

SuReMin Workshop 2

Sustainable Management of International Supply Chains

Pontificia Universidad Católica de Chile
September 9th and 10th, 2024



**A workshop of the National Science
Foundation Global Center SuReMin:
Sustainable, Resilient, Responsible
Global Minerals Supply Chain**



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Workshop Objectives

Researchers, community leaders and industry professionals engaged in enhancing the sustainability of the global minerals supply chain are invited to attend the second SuReMin Workshop on Critical Minerals.

Workshop participants will explore the following topics through expert presentations and panel discussions. Workshop output will include a summary report that identifies opportunities for collaborative research and training among industry, universities and other partners to address knowledge gaps.

- Quantifying sustainability benefits of technologies that reduce or prevent mining waste and impacted waters and assist in energy transformation, through mineral recovery and beneficial reuse
- Emerging scalable, low-cost methods to quantify environmental and societal effects of mining to provide verifiable, high quality data in support of sustainability frameworks and transparency with communities
- Policy and market drivers of advances in mineral recovery sustainability and mining waste reduction and management
- Training future leaders in mineral recovery engineering and business across disciplines with deep expertise in working with communities towards sustainable operations and a clear understanding of the international supply chain.
- The path towards securing funding for a Global Center that links universities, communities, and industries for research and workforce development for a Sustainable, Resilient, Responsible Global Minerals Supply Chain

SuReMin is a United States National Science Foundation Track 2 Global Center headquartered at Northwestern University. This event is co-sponsored by the Pontificia Universidad Católica de Chile, the Sustainable Minerals Institute International Centre of Excellence- Chile, and would not be possible without the extensive efforts of our partners listed below.

Northwestern University



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Sustainable Minerals Institute

Event Schedule Day 1: Monday, September 9th

8:30 a.m.

Opening Remarks

Andrew Martin, Australian Ambassador to Chile and Ecuador

8:35 a.m.

Welcoming Remarks

Miguel Torres Torriti, Vice-Dean of the Engineering School, Pontificia Universidad Católica de Chile

8:45 a.m.

Global Center Vision

Jennifer Dunn, Professor of Chemical and Biological Engineering, Northwestern University

Robin Bullock, Director of the Center for Environmental Remediation and Assessment, Montana Technological University

Douglas Aitken, Executive Director, Sustainable Minerals Institute International Centre of Excellence- Chile

Pablo Pastén, Associate Professor of Hydraulic and Environmental Engineering, Pontificia Universidad Católica de Chile

9:00 a.m.

Session 1: Increasing metals recovery from active mining and other sources

Moderator: Richard LaDouceur, Montana Technological University

“Screening Tailings for Critical Minerals”

Douglas Aitken, Executive Director, Sustainable Minerals Institute International Centre of Excellence- Chile

“Applying Hydrometallurgical Processing Methods for the Economic Recovery of Critical Materials from Tailings and Waste Streams”

Peter Amelunxen, Senior Vice President of Technical Services, Capstone Copper

“Designing and Permitting a Tailings Facility in the aftermath of the Mount Polly Tailings Dam Failure”

Jake Schuff, Project Metallurgist, Black Butte Copper

“Viper Filtration: Game-changing technology for large-scale filtered tailings”

Juan Ccarita, Jord International

“Unlocking Sustainable Lithium Production with Ion Exchange Technology”

Felipe de Mussy, President - South America, Lilac Solutions

11:00 a.m.

Break

11:15 a.m.

Session 2a: Mining Waste Reduction: Valorization, reuse, and improved treatment

Moderator: Richard LaDouceur, Montana Technological University

“Reducing tailing volumes via ore sand production”

Juliana Segura-Salazar, Research Fellow, Sustainable Minerals Institute, University of Queensland

“NovaCell: Flotation Technology to meet the world’s future mineral demands”

Mario Saavedra, Jord International

“Montana Resources Copper Mine and Recovery of Critical Minerals and Rare Earth Elements from its waste water”

Matthew Ingersoll, Graduate Student, Montana Technological University

“Hydraulic Dewatered Stacking, a new tailings management system”

Andrea López, Tailings Innovation Manager, Anglo American

12:45 p.m.

Lunch and Poster Session

Event Schedule Day 1: Monday, September 9th (continued)

2:00 p.m.

Session 2b: Mining Waste Reduction: Valorization, reuse, and improved treatment

Moderator: Jean-François Gaillard, Northwestern University

“Microbial Leaching of Low-Grade Ores: Current Status and Future Directions”

Mario Vera, Associate Professor of Cellular and Molecular Engineering, Pontificia Universidad Católica de Chile

“T2CM: model for tailings reutilization”

Iván Navarrete, Assistant Professor of Construction Engineering and Management, Pontificia Universidad Católica de Chile

“Stability and Chemical Speciation of Metals in Supplementary Cementitious Materials from Copper Tailings”

Marco Alsina, Universidad San Sebastián

“Rare Earths from Ionic Clays”

Nelson Donoso, General Manager - Chile, Aclara Resources

3:20 p.m.

