

Watershed *Sentinel*

January/February 2008
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Environmental News from BC and the World

Sea Change Action on Climate

*Inside: Salmon Wisdom * Plan B * Japan's Slow-Life
Depleted Uranium and Me * Power Saver by the Numbers*

Vol 18 No 1 ISSN 1188-360X

Another year

Another salmon science study

The new report predicts extinction for wild BC pink salmon due to the effect of sea lice on the smolts as they navigate past fish farms. A sad comment from Ireland: 'We lost our wild fish too. Why can't you learn from us?'

This is the year to learn. www.saveoursalmon.ca



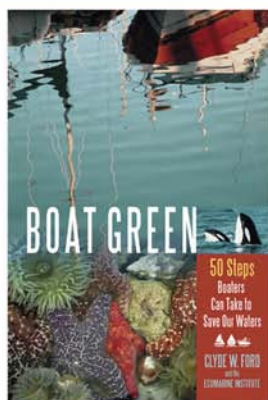
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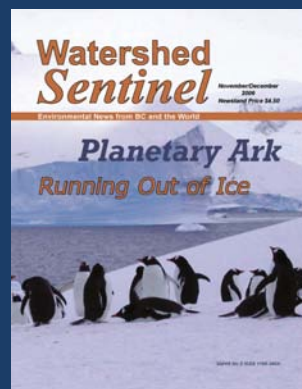
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Watershed *Sentinel*



January-February 2008

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No matter where on Earth we live, we are all residents of a watershed. Throughout history, clans, tribes, and all organized groups have endeavoured to protect their home watershed or territory. Sentinels were stationed throughout the highlands of a watershed to herald the coming of friends or of threats in the form of encroachment, floods, fire, or hostile armies.

Threats to our watersheds exist to this day whether they come from careless individuals or insensitive corporations. The *Watershed Sentinel* keeps watch and informs.

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EDITORIAL Beginnings



There is still a lot of wishful thinking about the challenges we humans and the rest of life on earth, all our relations, face in this century. It doesn't matter whether you peg the cause as climate change, over-population, peak oil, capitalism, or the devil, the problems on the horizon remain ominous. One way or another, we can be confident that life will be very different in 2050.

But humans are the darnedest species. Suddenly at the end of December, the strangest players began to put their shoulders to the wheel. The US Air Force opened a large solar-powered air base in Nevada, and Canada protected a huge swath of boreal forest. The NHL players decided to go "carbon-neutral" by off-setting their travel with investments in alternative energy. The Aussies chucked out their anti-Kyoto prime minister, while the Brits announced they will build windmills instead of nuclear power plants, the Americans started rejecting applications to burn coal, and the Africans demanded action in Bali.

This January, in this year of 2008, it feels like we face a world of new beginnings. May we have the wisdom to know when we can make a difference.

Delores Broten, Comox BC

What's in a Word?

A chairperson is just as common as a chairman. Most mailmen have transformed into postal workers, or better yet, posties. It's just clergy now, instead of clergymen, though no one uses the word personhole instead of manhole.

A shift in common word usage can mean that something significant is underway in society. In fact, like dead canaries in a mine, new terms often signal that a "change in the air" has already happened. By the time the new vocabulary has trickled down through the populace, the new is often old again. Not, of course, to say that feminism is dead, just that it isn't news.

So now land use professionals are managing the "rainfall resource." Before setting out, dog walkers stuff biodegradable waste bags into their pockets. The 100-mile diet does not mean dining in central BC. Curbside pickup is not what it used to be.

After 30 years of speaking, writing, cursing, and just downright being ornery about saving the environment (as it used to be called), long-time greenies are facing a startling truth. Not only is the sky really falling, but everyone (except Harperbush and the three blind mice) thinks so, too! Now what? Can't keep pointing out the obvious.

Exactly. Now the words, whatever they are, need to be morphed into action. A LED light, a scooter instead of a car, no to coal and yes to solar, not carbon credits but rather just not carbon, less short-life plastic bits, more close-to-home food.

It's time to celebrate the change from talking to doing, to monitor promises of action by all levels of government, to keep an eye on get-green-quick schemes, to simply keep moving forward.

In the 1960s, few people would have believed it if they were told that in less than one generation, the title Ms would be standard on all forms. Perhaps in 20 years, gas-guzzling vehicles will only exist in car museums.

