



oil & gas

EXTRACTION

INDIGENOUS COMMUNITIES

GREENHOUSE GASES

DEVELOPMENT IMPACT

EU POLICY

TAR SANDS

MDG

extractive industries:
blessing or **curse?**

Tar sands impacts on people, climate and environment - from Canada to Africa

The global development of tar sands will magnify the climate crisis, and damage the environment and development objectives.



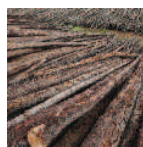
A thin border separates the boreal forest from an open pit mine.

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Tailings pond, Alberta, Canada.

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Logs from clearcuts in Alberta tar sands

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A piece of soil taken from one of the sites explored for tar sands, located on the farmland near the Mboukou village, 70 km from Pointe Noire in the Republic of Congo. © elena gerebizza, 2009

Tar sands are a naturally occurring mixture of sand or clay, water and an extremely dense and viscous form of petroleum called bitumen. The process of converting tar sands into fuel releases three to five times the greenhouse gas emissions of conventional oil. The pollution, deforestation and disturbance to wildlife associated with tar sands development threaten the traditional livelihood and wellbeing of indigenous communities.

Canada is the current centre of tar sands production, however new deposits of tar sands and other unconventional oil have been discovered, or are already being exploited, in countries such as Venezuela, Madagascar, Congo-Brazzaville, Russia, Jordan, Nigeria and Angola.

Canadian tar sands are the second largest oil reserve in the world and have the potential to permanently rearrange the global geopolitics of oil. Canadian tar sands hold an estimated 170 billion barrels of recoverable oil beneath the world's largest carbon sink – the boreal forest. This region is also home to many First Nation communities that depend on the land to survive.

The high greenhouse gas emissions of tar sands reflect the energy needed to produce and process tar sand into oil. Oil companies use natural gas to: (1) power the upgraders to separate crude from soil; (2) produce steam for in-situ operations, and (3) power refineries and other operations. Currently, the total amount of natural gas used on a daily basis is equivalent to that required to heat 25% of Canada's houses. If the planned expansion of oil sands continues then in 2015 this will increase to that which is needed to heat them all.

Oil production from tar sand is clearly jeopardising Canada's climate change commitments and ability to fulfil the objectives of Millennium Development Goals 1, 3, 7 and 8.

impact on climate and environment

Tar sands are the source of the most climate hostile transport fuel in commercial production today. The extraction and upgrading of tar sand oil causes severe air and water pollution, land use change from destroying natural boreal forests and peatlands, loss of biodiversity and destruction of livelihoods of indigenous communities. **About two thousand kilograms of tar sands must be dug up, moved and processed to produce 158.9 litres of oil (one barrel).**

Tar sands operations in Canada will soon cover over 140,000 square kilometres - an area larger than England. As tar sands operations are primarily open pit mining projects, the issue of **land reclamation** is of utmost importance. The Alberta government requires companies to restore the land to "equivalent land capability". Despite nearly 40 years of oil sands development, not a single hectare of land has been certified as reclaimed by the Government of Alberta.

One cubic metre of oil mined from the oil sands requires between three and five cubic metres of water to produce. This water is taken from the Athabasca River.

SCALE

IMPACTS

DEVELOPMENT IMPACT	EXTRACTION	INDIGENOUS COMMUNITIES	GREENHOUSE GASES	
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SCALE

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During the process of separating bitumen from the tar sands, large amounts of water are mixed in with the sand. Once the oil has been removed, the *tailings* - the leftover mixture of **water saturated with heavy metals and toxic chemicals including naphtha and paraffin** - has to be stored in a stable location so that the solution can settle and separate. These storage facilities are known as **tailings ponds**. Each cubic metre of bitumen creates three to five cubic metres of tailings that need to be stored.

The most dangerous contaminant in tar sands tailings water is **naphthenic acid**, a natural constituent of petroleum that is dissolved and concentrated in the hot water used to process the tar sands. Repeated exposure to naphthenic acid can have adverse health effects upon mammals, causing liver problems and brain haemorrhaging; higher concentrations lead to more serious effects. The water in these storage facilities also attracts methanogenic bacteria, which produce methane and increase the concentration of toxins in the ponds. Another component of the tailings is **alkyl-substituted polyaromatic hydrocarbon**, which causes deformities and even death to birds exposed to it. The oil companies' response to these dangers is to fire airguns around the tailings ponds to prevent any birds and animals from coming near it. More seriously, these ponds are leaking into the groundwater and thus, into the Athabasca River.

If currently planned tar sands development projects unfold as expected, approximately **3,000 square kilometres of boreal forest could be cleared, drained and strip-mined** to access tar sands deposits close to the surface, while the remaining 137,000 square kilometres could be fragmented into a spider's web of seismic lines, roads, pipelines and well pads from in situ drilling projects. Studies suggest that this scale of industrial development could **push the boreal ecosystem over its ecological tipping point**, leading to irreversible ecological damage and loss of biodiversity

It is also clear that tar sands exploitation has detrimental effects on local communities. In Canada, indigenous communities such as the First Nation communities of Fort Chipweyan located upstream from these mines, have been found with higher ratios of cancer and other diseases like lupus and multiple sclerosis. Consequently, these communities fight against any further development and continued disregard by the Alberta government.

tar sands and development

Unconventional oil resources are about to go global. One new frontier for tar sands development is Africa, a region already highly vulnerable to the impacts of climate change.

Apart from making a mockery of climate protection, tar sands production in Canada has resulted in serious damage to local communities and the environment, including destruction of the boreal forest and increased pollution that has impacted on the health and livelihoods of First Nations communities.

In countries with weaker political and environmental governance frameworks, the consequences of its expansion are likely to be even more devastating. In Africa, in particular, progress towards Millennium Development Goal 7 on Environmental Sustainability will be seriously under threat. Considering experiences with conventional oil extraction in many African countries over the last decades, tar sands development will also hamper achievement of other MDGs.

Countries of the global south which lack strong governance and legal frameworks to protect their resources and people may face yet bigger challenges to deal with the tar sands curse.

our demands:

- The immediate termination of all new tar sands projects, in Canada and elsewhere.
- Investments pledged in these projects should be redirected towards clean, renewable and equitable energy projects.
- EU policymakers should encourage cleaner fuel production and disincentivise the entry of high-carbon energy products, such as oil derived from tar sands, into the EU through the development of appropriate policies.
- The EU and its Member States should cease to provide financial or political support to tar sands development projects, particularly those situated in the global south or in weak governance zones.
- Financial and political assistance should go towards the production and promotion of clean, renewable and equitable sources of energy, in line with the Millennium Development Goals.

information resources: Tar Sands – Friends of the Earth Europe, May 2010 www.foeeurope.org/corporates/pdf/Tar_Sand_Final_May10.pdf | Energy Futures - www.foeeurope.org/corporates/Extractives/Congo%20Report%20FRa.pdf - Henrich Boll Stiftung, November 2009 | Extracting the Truth: oil industry efforts to undermine the Fuel Quality Directive - Friends of the Earth Europe, April 2010 | Cashing in on Tar Sands: RBS, UK Banks and Canada's Blood Oil – PLATFORM 2010



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