



**"In nature's economy the currency is not money,  
it is life."  
Vandana Shiva**

July 2011

## Maude Barlow Speaks on Fracking & Virtual Water

To hear the whole presentation by Maude Barlow go to the [SACPA archives](#).

[Mapping the Prairie City](#) at the SAAG art gallery, featuring the Field Notes Collective.

Next SAGE meeting in October.

Maude Barlow, National Chairperson of the Council of Canadians, addressed a receptive Lethbridge audience on the impact of new methods of fracturing shale to extract natural gas.

She suggests a national moratorium on hydraulic fracturing until the science and impact is better understood.

Maude Barlow also expressed concern on the

impact of Canadian water exports in the form of virtual water.

Virtual water is a term used to describe the amount of water used to create a commodity - for example, the amount of water in the life-cycle to produce a kilogram of beef or an apple.

The water footprint of a country assesses the amount of water used for its goods and services: where the water comes from (imports)

and where it goes (exports). By far, the largest amount of water we consume is embedded in the products and commodities we buy.

Unfortunately, richer countries can ignore unsustainable water use by importing virtual water from impoverished countries. Many of these countries are suffering from severe environmental damage caused by exporting virtual water.

Barlow cites a World Bank study that suggests that by 2030 the demand for water will exceed supply by 40%. This disparity will exacerbate suffering, tensions between nations, and the drive to control water markets. To mitigate these stresses, she advocates for access to water as a human right to be managed as a commons.

## Maude Barlow Also Speaks on CETA

The Canadian-European Comprehensive Economic & Trade Agreement (CETA) being quietly negotiated by the Federal Government is a new agreement that allows corporate access to different levels of government (schools, hospitals, transit,

water services, etc.).

In essence, services that we currently identify as publically shared will be open to private competition and control.

Major corporations will be able to restrict local governance, and compete with small local firms and

municipalities to provide services. Based on similar experiences worldwide, this may lead to higher rates, and a loss of government control of environmental standards.

For more, see the [Council of Canadians](#) documentation.

## Moving Towards Sustainability

“Thought likes solutions;  
Wisdom abhors them.”

The following is a list of realizable projects proposed for SAGE’s Moving Towards Sustainability initiative. The goal is to select one or two projects to be advanced by SAGE in the community beginning next fall. If you have other ideas or thoughts, please do not hesitate to share them.

### Energy:

1. Public education on neighbourhood energy consumption (comparison & reduction in the home and for transportation).
2. Advocate for incentives for a community renewable energy project.
3. Promote green building and develop a green building guideline for the city.
4. Provide public seminars on energy efficiency and accessing grants.

### Waste:

3. Conduct a industrial ecology study (to identify waste from one industry that could be used as an input by another).
4. Advance a community composting program (grocers, institutions, neighbourhoods).
5. Support city initiatives in recycling and diverting waste from the landfill
6. Organize a free-cycling event.
7. Lobby against packaging (retail, groceries, fast-food).

### Consumption:

8. Illustrate the average individual consumption of a resource (trees, oil, water, etc.) during environment week, at next year’s Whoop Up parade or other events.

### Air:

9. Partner with Clean Air Matters on urban emissions, particularly particulates from open fires.

### Food:

10. Support the development of more community gardens (empty lots, parks, etc.).
11. Promote locally grown food, community supported agriculture, and organic food production.

### Local Capacity:

11. Host a meeting of environmentally supportive organizations to address local issues and build capacity.
12. Promote the creation of a sustainability council to link municipal governance with environmental education and the advancement of initiatives.

**Southern Alberta Group for the Environment (SAGE)**

**A Leading Voice for a Healthy and Environmentally Sustainable Community.**

Visit us at: <http://sage-environment.org/>

If you are interesting in getting involved, contact us at:

[sage-communications@sage-environment.org](mailto:sage-communications@sage-environment.org)



## Sea Sick (2009)

## (Book Review)

Alanna Mitchell is a journalist and named best environmental reporter in 2000 by Reuters Foundation. She offers an eye witness account of the current state of our oceans supported by current science.

