Exploration of technically difficult areas

**Investigating the costs and benefits of exploiting new areas and resources, in technically difficult and environmentally sensitive areas, such as the Arctic Circle and Canadian oil shales**

**Arctic Oil**

The Arctic is estimated to contain up to 25 per cent of the world’s undiscovered oil and natural gas. Issue regarding who can lay claim to which parts of the ocean – Russia has claimed nearly half of the Arctic but other interested parties e.g. USA, Norway failed to uphold their claim.

**Problems:**

* Oil companies have already destroyed large parts of Alaska and Siberia so should be kept out of the Arctic.
* New oil rush in the Arctic is only possible because of the increased shrinking of the polar ice cap due to global climate change
* The Arctic is a pristine environment containing over 45 species of land and marine animals
* Issue over who has the right to claim ownership of the natural resources – countries who have been conflicting over this have now agreed to sign the UN Law of the Sea Convection stating the eight Arctic states are allowing to exploit offshore resources within 200 nautical miles of their territory

**Benefits:**

* At around $70 per barrel it makes drilling in the Arctic viable. (2007 prices reached $100).
* Contains up to 25% of the world’s undiscovered oil and natural gas

**Players involved:** Arctic States – USA, Russia, Canada, Norway, Denmark, Finland, Sweden and Iceland, UN – will decide the control of the Arctic by 2020, Local people, Environmental Pressure groups

**Tar Sands in Canada**

Canada contains up to 2.5 trillion barrels of oil – that is more than Saudi Arabia’s reserves. Oil sands are made of sand, water and a hydrocarbon tar called bitumen. Since the rising oil prices and technological advances they have now become more feasible to extract. Alberta’s tar sands produced a million barrels of oil a day in 2003 rising to 3.5 million a day by 2011. By 2030 they aim to produce at least 5 million a day and export the surplus.

**Problems:**

* Oil in the shale is not easily separated out so immense amount of heat is needed usually through burning natural gas.
* Process uses huge amounts of water e.g. every barrel of oil produced requires 4 barrels of water. The water then also becomes polluted where is can damage ecosystems
* Issue of disposing of the shale once the oil has been removed
* Very expensive and only viable when oil costs over $30 a barrel (costs $15 per barrel compared with $2 for convectional crude oil)
* Processes tar sands are a large source of greenhouse gas emissions
* 470km2 of forest have been removed and lakes of toxic waste cover 130km2

**Benefits:**

* Alternative source of oil during times of political or access issues
* By 2030 the tar sands could meet 16% of North America’s demand for oil ENERGY SECURITY
* Provide additional source of energy until more renewable sources can be found
* Mining companies are required to replant land disturbed by mining
* Oil is vital to Canada’s economy (2007= 20% of exports)

**Players involved:** Canada and Venezuela (countries containing Tar Sands), TNCs e.g. Shell and BP, Alberta Energy Research Institute, Environmental groups e.g. Greenpeace, Local people (those employed by the companies or those affected by pollution).

**Over to you:**

Produce a cost/benefit analysis (focus on SEEP - Social, Economic, Environmental, Political) on either the Arctic, Canadian Oil Shales or the West Shetland Field.