Gaining Perspective – What do affected persons think about oil sands process-affected water remediation using constructed wetlands enhanced by genomics?

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Effective oil sands remediation requires integrated and holistic knowledge of the problems and potential solutions that can only be acquired through participation and input from affected persons. Mining of Alberta's oil sands requires water-intensive processes such as hot water extraction, resulting in large quantities of contaminated oil sands process-affected water (OSPW) stored in tailings ponds that require remediation. Hence, as mining projects advance, the need for sound policy and improved methods for remediation intensifies. Constructed wetland treatment systems (CWTSs) have been identified as a viable remediation option, and genomics can be employed to optimize microbial activity, enhancing remediation efficacy. To date, the values and priorities of local communities regarding all remediation, particularly CWTSs enhanced by genomics, have received limited attention. To address this gap, this research will be co-designed and performed with many affected parties, including Indigenous communities, oil and gas industry employees, scientists studying remediation, and regulators and policymakers considering remediation. My sequential mixed-method research design employs a literature and media review, focus groups, and a systematic study of participant viewpoints (Q-methodology).

The literature and media review found limited opinion statements on both CWTSs and genomics, and the participants in the focus groups were presented with these statements and given the opportunity to add, modify, and delete statements. The resulting list of opinion statements is distilled into a set of concise and clear statements that are sorted relative to each other during the Q-sort activity. The Q-sort will illuminate existing perspectives, supported by emerging consensus and distinguishing statements. The results of my research will inform a survey and an interactive experimental decision laboratory that will examine participants' choices and upon what basis their decisions are made. The resulting datasets will seek to provide new insights into how core values and different forms of evidence influence decisions about remediation and support transdisciplinary approaches to resource management.