Mitchell clearly presents the phenomena of carbon dioxide and heat on ocean systems. And she emphasises how much we simply don't know:

"These two phenomena—carbon dioxide and heat—are changing the ocean's acidity, patterns of saltiness, temperature, volume, ice cover, function within the planet's carbon and oxygen cycles, and possibly the physical structure of the currents as well. And these are just the ones we happen to know a bit about."

Mitchell explains the cumulative destruction of what was once the earth's most prolific ecosystem. Changes to the 'marine climate', the destruction of sensitive mangroves and coral systems, dumping of waste, and the overexploitation of fisheries support predictions of ocean collapse that may compare to the Great Dying at the end of the Permian period 250 million years ago.

*Sea Sick* begins with a description of the Great Barrier Reef in Australia, which may be integral to

the life-cycle of one-quarter of the marine species on earth - "a biological gold mine that is even more productive than tropical rainforests, arguably the most important part of the most important medium of life on the planet."

The death of coral systems due to a combination of pollution, fishing, ocean acidification, rising sea levels, and higher temperatures means the imminent extinction of untold species. "Over the past twenty years, living coral around the world has been destroyed five times more quickly than tropical rainforests. ... More than a quarter of the world's reefs have already been killed off and another 50 percent are in severe trouble."

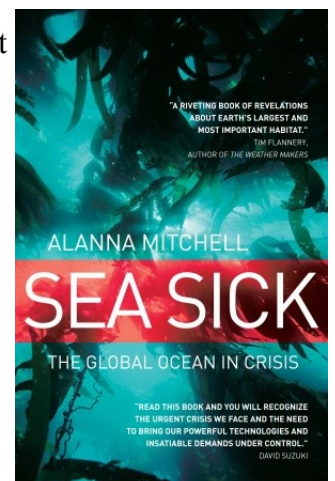
Mitchell describes the affect of eutrophication as raw sewage and fertilizer runoff from agriculture is introduced to rivers that eventually flow into the oceans. These contaminants promote algae blooms that use oxygen as they decay, leaving the water oxygen-deficient. Marine life dies, leaving large dead zones at the mouths of as many as 450 of the largest rivers in the world.

Ocean acidification caused by the absorption of carbon dioxide reduces the amount of calcium available in the water for organisms that grow shells. Many of these organisms are the bottom of

the food chain, which suggests that their disappearance will lead to the collapse of the marine system.

As for overfishing, Mitchell looks no further than eastern Canada to find an example of the tragedy of the commons. She presents the history of fish consumption as each favourite is replaced by another once the stocks diminish. She cites research suggesting that each time a new fish is targeted, catches plummet within a few years, and on average "80 per cent of the populations of fish had vanished within fifteen years of the start of industrial activity." Roughly 90 percent of predatory fish stocks have vanished from our oceans.

*Sea Sick* is an interesting book, and provides a compelling balance between her experiences researching the book, the science, the projected results of our current behaviours, and a call for greater wisdom. It will certainly make you think the next time you bite into a deep fried McFish sandwich from your favourite Scottish restaurant.



## Letter to the Editor (Lethbridge Herald, published May 28, 2011)

### 'Frac' attacks not very scientific - by Joseph Quesnel, Frontier Centre for Public Policy

In March, the Lethbridge chapter of the Council of Canadians invited Josh Fox to speak about hydro fracturing (or 'fracking'), a process of extracting oil and natural gas from rock formations, often deep below the Earth's surface, through horizontal drilling and injected fluids. Fox is the director of the 2010 documentary "Gaslands."

The issue became topical after Bowood Energy and Murphy Oil Company announced it had entered into an agreement with Kainaiwa Resources Inc., a corporation owned by the Blood Tribe First Nation, to acquire 129,280 acres of prospective oil and gas properties located on Blood Tribe Reserve. The five-year deal involves at least 16 wells.