Vive la difference.

Leslie Gillett, Courtenay BC



Around The World

The food news shows progress

Compiled by Delores Broten

A Softer Safer Genetic Engineering

Genetic researchers for Bayer CropScience in Germany have developed a way of suppressing parts of the RNA mechanism in plants to allow them to thrive, without splicing genes or adding foreign genetic material. The RNA interference can be targeted to specific plants' unique genetic sequence, so cross-species transfers are not a problem. Plants go into a kind of immune system overdrive when faced with environmental stresses like drought or heat, putting a lot of their energy into strengthening their cells instead of producing crops. The researchers have discovered a way to moderate this response to only the amount needed for survival, so that yields remain high. The researchers note that three quarters of low crop yields are caused by heat, drought, or wet, not weeds or bugs.

—*The UK Telegraph, December 18, 2007*

Organic Farming Can Feed the World

Organic farming can yield up to three times as much food on individual farms in developing countries, as low-intensive methods on the same land – according to new findings which refute the long-standing claim that organic farming methods cannot produce enough food to feed the global population.

Researchers from the University of Michigan found that in developed countries, yields were almost equal on organic and conventional farms. In developing countries, food production could double or triple using organic methods. In addition to equal or greater yields, those yields could be accomplished using existing quantities of organic fertilizers, without putting more farmland into production.

Planting “green manure” cover crops between growing seasons provided enough nitrogen to replace synthetic fertilizers.

For their analysis, researchers defined the term organic as: practices referred to as sustainable or ecological; that utilize non-synthetic nutrient cycling processes; that ex-

clude or rarely use synthetic pesticides; and that sustain or regenerate the soil quality.

—*University of Michigan News Service, July 10, 2007*

German Biodiesel Loses Subsidies

On January 1, Germany removed tax subsidies of over \$3 billion a year for biodiesel from crops. Due to exemptions and subsidies, more than a million hectares were planted with rapeseed (canola) in Germany in 2007 – 10 percent of the country's agricultural land – while imports from developing countries soared.

The environmental benefits of biofuels compared to petroleum-based fuels are increasingly challenged by scientists and activists, since there is little greenhouse gas reduction, and negative environmental effects including deforestation in developing countries and the release of nitrous oxide, another greenhouse gas, from the use of nitrate-based fertilizers.

Greenpeace has long been warning about the “environmental fraud” of biofuels.

If half the available farmland in Germany were used to grow rapeseed, the total production would be 1,500 million litres of biodiesel, less than five percent of the total annual consumption of gasoline in Germany. On that same land it is possible to grow 6.8 million tonnes of wheat, or 41 million tonnes of potatoes. “Germany has to choose between producing food or vegetable oil to run its cars,” said a Greenpeace spokesperson.

—*IPS-Inter Press Service and IFEJ-International Federation of Environmental Journalists, December 29, 2007, <http://www.ipsnews.net>*

**Food
production
could double
or triple
using organic
methods.**

Too Much Meat, Not Enough Water

The US government is predicting that 36 states will have a water shortage within five years. But a change in dietary habits from eating meat to vegetables would free significant amounts of water. David Pimentel of Cornell University points out that while wheat requires 117 gallons of water to produce a pound of food, beef requires 5,165 gallons a pound – a ratio of nearly 50 to 1.

—*Philadelphia Daily News, November 16, 2007*

Depleted Uranium in the Strait of Georgia

*Or how I was hooked
by "du"
— a personal journey*

*If you lived in the northern Strait of Georgia
— in the area of Texada, Lasqueti, Hornby,
Denman, Comox, Quadra, and Cortes Islands
— in the late 1980s and early 1990s, you or
your family may have witnessed or been
affected by this activity. The Merchant Legal
Group, lawyers for the Agent Orange class
action suit at Camp Gagetown, would like to
hear from you.*

by G. Turnbull

Saturday morning, April 15, 2006, I was listening to a favourite radio station, Malaspina College radio CHLY-FM, from Nanaimo. They were interviewing Leuren Moret, a geophysicist from Berkeley CA, who had worked at US nuclear labs.

