



Международное общество по маркшейдерскому делу
International Society for Mine Surveying | Internationale Gesellschaft für Markscheidewesen



Work Report for Commission V



ISM PRAESIDIUM MEETING 2024



PEARL VALLEY HOTEL, PAARL, SOUTH AFRICA



Mon 7 - Tue 8 OCTOBER 2024

Outlines

1 Basic information and structure

2 Introduction for new members

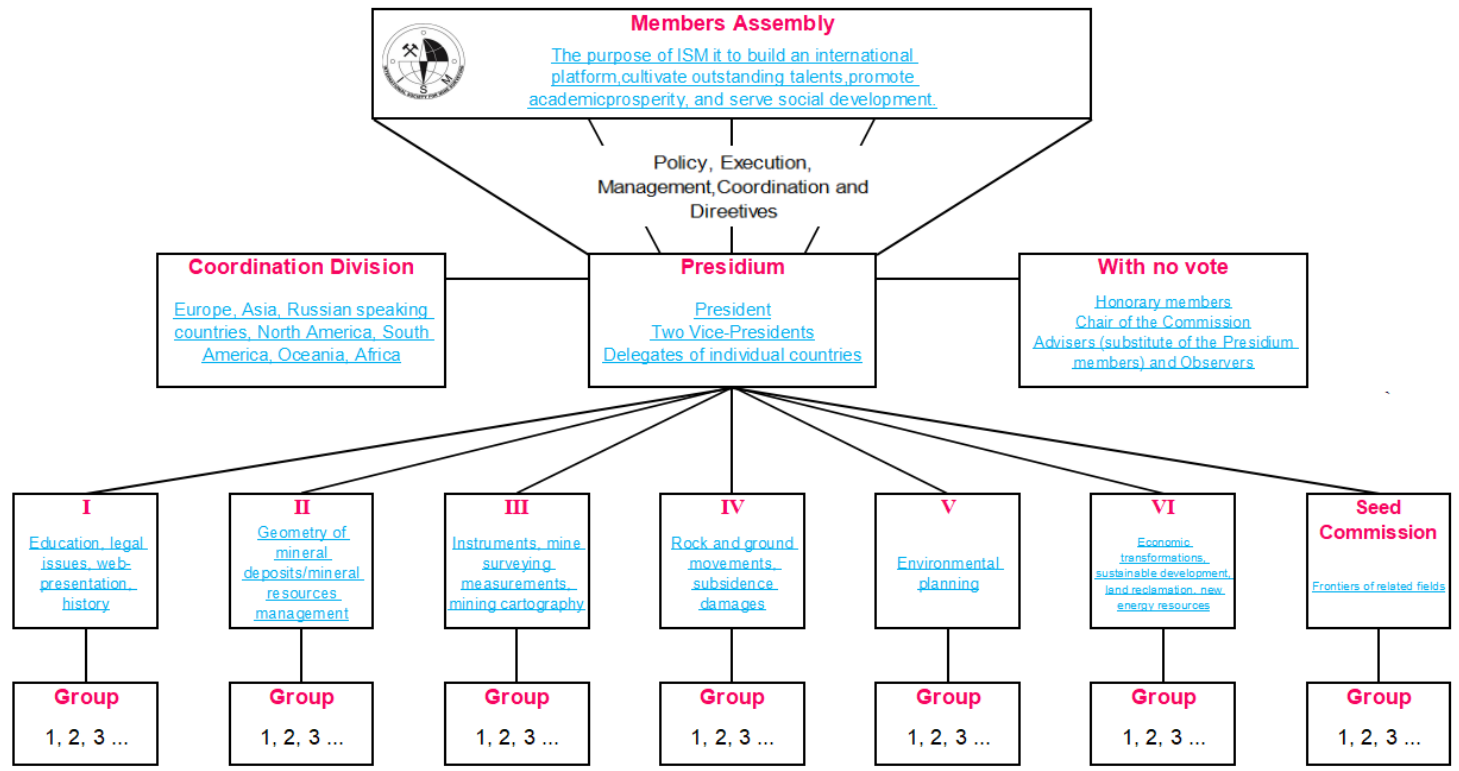
3 Activities in 2024

4 Future plans



1. Basic information and structure of Commission V

- The current name: Environmental and governance
- The proposed commission name: Environmental Planning, Monitoring and Restoration





