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## Improving Bioremediation of Polluted Soils Through Environmental Genomics

<b>Integrated GE<sup>3</sup>LS Project</b>	GE <sup>3</sup> LS Research on Sustainable Development Strategies
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### Project Description

The GE<sup>3</sup>LS research focuses on 5 sustainable development strategies:

(1) Sustainable Development:

Sustainable Development (SD) is a concept that still raises many questions. It is not always clear to the government, industry or the public, what this concept allows them or constrains them to do. Researchers will examine the concept of SD and focus on how phytoremediation, associated with SD, could play a major role in the protection of the environment.

(2) The Legislative Framework:

It is crucial for land protection and rehabilitation that government departments and agencies adopt environmental management measures. The GE<sup>3</sup>LS team will identify and suggest legal principles in the use of phytoremediation, regarding the risks that might originate from it and the levels of decontamination that are anticipated from its use.

(3) Corporate Social Responsibility: SD also ties in with the concept of social responsibility (CSR), which recently started to emerge as a legal concept in Canada. This subproject will answer two crucial questions: 1) does CSR legally constrain industry to adopt the practice that is the most consistent with SD? 2) to what extent does the government have sufficient leeway to adopt laws or take administrative measures to promote phytoremediation and other SD practices?

- (4) Policy Implications: Scientific information can make enormous contributions to policy objectives and scientific discoveries may also trigger policy processes. When discoveries fall outside well-defined regulatory parameters or categories, policy adjustments may in fact be required. Thus the researchers will assess the implications of phytoremediation for regulatory processes and examine the extent to which the scientific knowledge generated by the science project can contribute to the realization of environmental policy objectives.
- (5) Sustainability Assessment: Projects, whatever their nature, are frequently subjected to the test of sustainability before their approval. Its main objective is to assess the environmental, social and economic aspects of a project through the lens of SD principles such as fairness, economic efficiency, prevention of damage, social acceptability and intergenerational solidarity. This subproject will review the various approaches currently used to assess the sustainability of a project for contaminated site rehabilitation, develop an evaluation guide for such projects and apply the approach to the project under study.