

# THE SOCIAL INJURY OF TAR SANDS AND FOSSIL FUELS

By Divest McGill

## Summary

The students, alumni, faculty, and staff of McGill University have made clear their strong desire to see responsible investment practices as they called on the University to divest its holdings in the Tar Sands, fossil fuel companies, and financial institutions that give loans to those companies.

The Tar Sands pollute the air and rivers of Northern Alberta, causing irreparable damage to the land and to the First Nations communities that live off of it.

Global climate change threatens Canadians and peoples the world over. Entire neighbourhoods of cities like Vancouver, New York, and New Orleans could be underwater

due to sea level rise, and polar communities already face extraordinary levels of warming. Cities like Montreal and Toronto will face more extreme weather events, including snow storms and heat waves, and the continued burning of fossil fuels—in particular oil from the Tar Sands—will make runaway warming unavoidable.

The fossil fuel companies considered in this brief actively engage in misinformation campaigns to discredit the rigorous scientific consensus that threatens their continued profits.

Financial institutions provide the capital to make large scale projects like the Tar Sands or mountaintop removal feasible.

*“By participating in the exploitation of the Canadian environment and its peoples, McGill is making decisions for all of us.”*

-McGill Student

*“Companies which extract natural resources without adequate environmental consideration are undermining the stability of the very systems which we, and all life on Earth, depend upon for survival.”*

-McGill Student

It is clear that urgent action is needed to counter the threat of global climate change. The McGill community has spoken, and we call on the Board of Governors to make the right choice for the planet, and the right choice for us.

## **The Tar Sands: A Local and Global Concern**

**T**he Tar Sands are huge deposits of bitumen – a mix of clay, water, sand and oil – that is turned into oil through complex and energy-intensive processes that cause widespread environmental damage. Small particles of sand are coated with heavy oil, with a thin layer of water separating the two. The sand and water must be separated from the oil, producing four tons of sand for every barrel of oil extracted. Another three barrels of water must be removed from the river for each barrel of oil, a massive quantity of water. The *2010 Survey of Energy Resources* describes the reserves:

Natural bitumen and extra-heavy oil are characterised by high viscosity, high density (low API gravity), and high concentrations of nitrogen, oxygen, sulphur, and heavy metals. These characteristics result in higher costs for extraction, transportation, and refining than are incurred with conventional oil.<sup>1</sup>

The largest deposits of Tar Sands in the world are in Canada. Unlike drilling for oil deposits and pumping oil from the ground, the tar sands are typically mined to get at the bitumen and refine it into oil.

In Alberta, the excavation of the tar sands pollutes the Athabasca River and fills the air with toxins. The tar sands are found mainly under Canada's Boreal forest,<sup>2</sup> requiring the forest to be clear-cut to allow the excavation of the bitumen. The ecosystems of the North face incredible harm, and the companies' promises of rehabilitation and reclamation remain unfulfilled. In 2008, only 0.2% of the land disturbed by tar sands mining was designated reclaimed, and even there the forest the "complex of forests and low-lying wetlands has been transformed into a dry,

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<sup>1</sup> World Energy Council. "2010 Survey of Energy Resources" (London: World Energy Council, 2010) 123. <<[http://www.worldenergy.org/documents/ser\\_2010\\_report\\_1.pdf](http://www.worldenergy.org/documents/ser_2010_report_1.pdf)>>

<sup>2</sup> Sierra Club Canada. "Tar Sands and the Boreal Forest". <<<http://www.sierraclub.ca/en/tar-sands/publications/tar-sands-boreal-forest>>>.