She went on for 40 minutes about the horrors of depleted uranium (DU) in munitions, which releases radiation into the atmosphere and its medical effects on, for instance, the first Gulf War veterans, where it was first used in quantity. Over 500,000 out of 700,000 vets are now on disability for something called "Gulf War Syndrome," a 'disease' with many symptoms identical to radiation sickness. Or the test range off Vieques, Puerto Rico, where the residents are suing the US Navy for all the cancer, etc. That test range was finally moved to Rockhampton, Australia, where birth defects are starting to show up. Part way through the interview, she said, "The US navy used to test fire these munitions in Puget Sound until the local residents complained. They then moved north across the border to Nanoose Bay and now test in Canadian waters!"

Nanoose Bay means the Whiskey Gulf test range which is only 30 miles southeast of where I was sitting.

I had just been told I was 30 miles downwind of a nuclear test zone!

I went into a bit of an anxiety attack with all the attendant brain chemicals associated with "fight or flight," where the risk is usually assessed fairly quickly. But the risk assessment of when and how much DU was only partially answered 11 days later, (and for that period some friends thought I was a bit off.) I was certainly running on adrenalin.

I started on the internet where googling 'du Nanoose Bay' brought up 16 sites but nothing conclusive. (There are now more than ten times the sites!) Googling 'du' confirmed the horrors of its use, the quantities used in the first Gulf War, the Bosnian carpet bombing (where Rumanian and Bulgarian atmospheric testing detected dirty radioactive isotopes found only in spent nuclear fuel rods, what's called RU), the Afghanistan and Tora Bora bombings, and the second Gulf War, where the US admits to using 2.5 million kg.

And its definition: when uranium is 'enriched,' what is left of the original uranium is 'depleted' to 70% of its original radioactivity. There is a lot more of the depleted stuff than the enriched stuff, and its storage had always been a problem.

It was first used by the Germans in 1943 when their tungsten supply was blockaded, according to A. Speer. Tungsten is used in armour piercing munitions. Replacing it with DU was more effective, DU being more dense, and

Air Force Environmental Assessment

"Target 63-10 is the only air-to-ground gunnery range in the United States cleared to employ 30mm depleted uranium rounds from A-10 aircraft. The target area is restricted and is more than 10 miles from any community, facility, or home.

"A single depleted uranium penetrator, about the size of an adult's little finger, is capable of penetrating the armor of a tank. As the round penetrates the armor, it burns at extremely high temperatures and sprays hot metal in the interior of the armored target.

"Depleted uranium is the by-product of converting natural uranium into enriched uranium. Depleted uranium is 40 percent less radioactive than natural uranium and is twice as dense as lead. The small depleted uranium penetrator weighs 1.7 pounds.

– Nellis Air Force Base, Nevada,
<http://www.nellis.af.mil/news/story.asp?storyID=123022433>

had the added 'benefit' of being a gas weapon!

Yes, it is an excellent armour piercing weapon, but what is rarely mentioned is DU's pyrophoric qualities. As a metal, it ignites and burns like magnesium at an intense 2-to-3000°C. Water does not put it out. It ignites at only 170°C, meaning it's on fire as it comes out of the barrel of the gun, or, if used as a bomb, it ignites on impact, burning, vapourizing almost entirely, and condensing to tiny, hollow spheres with a density less than water that then float on the wind and water, and are just the right size to lodge in lungs. Essentially that 70% radiation is released to the atmosphere just as an atomic bomb releases its radiation to the atmosphere but in smaller doses.

DU tips, coats, and is solid in munitions from handgun caliber to 5000 pound bombs. Considering the quantities used (conservatively 3 million kg.), those small doses apparently add up to the radiation released by 400,000 Nagasaki A-bombs (500,000 by another source). I don't know how to judge those numbers. There are 67 million kg. DU munitions 'prepositioned' in South Korea on three US bases!

The DU storage problem was solved and in fact DU is given free to the munitions manufacturers.