1. Basic information and structure of Commission V

Chair



Prof. Simit Raval

University of New South Wales

**Co-Chair
(proposed)**



Prof. Jing Li

**China University of Mining and
Technology (Beijing)**

**Co-Chair
(proposed)**



Prof. Brenda Schladweiler

**BKS Environmental
Associates, Inc.**

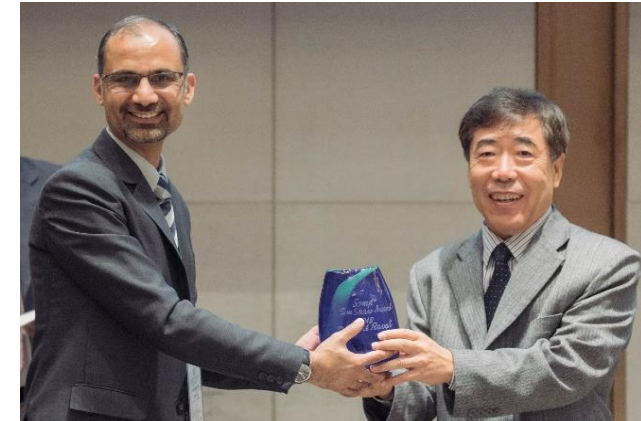
**Secretary
(proposed)**



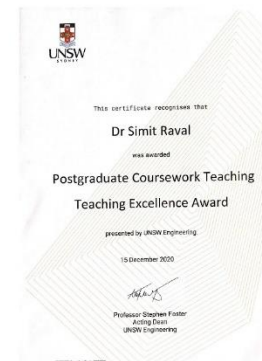
Dr. Yanhua Fu

Tianjin Chengjian University

- 1994 : Bachelor of Mining Engineering
- 1995 – 1998
 - Trainee Engineer | In charge Drilling and Blasting | Mine Planning Engineer | Officiating Mines Manager
- 1998 – 2008
 - Lecturer in Mining
 - Mine Environmental Consultant
 - ISO compliance auditor for mineral industry
- Since 2008 at UNSW
 - PhD candidate | Associate Lecturer | Lecturer | Senior Lecturer | Associate Professor



Tim Show Award for Teaching Innovation 2018



2020 UNSW Vice-Chancellor's Awards for Outstanding Contributions to Student Learning



Prof Jing Li

- **Head** of College of Geoscience and Surveying Engineering, China University of Mining and Technology-Beijing
- **Dean** of Engineering Research Center of Mining Environment and Ecological Safety, Ministry of Education



- **Research field:** Land reclamation and ecological restoration, Ecological monitoring by remote sensing, 3S application, sustainable development of resource city.
- She has won **Teaching Expert Award Among University of Beijing**, and other 9 teaching or research provincial level awards.





1. Basic information and structure of Commission V

The registered members



Prof. Simit Raval

University of New South Wales



Prof. Jing Li

**China University of Mining and
Technology (Beijing)**



Prof. Yongjun Yang

**China University of Mining
and Technology**



Prof. Jun Li

**China University of Mining
and Technology (Beijing)**



Prof. Chengye Zhang

**China University of Mining
and Technology (Beijing)**



2. Introduction of the Proposed New Members



Prof. Brenda Schladweiler **BKS Environmental Associates, Inc., USA**

She is the president and owner of BKS Environmental Associates, Inc. which has been a U.S. Wyoming-based environmental consulting business since 1981. She completed her PhD in Soil Science, University of Wyoming, Master of Science in Soil Science, University of Wyoming, and Bachelor of Science in Range Management (Land Rehabilitation), Colorado State University. Brenda has worked with both large-scale mining and oil and gas companies throughout Wyoming and adjacent states in reclaiming disturbances associated with their activities. She is an adjunct professor at the University of Wyoming and taught Reclamation of Drastically Disturbed Lands. She has been a member of the American Society of Reclamation Sciences for almost 40 years and is the current President.