*"[F]ossil fuel production itself, including in Canada, is associated with negative social impacts in the communities nearby, such as higher than average rates of homelessness, substance abuse, and divorce in Fort McMurray, close to the Alberta tar sands. Not to mention that nearby indigenous communities are no longer able to use their traditional territory as it has been taken over by development, and are seeing increased rates of illnesses such as cancer, which may be due to their downstream location from the project."*

-McGill Student

hilly upland with new trails for human use." The spokesperson of Syncrude, the company that owns the reclaimed land, proudly said, "If people aren't looking closely, it blends into the natural landscape."<sup>3</sup> Over 65,000 hectares of forest have been lost already, with little hope of recovery.<sup>4</sup>

The environmental, social and health costs of the tar sands in Canada are tremendous and multilayered.

In any discussion of climate change, the Tar Sands are of the utmost importance. Every barrel of bitumen produced from the Tar Sands emits three times as much greenhouse gas as conventional oil.<sup>5</sup> In total, the Tar Sands are expected to emit 108 million tons of GHGs annually by 2020, about one fifth of Canada's entire carbon footprint.<sup>6</sup> Already, this project emits more carbon

than all of Canada's cars, 40 million tons per year.<sup>7</sup> Because of the tar sands, Canada's emissions have grown more since 1990 than any other G8 nation—a total increase of 24.1% between 1990 and 2008—and Canada has one of the world's highest per capita carbon footprints.<sup>8</sup> Former climate scientist James Hansen wrote in the New York Times that, "If Canada proceeds [with this development], and we do

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<sup>3</sup> Hildebrand, Joyce. "Reclamation Illusions in Oil Sands Country: Lack of Legislation, Financial Preparedness, Undermine reclamation Efforts"

<sup>4</sup> Timoney, Kevin P. and Peter Lee. "Does the Alberta Tar Sands Industry Pollute? The Scientific Evidence" (The Open Conservation Biology Journal, 2009, 3) 65-81.  
<<<http://cahr.uvic.ca/nearbc/documents/2009/Alberta-Tar-Sands-Industry-Pollute.pdf>>>.

<sup>5</sup> Nikiforuk, Andrew. Tar Sands: Dirty Oil and the Future of a Continent. (Vancouver: Greystone, 2010) 3.

<sup>6</sup> Schindler, David. "Tar Sands Need Solid Science" (Nature 468, 25 Nov 2010) 499-501.  
<<<http://www.nature.com/nature/journal/v468/n7323/full/468499a.html>>>

<sup>7</sup> Greenpeace. "Tar Sands: Learn About".  
<<<http://www.greenpeace.org/canada/en/campaigns/Energy/tarsands/Learn-about/>>>

<sup>8</sup> United Nations Framework Convention on Climate Change. "Report of the individual review of the annual submission of Canada submitted in 2010" 21 April 2011.  
<<<http://unfccc.int/resource/docs/2011/arr/can.pdf>>>

nothing, it will be game over for the climate.”<sup>9</sup> The Tar Sands are a project with extraordinary global impacts that threaten runaway climate change.

The Tar Sands also have more local impacts. First Nations communities in the tar sands area report unusually high levels of rare cancers and autoimmune diseases, and fish that live downstream of the development are often malformed and inedible.<sup>10</sup> The high concentration of development in one watershed results in correspondingly high levels of contaminants and heavy metals, and the ecosystem is less able to flush them out of the region. Indeed, a 2009 study found a two to threefold increase in summer mercury levels in the river below the Tar Sands, along with large increases in polycyclic aromatic hydrocarbons, potent atmospheric pollutants. Similar contaminants were present in snow and ice.<sup>11</sup>

Much of the excess water from the production process ends up in huge tailing ponds, which kill birds that land in them and “are suspected of seeping chemicals into groundwater.”<sup>12</sup> These ponds contain over 720 million cubic metres of water, covering over 130 million square kilometers of land. In the forty years of development, not a single tailing pond has been cleaned enough to be designated as reclaimed.<sup>13</sup> Environmental groups have presented strong evidence of tailing pond leakage, and oil companies have implicitly recognized the existence of the