All this information wasn't helping my anxiety and I still had nothing solid about Whiskey Gulf. I phoned a UBC professor who has been working on nuclear issues, asking whether he knew anything about DU testing in Whiskey Gulf. For 20 minutes we had the strangest conversation where, in a loud voice, he would say that the range is only used for torpedo testing, loudly that DU is safe, while in between, in a quiet voice, he would say that DU is 'highly chemically and biologically reactive' and that the Navy were using an anti-cruise missile gun, the Phalanx, that shot bursts of 60-120 rounds of 20 mm cannonfire at a time, up to 2000 per minute – an enormous quantity of DU vapourizing into the atmosphere. At the end he was saying, in the loud voice, that he believed that

Continued on Page 6 ➡

⇐ *DU continued*

the 15 hijackers took out the World Trade Centre with nobody else aware. Loudly I agreed. Quietly he told me if I came on information to contact him by mail, not to phone, not to e-mail. The implication that I was talking on a monitored phone, and his anxiety, did not help me with my anxiety.

I started noticing clicking on my line.

I still didn't know my risk from exposure and it seemed the only definitive way would be to scientifically measure the radiation in the environment around me. Not knowing how best to test for this I called the Provincial Public Health Officer on the morning of April 25. She was not interested, couldn't help me and put me on to the Ministry of the Environment where a bureaucrat was interested, suggesting looking at disease statistics, but couldn't help me on how to measure radiation. He put me on to the Ministry of Health Radiation Protection Branch, adding, "though they might have shut it down." (Slight rise in anxiety: "they?")

Other phone calls to government offices, ending up at the Ministry of Health Radiation Protection Branch, were less informative or dramatic.

Wednesday April 26th, I was talking to an unnamed source who used to be in the Canadian military and who was on board a Canadian naval ship when not only was the US navy test firing DU munitions in Whiskey Gulf but so was the Canadian navy and at least three other NATO navies, not only the Phalanx but every gun! This was in the late 1980s, early 1990, prior to their use in the 1991 Gulf War. This source could face military justice for divulging this and therefore insists on anonymity. This information has since been confirmed by another ex-military person.

Finally, some sense of time and quantity though I don't know about prior to this period (the Phalanx was being installed at this time). From then to now is also vague though the Phalanx has to be test fired twice a month to maintain correct calibration, 400-700 rounds each time. Presumably Canadian and US warships in these waters with this gun are test firing them still.

There is a concerned group in the Puget Sound that tries to keep track of this activity. There is no Canadian counterpart. In other test ranges it has taken years to get them to stop or move. The Brits tested in the Scottish Firth of Forth and it was the same procedure of secrecy, deny, deny and move finally. Here we have testing that has been secret for close to 20 years in which at least five countries are complicit.

Given this information my local MP did nothing more than open a file.

I am not a political animal and, feeling against a wall, I came back to my original concern about my health and started researching uranium detoxification. DU in the body acts as a toxin like other heavy metals such as mercury and lead, plus it is radioactive, doing DNA damage wherever it is. DU stays in the body much longer than other forms of uranium, according to H.D.Sharma.

Detox research consistently referred to the Japanese experience after Hiroshima and Nagasaki. The people that were irradiated but lived had a particular diet – miso, shitake and kombu [kelp]. The miso and shitake boosted health while the kelp detoxed. After Chernobyl, the Russians did a lot of research using this knowledge to test various algae and seaweeds, finally fixing on the brown kelp *laminaria japonica* and making a 40:1 extract that is sold in the US under the trade name Modifilan and in Canada as brown seaweed extract. I've been through the six month detox and feel much better.

After following the news of the CFB Gagetown NB Agent Orange class action suit and noting the similarities to Whiskey Gulf, I contacted the law firm about a possible suit here. After some correspondence, the principal of the firm, Tony Merchant, agreed to pursue the action, stating that he thinks the case "ought to move forward." He will need more input than just mine.

I lost a father and a number of then-young friends to diseases associated with uranium exposure (thyroid, brain, stomach cancers, etc.) in the early 1990s, only over three years after DU was tested heavily in Whiskey Gulf.

Does that sound familiar to anyone living in the area of Texada, Lasqueti, Hornby, Denman, Comox, Quadra and Cortes Islands, or have you witnessed this activity?

If so you could write your concerns to:

Re: File Number 402540, Merchant Law Group
#100-2401 Saskatchewan Drive
Regina SA Canada S4P 4H8

My interest in a litigious, rather than a political approach, is first to publicize this criminal activity and then possibly to seek justice. Feeling relatively fit for 60, I probably do not qualify for compensation, but some of you may.