However, rather than focus on economic opportunities for Kainai Nation, suspicion set in, not surprisingly led by environmental groups always opposed to oil and gas activity.

Fox's documentary portrays hydraulic fracking in the worst possible light. By featuring stories from different U.S. communities where fracking is used, Fox presents what he believes are significant environmental and health effects of fracking.

There is nothing wrong with bringing health and environmental concerns to the attention of the public; it is morally essential. However, point-of-view documentaries are not scientific studies.

For example, how can one not draw sweeping conclusions about wait times in health facilities across Canada from Michael Moore's documentary "Sicko," simply from inferences about the Canadian health-care system after visiting one ER in Windsor, Ont. Not very scientific.

Regarding "Gasland," not many people know that incidents featured in Colorado in the documentary were refuted. In one scene in Weld County, when a landowner ignites a flame from his home's water faucet with a cigarette lighter, the film blamed it on natural gas exploration. However, proper investigation established that it was related to "naturally occurring biogenic methane not related to oil and gas activity." Fox also reportedly declined to interview an official with the Colorado Oil and Gas Conservation Commission on camera, which would have likely prevented these inaccuracies.

Makes for emotion-based theatrics, but not scientific rigour.

The same for hydraulic fracturing here.

Are we following the evidence or spreading fear?

Fracking was raised during a forum in Lethbridge's recent byelection. The fear was evident among aldermanic candidates.

Yes, fracking fluids injected underground should concern us, as potential groundwater contamination. However, many of the fluids are innocuous, like water and sand and even salt and citric acid. Some are potentially harmful, but are in small concentrations below the water table.

Fracking opponents in Canada and southern Alberta point to concerns elsewhere. They mention that the states of New York and New Jersey have moved to ban fracking, as had France. Quebec has banned it, and one B.C. activist wants that province to do the same.

For provinces like Alberta, it would not necessarily be accurate to point to the U.S. as an example of what could happen here. Fracking is more unregulated there and is only now coming under EPA review.

For instance, critics cite a recent scientific study by researchers at Duke University showing in some cases shale drilling is linked to water contamination, although with important caveats.

Alberta Environment Minister Rob Renner reminded the easily alarmed that tough Energy Resources Conservation Board regulations and Alberta's geology reduce the likelihood of methane entering Alberta's groundwater as it has around shale gas wells in the Northeastern U.S.

Renner said hydraulic fracturing has been in use in Alberta since the 1950s, and 167,000 wells have been fractured since then with no documented case of groundwater contamination.

Fracking opponents should consider technological change as a positive force when it comes to reducing fracking risks. A new technique called gas fracking—incidentally, developed by Calgary-based GasFrac Energy Services—uses liquefied petroleum gas (LPG), consisting mainly of propane instead of water to crack open shale formations to release oil and natural gas. However, since no water is used and the gelling chemicals are considered benign, the possibility of contaminating wells or streams is next to nil.

Even in the U.S., policy makers are acting quickly to ensure shale gas drilling is as safe as it can be. President Obama said in his March energy speech: "We've got to make sure that we're extracting natural gas safely, without polluting our water supply." As such, the EPA is embarking on a major study of fracking and groundwater resources. Initial results are expected in 2012.

American policy makers could certainly learn a lot from Alberta on this front. A bill in Congress is moving through the legislative process mandating disclosure of all fracking chemicals.

Shale gas holds the promise of becoming a bridge fuel in phasing out 'dirtier' energy forms. We should not dismiss the potential for abundantly cleaner fuels.



Letter to the Editor (Lethbridge Herald, published June 4, 2011)  
Re: 'Frac' attacks not very scientific - May 28, 2011

We read Mr. Quesnel's guest column with interest, hoping that he would elucidate the science of fracturing. Unfortunately, he, too, was not very scientific. But of course, the Frontier Centre of Public Policy is not known for its advocacy of science, being more of an ideological arm for industry. As such, the article was a good example of manufacturing opinion – their opinion being: 'drill baby drill'.