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<sup>9</sup> Hansen, James. “Game Over for the Climate” (New York Times, 9 May 2012).  
<<[http://www.nytimes.com/2012/05/10/opinion/game-over-for-the-climate.html?\\_r=2&emc=eta1](http://www.nytimes.com/2012/05/10/opinion/game-over-for-the-climate.html?_r=2&emc=eta1)>>

<sup>10</sup> Schindler, David. “Tar Sands Need Solid Science” (Nature 468, 25 Nov 2010) 499-501.  
<<<http://www.nature.com/nature/journal/v468/n7323/full/468499a.html>>>

<sup>11</sup> Liberal Report from the Study of the Standing Committee on Environment and Sustainable Development on the Impact of Oil Sands Development on Canada’s Freshwater. “The Hidden Dimension: Water and the Oil Sands” 15-17.  
<<[http://francisscarpaleggia.liberal.ca/files/2010/08/The-Hidden-Dimension\\_Water-and-the-Oil-Sands.pdf](http://francisscarpaleggia.liberal.ca/files/2010/08/The-Hidden-Dimension_Water-and-the-Oil-Sands.pdf)>>.

<sup>12</sup> Schindler, David. “Tar Sands Need Solid Science” (Nature 468, 25 Nov 2010) 499-501.  
<<<http://www.nature.com/nature/journal/v468/n7323/full/468499a.html>>>

<sup>13</sup> New Democratic Report on the Standing Committee Review of the Impacts of Oil Sands Developments on Water Resources. “Missing in Action: The Federal Government and the Protection of Water in the Oil Sands” 13.  
<<[http://www.billsiksay.ca/images/issues/NDP%20Report\\_Missing%20in%20Action\\_The%20Federal%20Government%20and%20protection%20of%20water%20in%20the%20oil%20sands.pdf](http://www.billsiksay.ca/images/issues/NDP%20Report_Missing%20in%20Action_The%20Federal%20Government%20and%20protection%20of%20water%20in%20the%20oil%20sands.pdf)>>

problem.<sup>14</sup> In total as many as 166 million birds could be lost over the next 30 to 50 years due to habitat loss and tailing ponds.<sup>15</sup> Furthermore, the economic benefits promised to native communities up north have not necessarily materialized, and the development comes at a tremendous human cost. The Pembina Institute highlights serious health concerns, including,

- A 30% increase in cancers in Fort Chipewyan compared with expected rates over the last 12 years.
- A three-fold increase in leukemias and lymphomas.
- A seven-fold increase in bile duct cancers.
- Other cancers, such as soft tissue sarcomas and lung cancers in women, were also elevated.<sup>16</sup>

The development of the Tar Sands threatens communities across Alberta, pollutes the local environment, and contributes to global climate change.

### **Climate Change: A Global Threat**

**A**ccording to the Board of Atmospheric Sciences and Climate, the arm within the American National Academies for atmospheric and climate sciences, “The preponderance of the scientific evidence points to human activities—especially the release of CO<sub>2</sub> and other heat-trapping greenhouse gases (GHGs) into the atmosphere—as the most likely cause for most of the global warming that has occurred over the last 50 years or so”.<sup>17</sup>

*“As a leading educational and research institution in Canada, McGill has a particular responsibility to promote the development and use of environmentally sound energy alternatives, and to respect the land rights of indigenous peoples in Quebec.”*

-McGill Student

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<sup>14</sup> Liberal Report from the Study of the Standing Committee on Environment and Sustainable Development on the Impact of Oil Sands Development on Canada’s Freshwater. “The Hidden Dimension: Water and the Oil Sands” 15. <<[http://francisscarpaleggia.liberal.ca/files/2010/08/The-Hidden-Dimension\\_Water-and-the-Oil-Sands.pdf](http://francisscarpaleggia.liberal.ca/files/2010/08/The-Hidden-Dimension_Water-and-the-Oil-Sands.pdf)>>.