G. Turnbull is an ordinary Canadian citizen concerned about some particular activities of his government.

More Information

Globalresearch.ca, *wise-uranium.org*, *mindfully.org* and *stop-du.org* all have good information and links about DU. Look for the 2001 report to the World Health Organization, *Radiological Toxicity of DU*. The Moret interview is archived at *radio4all.net*. You may wish to use public access internet to avoid being on a list.



Have You Heard?

Mohawk Air

The St. Regis Mohawk tribe, whose reserve runs along the Canadian border and the St. Lawrence river, has gained the power to enforce US federal air pollution laws with regard to pollution drifting onto the reserve from elsewhere in New York State. At the same time, the EPA rejected the tribe's request for tougher rules on fluorides and metals, but the Mohawks say they are not giving up.

—*Albany, NY Timesunion.com, November 24, 2007*

Forest Land Liquidation

In mid-November, Qualicum Beach Council called for an immediate moratorium on the sale and land transfer of all land currently zoned as Forest or Resource Land, and a moratorium on development approvals on the forest lands.

After enjoying years of stumpage benefits and access to public forest lands, timber companies have been permitted by the BC government to flip the forest lands for real estate development; local citizens fear zoning havoc and sprawl development. The lands in question were originally railway grant lands on the south eastern quarter of Vancouver Island.

Only two percent of this coastal region of the island has been protected. Issues include protection of community drinking watersheds, wildlife corridors, the survival of the Coastal Douglas Fir ecosystem, access to recreational land, and locally grown food. The original withdrawal of E&N lands from the public domain in the late 1800s occurred without recognition of Aboriginal rights and title.

—*Wilderness Committee, Mid-Island Chapter, November 22, 2007*

Citizens' Hearings on Uranium Mining

The Community Coalition Against Mining Uranium (CCAMU) will be holding public hearings throughout Eastern Ontario in the New Year on the environmental and health impacts of uranium mining.

"We have been asking the government to hold an inquiry into uranium mining and they have failed to respond," said Wolfe Erlichman of CCAMU. "In the absence of action, on behalf of the McGuinty government we are going to hold a citizen's inquiry and invite the Premier to at-

tend. We will even go to his home town to accommodate him."

In response to the hearings, Donna Dillman, who had not eaten since October 8th, 2007, ended her 68-day hunger strike.

"These hearings will be an opportunity to further expose the unfolding economic, health, and environmental disaster associated with the global nuclear agenda," said Bruce Cox, Executive Director of Greenpeace Canada.

—*Community Coalition Against Mining Uranium, December 13, 2007*
<http://www.ccamu.ca>

See also www.uraniumfreebc.org



Orcas Still at Risk from PCBs

Killer whales (orca) that frequent the coastal waters of British Columbia and Washington state will not recover from historic PCB exposures until 2030 or later, according to new environmental modelling results published in September 2007 in *Environmental Science & Technology*. The study estimated PCB concentrations in two populations of killer whales from 1930 forward to 2030, and then evaluated these in the context of health effects thresholds established for marine mammals.

Researcher Dr. Brendan Hickie of Trent University explained, "Concentrations in the threatened northern resident population may fall to acceptable levels by about 2030, while the endangered southern resident population may only reach that point by 2060." Dr. Hickie and his colleagues conclude that persistent contaminants such as PCBs may hinder the recovery of endangered orca populations by increasing vulnerability to infectious disease, reducing reproductive performance, and impeding normal growth and development.

—*Trent University, October 2007*



Japan looks to the past and to the future

The time has come for us to create something new — across borders, across the East and West.

by Junko Edahiro, Japan for Sustainability

With the ultimate aim of helping to create a sustainable society, I lecture and write in Japan, and I also translate into Japanese the latest information as well as key messages from around the world. I have been honoured to have had the opportunity to bring to Japan the words and writings of the environmental academics Lester Brown, and Dennis Meadows, for example, and also to translate Mr. Al Gore's book, *An Inconvenient Truth*.

Eight years ago, I started an e-mail newsletter that provides a variety of environment-related information in Japanese. Today, I have almost 10,000 subscribers, including people in national and local governments, the business world, NGOs, and universities. Going in the reverse direction, to communicate environmental information from Japan to the rest of the world in English, five years ago I launched, with some colleagues, an NGO called "Japan for Sustainability," which is one of the media partners for this conference. Today, we disseminate latest initiatives, tech-

nologies and some "old wisdom" in the field of sustainability from Japan to 189 countries.

