

The Potential Impact of Climate Change on the Mining Industry in Canada

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Global climate change models predict increases in average annual air temperature in Canada ranging from 8 - 10 °C in the northwestern Arctic to 2 - 4 °C in southern Ontario by 2050. Changes in precipitation patterns will also occur but are less predictable with current models. Many experts predict that extreme weather events, including rain, wind, snow and ice storms, floods, heat waves and drought, will be more frequent in Canada and probably more severe. The impacts will range from the loss of forest to fires and insects, the extinction of many species and the melting of Arctic sea ice, to lower water levels in the Great Lakes and loss of productive agricultural land. All parts of our social, industrial and environmental infrastructure will be affected. The Kyoto Accord alone will make very little difference to the mid-century climate. Radical changes in the technology of energy generation are required and may have to be encouraged with financial incentives and taxation policies. There will be impacts on all stages of the mining cycle from exploration to mining, smelting and mine site remediation. Increased evaporation might lower water cover on submerged tailings as well as reducing the volume of receiving waters available for waste water disposal; heat and drought stress might lead to loss of vegetative covers and increased wind erosion from desiccated exposed tailings; extreme rainfall events might increase peak loads on dams and flows in water diversion and retention structures; more frequent violent storms might increase the vulnerability of power transmission structures; the availability of process water might be less reliable; melting of Arctic sea ice and glaciers might alter the frequency and size of icebergs in northern shipping routes used for transporting ore; habitat loss and species extinction might lead to increased environmental value being placed on certain lands; environmental assessment criteria are likely to include consideration of extreme weather events; and insurance rates are increasing as the risk of catastrophic losses increases.