<sup>15</sup> Wells, Jeff Ph.D. “Danger in the Nursery: Impact on Birds of Tar Sands Oil Development in Canada’s Boreal Forest” (National Resources Defense Council Report, Dec 2008) iv. <<<http://www.nrdc.org/wildlife/borealbirds.pdf>>>

<sup>16</sup> Droitsch, Danielle and Terra Simieritsch. “Canadian Aboriginal Issues with Oil Sands: A Compilation of Key Issues, Resolutions and Legal Issues” (The Pembina Institute: Sept 2010) 2.

<sup>17</sup> Committee on America's Climate Choices, National Resource Council. [America's Climate Choices](#). Washington, D.C.: National Academies Press, 2011. 15.

Scientists agree that the highest safe level of CO<sub>2</sub> at 350 parts per million; human emissions have now pushed the level of CO<sub>2</sub> in the atmosphere to 392 ppm.<sup>18</sup>

The BASC further advises that, “The faster emissions are reduced, the lower the risks posed by climate change. Delays in reducing emissions could commit the planet to a wide range of adverse impacts . . . [and] the risks associated with doing business as usual are a much greater concern than the risks associated with engaging in strong response efforts”.<sup>19</sup>

Canada, through its international agreements has made strong commitments to a green future. In the 2010 Cancun agreements of the United Nations Framework Convention on Climate Change, Canada affirmed:

that climate change is one of the greatest challenges of our time . . . [and] that deep cuts in global greenhouse gas emissions are required according to science, and as documented in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, with a view to reducing global greenhouse gas emissions so as to hold the increase in global average temperature below 2 °C above preindustrial levels, and that Parties should take urgent action to meet this long-term goal, consistent with science and on the basis of equity.<sup>20</sup>

*“I do not want my tuition money to be responsible for the destruction of communities and also the creation of the biggest environmental disaster that we have seen.”*

-McGill Student

Despite the scientific consensus—which “has been endorsed by every National Academy of science of every major country on the planet, every major professional scientific society related to the study of global warming and 98 percent of climate scientists throughout the world,” writes Al Gore<sup>21</sup> and despite Canada’s strong public commitments, our country is pushing forward with developing the Tar Sands, has barely even slowed the rate of greenhouse gas emissions growth let alone reduced

<sup>18</sup> 350.org. “Science”. 2012. <<<http://www.350.org/en/about/science>>>.

<sup>19</sup> Committee on America's Climate Choices, National Resource Council. America's Climate Choices. Washington, D.C.: National Academies Press, 2011. 2.

<sup>20</sup> United Nations. Framework Convention on Climate Change. (United Nations, 1992) 2-3. <<[http://unfccc.int/essential\\_background/convention/background/items/1362.php](http://unfccc.int/essential_background/convention/background/items/1362.php)>>.

<sup>21</sup> Gore, Al. "Climate of Denial: Can the Science and the Truth Withstand the Merchants of Poison?" Rolling Stone Jun 2011 26.

emissions, and under the current government has pulled out of the Kyoto Protocol.

Climate change raises global average temperatures. Every summer, new temperature records are set across the globe. Much of the South West United States saw unprecedented wildfires and droughts, while regions across the world face extraordinary flooding and storms.

Climate scientists used to say that global warming stacks the dice in favour of more extreme weather: what might have used to be a storm so large that it occurred only once every 1,000 years now might happen every 500, or a 100-year flood might instead happen every 60 years. Now they say that we are adding more dots on the dice: whereas before we might have rolled a 12, now we are rolling 13s and 14s.

Entire neighborhoods of many major cities are threatened by global warming. Vancouver, New York, New Orleans and many other North American cities are so close to sea level that projected sea level increases could put huge swaths underwater.<sup>21</sup>

As the temperature rises, we can expect more and more severe impacts. The Intergovernmental Panel of Climate Change, in its 2007 report, discussed some examples of impacts associated with global average temperature change. Appendix 1 reproduces a figure demonstrating some of the impacts of climate change.<sup>22</sup>

In North America, the report continues,<sup>23</sup>

- Warming in western mountains is projected to cause decreased snowpack, more winter flooding and reduced summer flows, exacerbating competition for over-allocated water resources.
- In the early decades of the century, moderate climate change is projected to increase aggregate yields of rain-fed agriculture by 5 to 20%, but with

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<sup>21</sup> Gore, Al. "Climate of Denial: Can the Science and the Truth Withstand the Merchants of Poison?" *Rolling Stone* Jun 2011 26.