Now, may I ask you a question? When you hear the words "Japan" and "sustainability," what kind of image comes to mind? Long ago, the Japanese lived in harmony with nature. Our houses were not built with solid brick and stone like in the West, but with soft materials like wood and paper. Even when the Japanese were inside their homes, they were aware of the wind and insects singing outside. During the hot summers, people cooled their senses by sprinkling water on the ground and by enjoying the sound of wind chimes. The traditional way of life was close to nature.

The Edo Period

Allow me to mention a bit about the Edo Period, when the city of Edo – now known as Tokyo – was the centre of Japan. The 265 years from 1603 to 1867 are known as the Edo Period. Japan was closed to the outside world and enjoyed a time of relative peace, with virtually no wars throughout the land. Japan's economy and culture flourished independently from the rest of the world.

During this 250-year period, the country's population was stable at about 30 million. Edo is estimated to have had a population of between 1 and 1.25 million, making it the largest city in the world at the time. Incidentally, the population of London was about 860,000 then, and Paris held about 670,000 people.

Today, Japan depends on overseas imports for 80 percent of its energy, 60 percent of its food, and 80 percent of its timber. In contrast, during the Edo Period, because Japan was a closed country, there were no imports from overseas. Everything was done using energy and resources obtained from within the country.

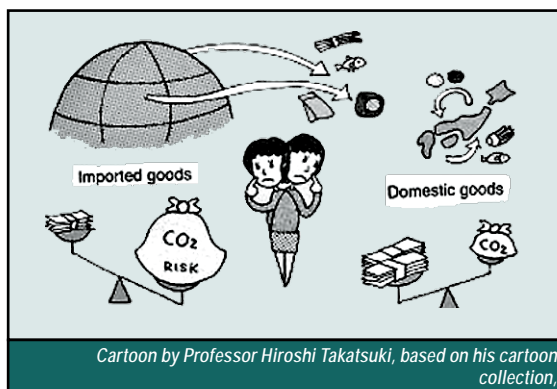
Let's look at this again. The population numbers were stable; society functioned and people made their livelihoods using mostly the plant-based resources and energy created from the sun the previous year; and a rich culture flourished under these conditions. You could say that a truly sustainable society existed in Japan during the Edo Period. Because all resources were regarded as precious, plenty of businesses evolved to deal with re-use and recycling. There were businesses that specialized in repairing metal goods; old cooking pots and kettles and other items of metal could be repaired and used again. There were special tradesmen who would repair wooden barrels and pails used to hold liquids. During this era, everything was repaired properly and used as long as possible. Paper lanterns and locks were repaired, mirrors were polished, and so on.

Specialized businesses would purchase waste paper, used clothes, and used pails. There were even businesses that would buy the valuable wax drippings from candles and use them to make new candles to sell, and businesses that would buy the ash left from burning fuel wood and sell it to farmers as fertilizer. At a time when, in Europe, human waste was thrown out of windows and diseases like the Plague spread across the land, in Japan, even human waste was used as a precious resource to be bought and sold. In fact, human waste from the richer neighbourhoods apparently went for the highest prices because it had the highest nutrient content!

Taru wo shiru

Since long ago, people used certain expressions closely related to concepts of sustainable lifestyles – expressions like *taru wo shiru*, which means “Be satisfied with what

you have,” and *mottainai*, which means “Don't waste!” One expression I am very fond of is *seoi mizu*, *mizu* means “water,” and *seoi* means “you carry on your shoulder,” which literally means “water you carry,” although this term is not commonly used any more. Behind this saying was the idea that when you are born, you carry with you all of the water you will use during your lifetime. Basically, this saying taught us that if we use something wastefully, we will be in trouble later on in life, so we must use everything very carefully. This expression said it all in just a few words.



These are glimpses of the sustainable lifestyles that the Japanese were living then. But in the midst of the postwar reconstruction after Japan was defeated in the Second World War, an emphasis was put on hard-working and technological advances. Society and the economy were rebuilt upon a system that promoted consumption, with the idea that “consumption is a virtue.” The idea of “catching up and passing” captures the spirit of the day. Even today, now that Japan has joined the ranks of developed countries, I believe it has not yet escaped this developing-country mentality.