Break and Survey

3:35 p.m.

Session 3: Policy and Market influence on mining waste prevention and management

Moderator: Nigel Wight, Sustainable Minerals Institute International Centre of Excellence- Chile

“Interstate Regulatory Council Beneficial Reuse Guidelines and Case Studies”

Robin Bullock, Director of the Center for Environmental Remediation and Assessment, Montana Technological University

“Social impact and investment”

Megan Kashner, Professor and Director of Sustainability and Social Impact Program, Kellogg School of Management, Northwestern University

5:00 p.m.

Closing remarks for Day 1

Event Schedule Day 2: Tuesday, September 10th

8:30 a.m.

Welcome

8:40 a.m.

Keynote: “Sustainable Development and the future of mining”

Lilian Velásquez, Department of Mining Engineering, Pontificia Universidad Católica de Chile

9:10 a.m.

Session 4: Community experiences and findings around environmental monitoring, data needs and uses in complex contexts

Moderators: Kimberly Suiseeya, Northwestern University, and

Nigel Wight, Sustainable Minerals Institute International Centre of Excellence- Chile

“Communicating Clean-up – Engaging the local public in technical decision making”

Julia Crain, Planning Director, Butte-Silver Bow County, Montana

“Indigenous (Anishinaabe) Perspectives from the Great Lakes of North America.”

Michael Waasegizhig Price, Traditional Ecological Knowledge Specialist, Great Lakes Indian Fish and Wildlife Commission

“Decolonizing the sciences: Research experiences Lickan Antay to address the problems in the Salar de Atacama”

Francisco Mondaca and César Vivar, Unidad de Medio Ambiente (UMA) del Consejo de Pueblos Atacameños

Event Schedule Day 2: Tuesday, September 10th (continued)

10:20 a.m.

Session 5a: Data for sustainable mining

Moderator: Jennifer Dunn, Northwestern University

“Environmental quality near mining sites”

Alejandra Vega, Research Associate, CEDEUS Pontificia Universidad Católica de Chile

“Sage Environmental Monitoring Network”

Rajesh Sankaran, Principal Specialist- Computer Science, Argonne National Laboratory

“Water Quality Data”- Virtual Session

Avner Vengosh, Distinguished Professor of Earth & Climate Sciences, Duke University

“Water quality and mining: monitoring, trends, and hydrochemical processes in watersheds impacted by metals”

Pablo Pastén, Associate Professor of Hydraulic and Environmental Engineering, Pontificia Universidad Católica de Chile

11:40 a.m.

Break and Survey Introduction

12:00 p.m.

Session 5b: Standards and Analysis for sustainable mining

Douglas Aitken, Sustainable Minerals Institute International Centre of Excellence- Chile

“Sustainability standards and their need for data”

Nigel Wight, Lead Social Researcher, Sustainable Minerals Institute International Centre of Excellence- Chile

“The role of life cycle analysis in guiding sustainable mining”

Jennifer Dunn, Professor of Chemical and Biological Engineering, Northwestern University

“University of Queensland’s collaborations with industry in applying LCA”

Juliana Segura-Salazar, Research Fellow, Sustainable Minerals Institute, University of Queensland

1:00 p.m.

Lunch

2:00 p.m.

Session 6: Workforce Development

Peter Amelunxen, Senior Vice President of Technical Services, Capstone Copper

Natalia Monardes Letelier, Corporate Director of Development and Performance, CODELCO

Lorena Aclé Saldías, Corporate Head of Talent Attraction, CODELCO

Matthew Grayson, Professor and Director of Engineering Global Initiatives, Northwestern University

Carolina Matheson, Deputy Executive Director of the Academic Teaching Department, Pontificia Universidad Católica de Chile

Robin Bullock, Director of the Center for Environmental Remediation and Assessment, Montana Technological University

Ezra Danzig, Undergraduate Student, Northwestern University

Event Schedule Day 2: Tuesday, September 10th (continued)

3:00 p.m.

Session 7: Paths towards a Global Center for Sustainable Mining

Moderator: Jennifer Dunn, Northwestern University

National Science Foundation Global Center Proposal

University-Industry Collaboration

Additional funding sources and collaboration towards proposals and programming

4:00 p.m.

Workshop Conclusion

SuReMin Research Survey

This 5-min. survey is intended to help identify collaborative teams on common research themes across multiple partners for the purpose of strengthening our Track 1 NSF Center Proposal. Click or scan to get started.