<sup>22</sup> Intergovernmental Panel on Climate Change. *Synthesis Report*. New York: [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/spms3.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html), 2007.

<sup>23</sup> M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds). *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007*. Cambridge: Cambridge University Press, 2007.

important variability among regions. Major challenges are projected for crops that are near the warm end of their suitable range or which depend on highly utilised water resources.

- Cities that currently experience heat waves are expected to be further challenged by an increased number, intensity and duration of heat waves during the course of the century, with potential for adverse health impacts.
- Coastal communities and habitats will be increasingly stressed by climate change impacts interacting with development and pollution.

And for Canadians living in Polar Regions, the report discusses some projected regional impacts,<sup>24</sup> including

- The main projected biophysical effects are reductions in thickness and extent of glaciers, ice sheets and sea ice, and changes in natural ecosystems with detrimental effects on many organisms including migratory birds, mammals and higher predators.
- For human communities in the Arctic, impacts, particularly those resulting from changing snow and ice conditions, are projected to be mixed.
- Detrimental impacts would include those on infrastructure and traditional indigenous ways of life.
- In both polar regions, specific ecosystems and habitats are projected to be vulnerable, as climatic barriers to species invasions are lowered.

It is clear that Canada faces clear and pressing challenges from climate change.

## Financial Institutions

**T**he Tar Sands are the world's largest capital project, and that investment comes directly from financial institutions, endowments, and pension funds the world

*"If McGill [is] truly ... has a vision of a sustainable future, they should stop lending capital to businesses whose model is in direct conflict with this vision. There is no such thing as "ethical oil", fossil fuels are in direct moral conflict with humanity and McGill should stop funding its operations by spending away our future."*

-McGill Student

over. Similarly, deepwater oil rigs, new hydraulic fracturing installations, and mountaintop removal projects require tremendous amounts of startup money, with the necessary funding coming from investors. These financial institutions enable everyday

<sup>24</sup> M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds). Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007. Cambridge: Cambridge University Press, 2007.



production and consumption of fossil fuels. The participation of financial institutions in the localized and global destruction caused by fossil fuels companies is willful and irresponsible, and they are equally culpable for the damage caused by these practices.

## Identifying the Investments

McGill University's investments in fossil fuels make up a relatively small portion of the endowment fund, but the global impact of those companies the University invests in is extraordinary. The December 2011 report on the Publicly Traded Equity Holdings of the University<sup>25</sup> is the most recent data available, and all discussion of the composition of McGill's investments comes from that list.

To identify specific corporations we used two lists. The first, from the Rainforest Action Network,<sup>26</sup> lists companies involved in the Canadian tar sands; the second, from the Carbon Tracker Initiative,<sup>27</sup> has a list of the top 100 companies with the largest estimated carbon reserves in coal, and a list of the top 100 companies with reserves in oil and gas.

McGill invests in 645 publicly traded corporations. 14 are involved in the tar sands, while 35 number among the worlds largest fossil fuel corporations. In total, these two lists identify 37 unique companies that McGill profits from, 5.7% of the University's unique holdings. The number of shares in each is not publicly available at this time, and McGill has refused to release further information despite Access to Information requests filed under the *Act respecting access to documents held by public bodies AND the protection of personal information*.

*"Let's be better than we are today. Please divest from the Tar Sands and from Plan Nord; these are not ways to the future we want to see."*

-McGill Student

<sup>25</sup> McGillLeaked. "2011/12 Publicly Traded Equity Holdings." <<<http://mcgillileaked.wordpress.com/2012/10/16/201112-publicly-traded-equity-holdings/>>>.