What about Japan today? The picture is not a simple one. We are told that adults and children do not smile as much as they used to. Suicide rates have risen, and the environment is deteriorating. But while we are often faced with depressing news, we can also sense the beginning of change and the beat of a new era. Progress is evident in the development of a variety of environmental technologies, which you can read about at our JFS information database. Japan is actively transferring these technologies to developing countries, particularly in Asia. A lot of people are also asking themselves what true happiness really is. I would like to introduce to you now some stories and initiatives that are not broadcast by TV or put in newspapers, but might capture your interest, especially in a cultural sense.

Slow Life

The idea of “slow food” (in contrast to “fast food”) came out of Italy, but after landing in Japan, it evolved into the whole concept of “slow life.” There is a growing interest in living life to the fullest, rather than simply chasing after speed and efficiency. The Governor of Iwate Prefecture issued a “Take-It-Easy Declaration” in 2001 to launch

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⇐ *Japan continued*

a movement to put happiness before economic efficiency. He explained as follows.

“Let’s make our life in the new century more human, more natural, and more simple.” These ideas indicate Iwate’s ideal with the “take-it-easy” slogan. For example, Iwate’s approach to buildings is to conserve traditional wooden houses that stand in harmony with nature, rather than to cut forests to make way for state-of-the-art buildings. Such a sense of harmonious coexistence between nature and humans is highly valued in Iwate’s take-it-easy movement.

By the way, this governor is now the minister of Public Management, Home Affairs, Post and Telecommunications at the Japanese National Government.

Iwate Prefecture is not an exception. More than ten cities in Japan have issued a “Slow-Life City Declaration,” and they are organizing conferences called “Slow-Life City Summits.” And there are many specialized magazines to tell people how to live slowly.

Here is another small but true story. When a new condominium was to be built at a place about an hour out of Tokyo, the prospective residents got into a huge debate about whether or not an elevator should be installed. Aware that elevators consume electricity, some said that the building should have no elevator, in order to help combat global warming. Others said that an elevator is needed for the elderly persons who would be living in the building. They had a hard time reaching any consensus, but in the end an excellent solution was proposed. Guess what? A slow elevator. An elevator would be installed, but it would move so slowly that most people would not want to wait for it. Because most

people can climb the stairs much more quickly, they would probably not use the elevator. But seniors and others who really have to use the elevator are usually not as pressed for time, so they will not mind waiting to use an elevator that moves slowly. This is an example of innovative solutions popping up around us, inspired by this key word of “slow.” Several years ago, one of the best selling books in Japan was titled “Slow is Beautiful.”

Here is another example. Five years ago, I was one of a group of people who proposed the idea of “Candle Night for a Million.” We asked people to spend a “slow” evening,

turning off the lights for two hours on the night of the summer and winter solstices. This idea has grown to the point that many events are now held around the country on the nights of the solstices, with 8 to 10 million people participating in ways they themselves choose. I believe this phenomenon is a sign that people are trying to reclaim their own time, their own lives, and their own happiness. During the summer candle night this year, Japan’s Ministry of the Environment joined as a partner in the appeal. In total, 63,138 facilities nationwide joined in the lights-out event, including a famous landmark known as the Tokyo Tower, resulting in a reduction of close to 1 million kilowatt-hours of electrical consumption.

In a separate interesting initiative, a group of key musicians in the Japanese music scene, including the world reknown Ryuichi Sakamoto, got together with their own money to launch the artists’ power, “ap bank.” It finances projects in renewable energy and other areas, and promotes environmental activities. Over 30,000 people gather at the “ap bank fes”



*Women airing books and clothes, Katsukawa Shunshō
(Japanese, 1726-1792) Japan, Edo period, 1726-1792
Freer Gallery of Art, Smithsonian Institution*

outdoor concert held each year to raise funds for the bank, and it has grown into a huge event. At the concert, garbage is separated into 11 categories, and all plates and cutlery at food stalls are reusable. All power for the concert comes from renewable energy, including electricity for the concert itself and the energy for the shuttle buses to bring concertgoers to the venue.