But is there something to be concerned about regarding new methods of horizontal drilling and hydraulic or gas fracturing? Is there something to be concerned about regarding long-term contamination of fresh water aquifers in a region that needs clean water? Is there something to be concerned about when U.S. states and countries around the world are placing moratoria on hydraulic fracturing pending scientific study and adequate regulatory oversight?

In principle, groundwater can be contaminated when you expose the water aquifer to other geologic layers – just like you can get an infection when you have an open cut. Groundwater can be contaminated during drilling; it can be contaminated from gas migration during hydraulic fracturing which can open along natural faults between geologic layers; it can be contaminated during production due to poor cementing that allows gas to travel up the well between the casing and the earth; and it can be contaminated long after the well is abandoned due to corroded casing and cement failure. Even though the ERCB does what it can, a 2007 (scientific) study for the EUB by Bachu & Watson suggests that about 5% of Alberta's 400,000 oil & gas wells have gas migration to the surface, and another study by Bishop (2011) suggests that it is almost a certainty that a well drilled today will have gas migration within a hundred years. Maybe it is this long-term concern that distinguishes those dratted environmentalists (wasting everyone's time speaking to our collective future) from the oil & gas industry and their apologists worrying about their next quarterly profit (and their funding sources).

Regarding fracturing, whether hydraulic or gas, comparing the techniques used today with those used even a decade ago is like comparing a Ferrari to a Studebaker. It surprises us that Mr. Quesnel cites Minister Renner as suggesting they are the same – one would expect that he is better informed than that. One of the main differences is the volume of water (4 to 25 million liters per event) used for hydraulic fracturing – this is 50 to 100 times more than conventional fracturing. The 750 chemicals that may be used for fracturing fluids, even at a concentration of 1% by weight, amounts to tens of thousands of kilograms injected underground per event – many of these chemicals are toxic at very low concentrations. Much of this hazardous fluid returns to the surface with the natural gas during production, requiring storage, transportation and disposal – with the associated risks of air pollution and spills into surface water systems. As to the assertion that there has been no documented case of groundwater contamination in Alberta, we should find of interest the \$33 million lawsuit against EnCana filed by Jessica Ernst from Rosebud. She, too, can light her tap water on fire.

Two more brief points should be expressed. The first is that Mr. Quesnel says that as few as 16 wells will be drilled on 130,000 acres of Kainai land, but didn't mention the maximum – it is our understanding that there is no maximum. These lease agreements were approved without adequate public consultation between Chief & Council and Kainai membership and, according to Maude Barlow, in violation of international law as it pertains to water rights. Moreover, the \$5000 per person 'windfall' for the nation isn't exactly a foundation for economic prosperity, as Mr. Quesnel implies.

And another, more incongruent, point Mr. Quesnel made was the 'fear' that was evident among aldermanic candidates during an election forum. We consider our current council quite capable of conducting their own research and competently evaluating the facts on this topic. They *should* be concerned about resource extraction in the region (not only the Kainai exploitation) as it is their responsibility to protect the future social, environmental and economic prosperity of the region. It is a bit cynical to believe that aldermen can be so easily manipulated.

It is quite likely that the intensity of oil & gas exploitation in southern Alberta will increase in the near future to meet the appetite for natural gas in North America (and don't be fooled by Mr. Quesnel's spurious diversion of shale gas being a 'bridge fuel' to reduce greenhouse gas emissions and associated climate change). Those of us living in the region should be concerned about the balance between short-term economic activity from resource exploitation and our long term interests of sustaining our access to clean water for agriculture, ranching and our collective needs.

Braum Barber, Southern Alberta Group for the Environment (SAGE);  
Lois Frank and Mike Bruised Head, Kainai Lethbridge Earth Watch (KLEW)  
Sheila Rogers, Council of Canadians