<sup>26</sup> Rainforest Action Network. "List of Tar Sands Companies". <<<http://ran.org/list-tar-sands-companies>>>.

<sup>27</sup> The Carbon Tracker Initiative. "Unburnable Carbon: Are the World's Financial Markets Carrying a Carbon Bubble" (Aug 2012). <<<http://www.carbontracker.org/wp-content/uploads/downloads/2012/08/Unburnable-Carbon-Full1.pdf>>>.

The full list of companies identified, along with their carbon reserves if available, can be found in Appendix 2.

It should be made clear that this is an incomplete list of the fossil fuel companies that McGill invests in. Only the largest and dirtiest fossil fuel companies are represented on these lists, and the school's endowment fund includes other smaller corporations.

*"As an institution invested in improving the future through education, McGill has no business helping Canada's energy solutions and environmental policies stay stagnant or regress in areas that hurt the environment."*

-McGill Student

Of the 35 companies identified by the CTI, many are cross-listed on all three lists, meaning they have some of the largest reserves of carbon in coal, and in oil and gas, and they invest in the dirtiest form of oil production on the planet. The CTI also expressed its concern that Canadian accounting practices artificially lower the size of unconventional oil reserve size estimation, since "they are only reported under Canadian rules once production is believed to be 'imminent'".<sup>28</sup> Thus it is likely that the size of the actual reserves of carbon owned by the 12 firms involved in the tar sands for which an estimation of reserve size is available is significantly larger than expressed.

All told these 35 companies have at least 205.455 Gigatonnes of CO<sub>2</sub> locked away beneath the earth. Those known reserves comprise about 7% of the globe's known carbon reserves but comprise over 36% of our remaining carbon budget for the next 38 years. The Carbon Tracker Initiative estimates that only 886 Gigatonnes of CO<sub>2</sub> can be emitted from 2000-2050 if humanity hopes to keep warming below 2 degrees Celsius. With 321 Gigatonnes already burned, only 565 Gigatonnes remain in our global carbon budget. Thus 80% of the world's 2795 Gigatonne fossil fuel reserves must remain underground.

None of these fossil fuel companies has pledged to keep 80% of their reserves unburned, nor will they as long as it is profitable for them.

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<sup>28</sup> The Carbon Tracker Initiative. "Unburnable Carbon: Are the World's Financial Markets Carrying a Carbon Bubble" (Aug 2012) 12. <<<http://www.carbontracker.org/wp-content/uploads/downloads/2012/08/Unburnable-Carbon-Full1.pdf>>>.