Dr. Yanhua Fu **Tianjin Chengjian University, China**

Her research interests are in the land use transition, carbon storage mechanism and ecological services in the coal mining areas, as well as the land reclamation policy. She has published over 20 papers on Environmental Research, Catena, Land Use Policy, International Journal of Mining Reclamation & Environment, etc. She has received research funding from National Natural Science Foundation of China, Ministry of Education of the People's Republic of China. She has been involved in the organization many international symposiums, including the International Symposium on Land Reclamation and Ecological Restoration, CHINA MINING Congress and Expo, International Conference on Mine Planning and Equipment Selection, etc.





2. Introduction of the Proposed New Members



Prof. Randolph Wynne **Virginia Tech, USA**

He is a Professor in the Forest Resources and Environmental Conservation Department at Virginia Tech. He also serves as a member of the Landsat Science Team and Co-Director of the Interdisciplinary Graduate Education Program in Remote Sensing. He teaches courses focused on the environmental and natural resources applications of remote sensing at the freshman, senior, and graduate levels. Dr. Wynne's research interests are in the applications of remote sensing to forestry, natural resource management, ecosystem ecology, and earth system science.

Prof. Christos Tsadilas **National Agricultural Research Foundation of Greece, Greece**

He is a Agronomist, Soil Scientist (MSe Soil Mapping and Classification and Soil Hydrology), PhD (Soil Fertility and Plant Nutrition). Senior Researcher at the National Agricultural Research Foundation of Greece, Former Director of the Soil Mapping and Classification Institute and Institute of Industrial and Forage Crops of the Hellenic Agricultural Organization "DEMETER", now retired. It is noticed the long term cooperation with China University of Mining and Technology at Beijing Professor Zhenqi Hu.





2. Introduction of the Proposed New Members



Prof. Jennifer Franklin **University of Tennessee, USA**

Her research is focused on the establishment of forest on reclaimed mines, developing metrics for the assessment of restoration success and estimation of ecosystem services. She was named Reclamation Researcher of the Year in 2017 by the American Society for Reclamation Sciences, and received her professional certification as an Ecological Restoration Practitioner in the same year. She currently serves as Co-Chair of the Appalachian Regional Reforestation Initiative Science Team, and has been an active member of the American Society of Reclamation Sciences since 2002 and has served as a Technical Division chair, Associate Editor, and the 2024 National Meeting Chair.

Prof. Wu Xiao **Zhejiang University, China**

His research focuses on system governance for ecological protection and restoration, monitoring and assessment of ecological damage, and system governance of coal-grain complex areas. He has undertaken over 20 national and provincial research projects, published more than 100 SSCI/SCI indexed papers with over 3000 citations and an H-index of 31. His research has been highly praised by their peers, earning them the International Mine Surveying Association Young Scientist Award in 2023 and the American Society for Mining and Reclamation (ASMR) Outstanding Young Researcher Award in 2020. He actively participated in the formulation and verification of ecological restoration plans and comprehensive land governance plans in multiple provinces, as well as training and educational activities on comprehensive land governance organized by natural resources departments across China.





2. Introduction of the Proposed New Members



Dr. Anna Krzyszowska Waitkus Environmental Consulting, USA

She is a consultant specialized in reclamation management practices, as utilized in the western USA surface coal mining operations. She effectively combines the knowledge of environmental protection requirements and environmental rules and regulations after 17 years working as a permit coordinator and inspector for the largest surface coal mine in the USA and other mining operations. Her extensive experience working with permit applications, revisions, coordination, inspections, and enforcement actions enables her to help mining operations to achieve superior reclamation results. Anna helped to develop an electronic geodatabase utilizing Geographic Information System/Global Positioning System techniques to track reclamation activities and assessing surface coal mine permit and regulatory compliance through time. This is the first geodatabase for such purposes developed in the USA.

Prof. Jiguang Dai Liaoning Technical University

The applicant has been engaged in remote sensing image processing research for a long time and has led multiple vertical projects, including a National Natural Science Foundation general project, a key project from the Liaoning Provincial Natural Science Foundation, and a local service project from the Liaoning Provincial Department of Education. Additionally, the applicant has worked on various horizontal projects, such as the digitization of rural roads in Hubei Province, research on the construction and application of spatiotemporal databases for traffic geography, and land use interpretation using high-resolution remote sensing images. They have published over 50 papers, including more than 30 in SCI and EI journals, and have supervised nearly 50 master's and doctoral students.





