to within a meter, and implement the necessary erosion control measures. "EROSPOT uses the latest geo-information technology to produce a map that makes it easy to see where something urgently needs to be done about erosion," says Prof. Sonoko Bellingrath-Kimura, project leader at ZALF.

Possible measures include the creation of green strips, flower strips or "beetle banks" that cross the water's path and thus reduce erosion. The aim is to preserve the soil in the long term and improve the quality of surface water. By promoting biodiversity and ecosystems through digitization, the project fulfills a key objective of the DAKIS project, coordinated by ZALF, which helped fund EROSPOT.

The focus is on minimizing additional burden on farmers. "We know that everyone has to think economically. Every extra tractor ride costs time and money. That's why the measures should be as easily compatible as possible with normal field work," says Marvin Melzer, project coordinator and contact person for the data processing behind the tool. To achieve this, the project team's next step is to expand the data set to include lane analysis in conjunction with slope. This will make it easier to see, for example, where to change the direction of plowing to reduce erosion, or where to best integrate a green area into the field. Farmers can transfer the suggested measures to their GPScontrolled tractors and manage the land in a targeted way. In the future, they will also be able to see the success of the measure on the erosion map.

So far, erosion maps of individual areas are displayed in a 3D web application. Before the end of this year, the data set will be extended to the entire state of Bavaria. Data for individual areas are already available on request. In the long term, the data on erosion-prone farmland will be freely available throughout Germany.

"Climate change is a defining issue of our times, and we are at a critical juncture," said James George, deputy resident representative of the United Nations Development Programme in China, adding that a conference like this which brings new ideas and new thinking is critical.

For more details: https://phys.org/news/2023-07-arable-soils-erosion.html

### WASWAC Advisory Committee

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(Names are arranged in alphabetical order)



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