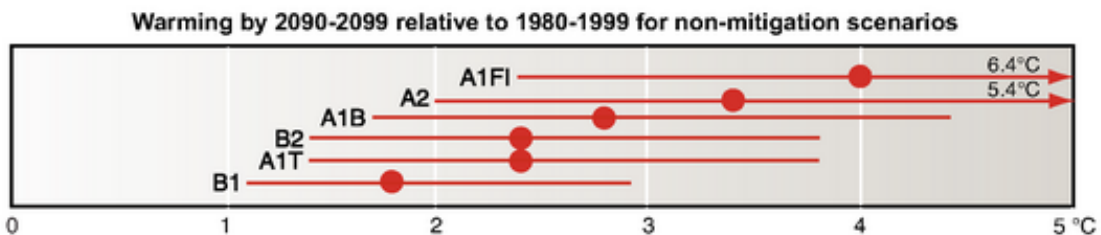
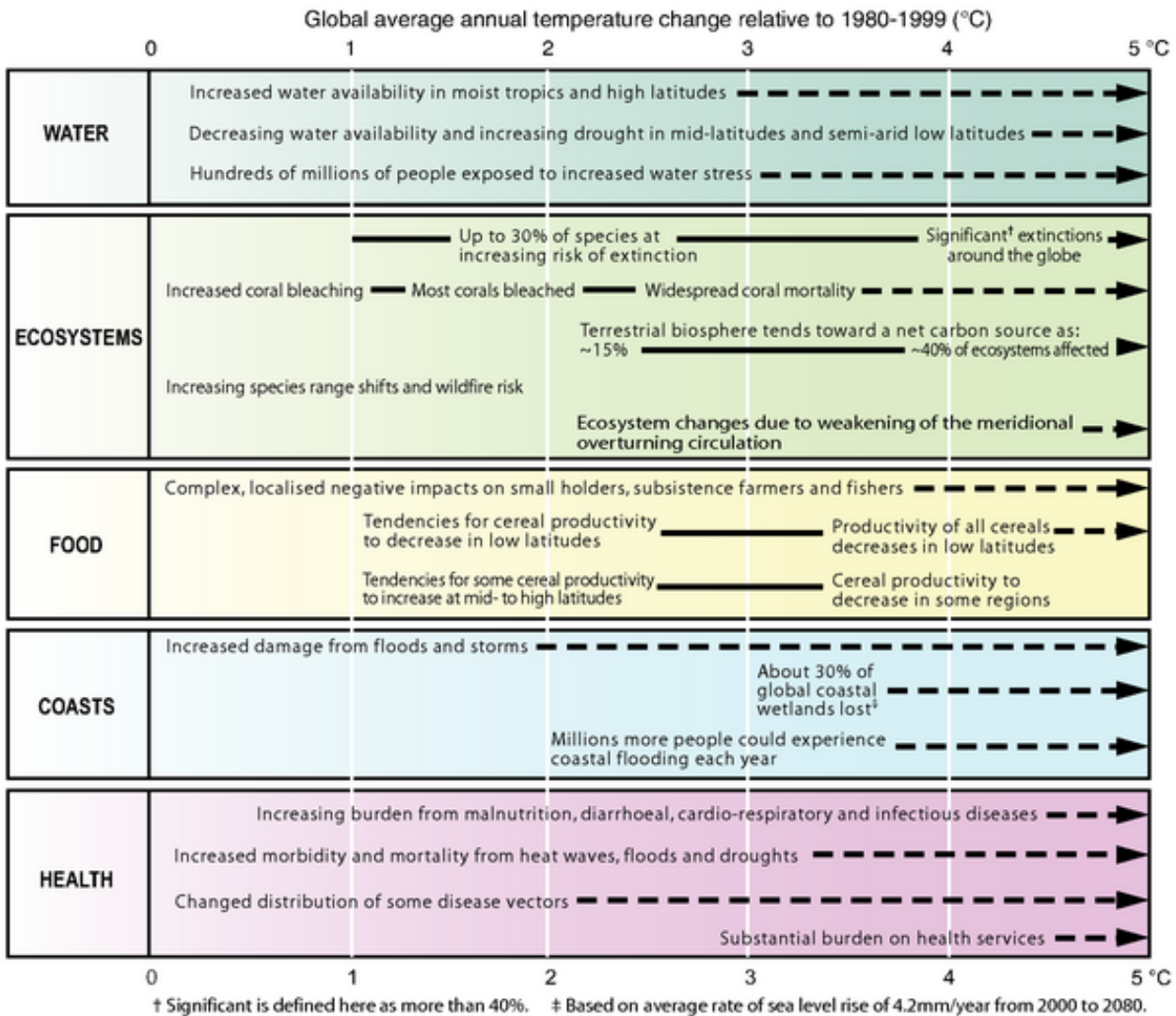
The question then is what to do about this problem. The responsible answer is divestment.

