

UNIVERSITY OF ALBERTA – FUTURE ENERGY SYSTEMS

LAND AND WATER

\$7.0M in research funding to 2023

17 active land and water projects

13 Principal Investigators and Co-Investigators

23 students & post-doctoral fellows

MITIGATING THE IMPACTS OF PAST, PRESENT AND FUTURE ENERGY SYSTEMS

As a low-carbon energy future approaches, legacies of past energy technologies remain a serious concern. Reclamation of land and water after previous generations of exploitation will be vital. Standards for reclamation are based on varied understanding and must be assessed while the technologies and methods investigated and refined. Potential issues related to new, sustainable energy technologies must be foreseen so future generations are not left with consequences of questions left unasked.

CURRENT RESEARCH PROJECTS

Bio-Based Sorbents for Simultaneous Removal of Contaminants from Wastewaters Generated During Energy Production

Principal Investigators: Tariq Siddique & Aman Ullah

Biophysical Impacts of Energy Systems and Indicators of Reclamation Success

Principal Investigator: M Anne Naeth

Development and Synthesis of Novel Materials for Water Remediation

Principal Investigator: Mohamed Gamal El-Din

Development of Novel Biochar Materials for Land and Water Reclamation

Principal Investigator: Scott Chang

Economic Analysis of Reclamation Technologies and Policy Options

Principal Investigator: Vic Adamowicz

Employing in vitro bioassays to assess OSPW treatment: Implications on predictive modelling of risks

Principal Investigator: Maricor Arlos

Extraction of valuable metals from wastewater, brine, and acid mine drainage

Principal Investigator: Daniel Alessi

Integrated Water Purification System for Safety Water Reclamation and Resource Recovery

Principal Investigator: Mohamed Gamal El-Din

Integrating Social With Biophysical Success Indicators for Land and Water Reclamation

Principal Investigator: Dev Jennings

Land and Water Approaches for Reclamation of Process Water

Principal Investigator: Mohamed Gamal El-Din

Life Cycle Analysis of Selected Novel Materials and Designs

Principal Investigator: Dev Jennings

Nanobubbles for highly effective wastewater treatment

Principal Investigator: Xuehua Zhang

Potential of Biological Materials for Coal Mine Reclamation

Principal Investigator: M Anne Naeth

Real Time Environmental Sensors for Water Quality Monitoring

Principal Investigator: Michael Serpe

Scaling/Fouling Mechanism and Mitigation Strategies in Coal or Biomass Gasification Systems and Wastewater Treatment in Coal-fired or Co-fired Power Plants

Principal Investigator: Hongbo Zeng

Smart nanocomposite membranes: harnessing clean water and clean energy from Alberta's oil sands

Principal Investigator: Mohtada Sadrzadeh

Supramolecularly Crosslinked Microgels for Heavy Metal Sensor Fabrication

Principal Investigator: Michael Serpe

For the latest information:
futureenergysystems.ca/land-water



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