2. Introduction of the Proposed New Members



Prof. Dukmin Kim Sangji University, Republic of Korea

He conducted research in environmental geochemistry in mining areas, focusing on the application of isotopic techniques. Since 2006, he has been employed at the Korea Mine Reclamation Corporation, a governmental agency, and conducted research and designed mine reclamation and mine water treatment facilities. In 2019, he moved to Sangji University. He has published papers on mine hazards and isotopic investigations in mining areas, in journals with a JCR of <10%. He serves as a committee manager in ISO TC 82/SC 7 (Sustainable mining and mine closure) and as chairman of the Standards Commission of Korean Society of Mineral and Energy Resources Engineers. He aims to disseminate mine reclamation technologies to both developed and developing countries, fostering sustainability for the future.

Prof. Yinfei CAI Taiyuan University of Technology, China

He has long been engaged in research on mining subsidence and ecological environmental protection and governance. He has taken the lead and actively participated in five government-sponsored research or educational reform programs. Furthermore, he has maintained close collaboration with mining enterprises in Shanxi Province and presided over more than ten enterprise scientific research or engineering projects. He has published more than 20 papers in high-quality academic journals domestically and internationally, including more than 10 papers indexed by SCI/EI.





2. Introduction of the Proposed New Members



Prof. Shiwen Zhang **Anhui University of Science & Technology, China**

Zhang Shiwen , professor of Anhui University of Science and Technology, PhD supervisor, vice dean of the College of Earth and Environment. He is a member of the Land Use Engineering Special Committee of the Chinese Society of Agricultural Engineering, and an accession expert of the Mining Geo-environmental Governance and Land Reclamation Program of the Ministry of Natural Resources, Anhui Provincial Department of Natural Resources, and the Department of Science and Technology.

Lerato Ratsoenyane **Digby Wells Environmental, South Africa**

She has 13 years' experience; with 6 years of work experience in the Coal Mining Sector as a Social and Labour Plan Practitioner involved in the consultation, compilation and execution of the Social and Labour Plans, Mining Charter and Mining Qualification Authority Reporting and performing various tasks in terms of planning and developing Policies and Strategies within the Human Resources, Governance and Environmental Divisions. The remaining 7 years has been within the Environmental Consultancy sector; involved in the planning, development and implementation of public participation processes (PPP) . She is professionally affiliated with the International Association for Public Participation (IAP2) as a Committee Member for the emerging regions portfolio and Company Director and Member of IAP2 Southern Africa region.





2. Introduction of the Proposed New Members

Dr. Fan Zhang Northeastern University, China

He has long been engaged in monitoring of the ecological environment in mining areas, interpretation of unmanned aerial vehicle remote sensing images, land reclamation and ecological reconstruction in mining areas, and land reclamation through coal gangue filling. Published 4 SCI papers as the first author and obtained 2 national invention patents. He has participated in the completion of horizontal projects such as the national "Thirteenth Five Year Plan" key research and development plan "Integration and Engineering Demonstration of Site Pollution Control Technology in Coal Industry Agglomeration Areas" and several provincial projects.





3. Activities in 2024

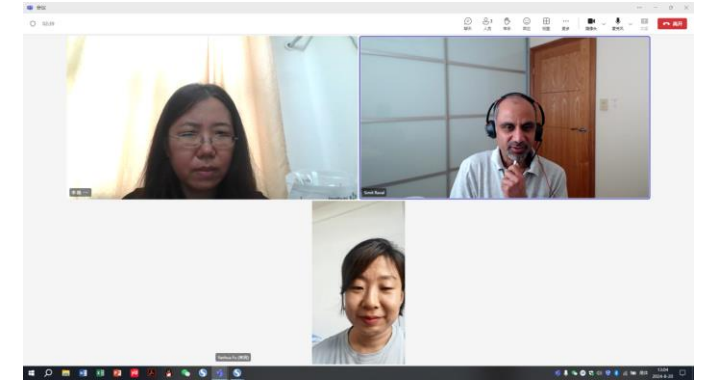
Online Meeting 1

Time: 2024.8.20

Participants:

Simit Raval
Jing Li
Yanhua Fu

Topics: 1.The new members of Commission V
2.Groups and group leaders
3.Process of changing the name of the commission



Online Meeting 2

Time: 2024.9.30

Participants:

Simit Raval
Jing Li
Brenda Schladweiler

Topics: 1.PPT slides for the ISM presidium meeting
2.Work plan of Commission V

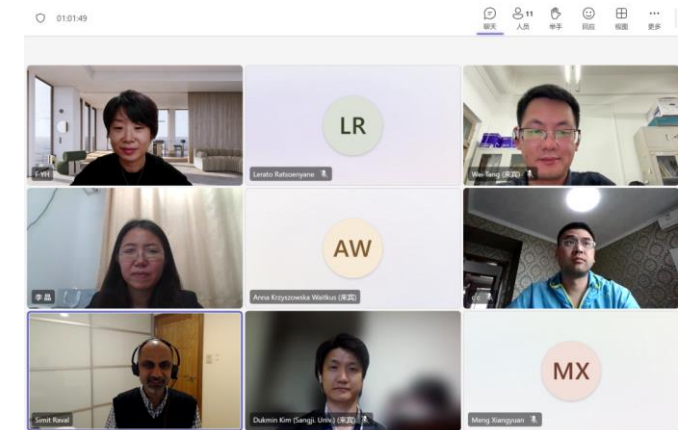
Webinar

Time:2024.9.26

Participants: 17 in all.

Simit Raval
Jing Li
Yanhua Fu
Anna Krzyszowska Waitkus
Dukmin Kim
Lerato Ratsoenyane
Yinfei Cai
Wei Tang

Topics: 1. **Introduction to ISM and Commission V** by Prof Simit Raval
2. **Advances in remote sensing for monitoring mining environments** by Prof Simit Raval
3. **Mining impact assessment and ecological restoration** by Prof Jing Li
4. Discussion





4. Future plans

- Host webinar (aim for 3 in a year).
- Initiate mentorship program in 2025.
- Set up groups and select the group leaders.



4. Future plans

Group 1

Environmental Planning

pic

This group focus on the theory, techniques, management strategies and policy of planning to mitigate the environmental impacts caused by human activities. It is an interdisciplinary field that integrates ecology, urban planning, geography, and other related disciplines.

Scope:

- Planning techniques including restoration planning, land use planning in mining area, mine closure planning
- Emission reduction of mining companies
- Policy development
- Public participation
- Best practice for environmental management

Prof.
University



4. Future plans

Group 2

Environmental Monitoring

pic

This group focus on the methodologies and techniques of observing, and assessing the environment impact by mining activities. This is crucial for the enforcement of environmental regulations, the management of environmental transformations and the facilitation of environmental restoration efforts in the mining areas.

Scope:

- Environmental elements monitoring and assessment, including water, soil, air, noise, biodiversity, and etc.
- Acquisition of multi-source monitoring data
- Methods/approaches and/or algorithms of remote sensing
- Mining disturbance identification and monitoring
- Ecological restoration quality monitoring

Prof.
University



4. Future plans

Group 3

Ecological Restoration/Environmental Rehabilitation

pic

This group focuses on restoration and rehabilitation of the damaged ecosystems by mining activities to the pre-disturbance state or harmony with the surrounding environment. The disturbance including the change of topography, degradation of soil and vegetation, decline of biodiversity, contamination and also the society.

Scope:

- Topography establishment
- Soil reconstruction
- Revegetation
- Remediation of contaminated mine areas
- Mining waste management
- Acid mine drainage
- Re-use of depleted mine sites

Prof.
University



Международное общество по маркшейдерскому делу
International Society for Mine Surveying | Internationale Gesellschaft für Markscheidewesen



Thank you!



ISM PRAESIDIUM MEETING 2024



PEARL VALLEY HOTEL, PAARL, SOUTH AFRICA



SUN 6 - WED 9 OCTOBER 2024