### **Conclusion: Moving Forward**

Time is of the essence for humans. We need immediate action to keep this planet livable, and McGill University is in a position to act. Climate change threatens the Canadian people. Given the urgency of climate change, the students, faculty, staff, and alumni of McGill University demand:

- That the Investment Committee be instructed to immediately dispose, in an orderly and responsible fashion, of the University's holdings in corporations which develop the Canadian tar sands, transport or refine hydrocarbon from the Canadian tar sands, sell products of the Canadian tar sands, or are otherwise involved in the production, distribution or sale of goods from the Canadian tar sands, as determined by the Committee to Advise on Matters of Social Responsibility.
- That the Investment Committee be instructed to dispose, in an orderly and responsible fashion in no longer than three years, of the University's holdings in corporations which produce, refine, transport, or sell fossil fuels, as determined by the Committee to Advise on Matters of Social Responsibility.
- That the Investment Committee be instructed to dispose, in an orderly and responsible fashion in no longer than three years, of the University's holdings in financial institutions which have not adopted, as determined by the Committee to Advise on Matters of Social Responsibility, a policy of making no further loans to corporations that produce, refine, transport, or sell fossil fuels.

**Appendix 1: Examples of impacts associated with global average temperature change (Intergovernmental Panel on Climate Change)<sup>29</sup>**



<sup>29</sup> Intergovernmental Panel on Climate Change. *Synthesis Report*. New York: [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/spms3.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html), 2007.

**Appendix 2: McGill University's investments in fossil fuel companies, and the size of their estimated carbon reserves**

THE ESTIMATED CARBON RESERVES OF 35 OF THE FOSSIL FUEL COMPANIES MCGILL INVESTS IN.

Companies	Coal (GtCO <sub>2</sub> )	Oil (GtCO <sub>2</sub> )	Gas (GtCO <sub>2</sub> )	Total (GtCO <sub>2</sub> )
AGL Energy	0.89			0.89
Anglo American	16.75			16.75
ArcelorMittal	0.62			0.62
Baytex Energy Corp *		0.3		0.3
BG Group		2.29	0.48	2.77
BHP Billiton	16.07	1.82	0.2	18.09
Bonavista Energy Corp		0.18	0.03	0.21
BP *		32.68	1.92	34.6
Cairn Energy		0.35		0.35
Canadian Natural Resources *		4.23	0.14	4.37
Cenovus Energy Inc *		1.4	0.006	1.406
Chevron *		20.11	1.11	21.22

Crescent Point Energy Corp.		0.47	0	0.47
EnCana Corp. *		0.24	0.47	0.71
EOG Resources		0.97	0.38	1.35
Exxon Mobil *		38.14	2.89	41.03
GDF Suez S.A.		0.17	0.05	0.22
Inpex Corp		2.44	0.1	2.54
Itochu Corp	0.34			0.34
Mitsubishi Corp	4.31			4.31
Mitsui	1.03			1.03
Nexen *		1.4	0.002	1.402
Oil Search LTD		0.91		0.91
OMV		1.02	0.06	1.08
Repsol YPF S.A.		2.75	0.29	3.04
Rio Tinto	5.23			5.23
Royal Dutch Shell *		14.11	2.09	16.2
RWE AG	1.94			1.94

Santos Limited		0.19	0.17	0.36
Statoil ASA *		2.23	0.25	2.48
Suncor Energy *		3.74	0.007	3.747
Talisman Energy Inc.		1.47	0.19	1.66
Tullow Oil		0.36	0.01	0.37
Wesfarmers	1.86			1.86
Xstrata	11.6			11.6
	Coal	Oil	Gas	Total
Total	60.64	133.97	10.845	205.455

\* Also invests in the tar sands; due to Canadian accounting practices, the estimated carbon reserves for companies that exploit the tar sands are likely higher than the publicly available data.

COMPANIES INVOLVED IN THE TAR SANDS\*\*

**Baytex**

**BP**

**Canadian Natural Resources**

**Cenovus Energy**

**Chevron**

**Enbridge**

**Encana**

**Exxon**

Imperial Oil

**Nexen**

**Royal Dutch Shell Company**

**Statoil ASA**

**Suncor Energy**

Transcanada Corps

\*\*An estimate of the size of carbon reserves is available for each company in bold.