Product Service System

The business world, known for pursuing efficiency and economic growth above all else, is starting to show signs of change. Many “servicizing” businesses are appearing on the scene to provide functions and services, instead of simply selling products. It is also known as PSS: Product-Service System.

Let me give you some examples of servicing businesses. A distributor of work uniforms that leases the uniforms to companies for employees to use, started to collect and recycle the materials after they are worn out. Panasonic, an electrical goods manufacturer, offers a fluorescent lamp-leasing service, in which it sells the “functions” of comfortable lighting to factories and office buildings rather than fluorescent lamps themselves. Another company offers an air conditioning service incorporating a leasing scheme for air-conditioning systems, and payments are calculated based on the amount of air controlled by the air-conditioning system. A supplier of industrial pure water services installs its ultra-pure water production system at the site of client companies, which pay for expenses calculated based on the amount of water used. The Ministry of Economy, Trade and Industries set up a special commission to promote servicizing development and produced a manual with over 80 case studies.

Gross Company Happiness

Some companies in Japan have been inspired by the example of the mountainous country of Bhutan in Asia, which, as an indicator of national progress instead of GDP or GNP uses GNH. What is GNH? Instead of Gross National Product, it means Gross National Happiness. One of the impressed companies in Japan is trying to measure corporate progress with an indicator of GCH, “Gross Company Happiness.” When thinking about the happiness of their employees, about ten years ago the company’s president considered their current sales levels to be too high, and put negative annual sales growth targets for about ten years. The result? I asked the company president. He said because of this unusual policy, which makes their employees happier with more smiles toward their customers, it has been

difficult for his company to curb the sales! The company is now one of the model companies in Japan, cherished by their employees and local communities.

Humanity is being threatened by climate change and other environmental problems. In order to solve these problems, I believe there are five things we need: to know, to create a vision, to grasp the big picture, to act, and to communicate to others.

None of these come completely together in just one country, or in just one region. Today, the time has come for us to create something new – across borders, across the East and West. We must move from one-way communication and even from two-way communication of sharing experience and learning from each other, to what I call “co-creative or generative communication” to create new paradigms and values by cultivating what East and West can offer.



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Asakusa temple, Tokyo, Japan

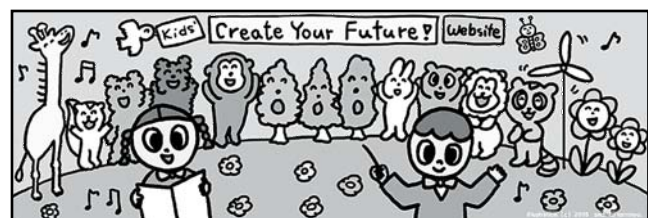
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Sham and Shame

Update on Canada's Regulatory Framework for Industrial Air Emissions

by Anna Tilman

The Bali meeting was supposed to lay the groundwork for negotiations over the next two years for a new climate treaty to succeed the Kyoto Protocol, which expires in 2012. After two weeks of highly charged and vitriolic talks, a last-minute consensus agreement, "the Bali roadmap," was reached. But the roadmap fails to include specific targets and timelines, despite nations agreeing that:

- Action is necessary to adapt to the negative consequences of climate change;
- Evidence of climate change is "unequivocal."
- Deep cuts in global emissions are needed.

Canada's performance in Bali was a disgrace. Not only was our country a regular recipient of the "fossil of the day" awards, it was also called a "climate hypocrite" by UN climate chief Yvo de Boer for demanding cuts in emissions from developing countries while not meeting its own commitments under Kyoto.

But the present government's position should come as no surprise. Harper has already made it abundantly clear that Canada's commitments under Kyoto would not be met. Instead, Canada has its very own plan, the Regulatory Framework for Industrial Air Emissions.

This plan is designed to regulate emissions of a number of air pollutants and greenhouse gases (GHGs) for 16 large industrial sectors. The government calls it "Turning the Corner." Going in reverse, or making a 180-degree turn, is more descriptive. It is riddled with convoluted artifices that defy explanation. It is a sham.

Barreling ahead in the regulatory process, on December 10, the government issued a massive Notice under the *Canadian Environmental Protection Act* requiring industry to submit information on emissions of GHGs and the air pollutants to be considered in the proposed regulation for 2006. Industry has six months to supply the information. The regulation is expected to be in force by 2010.

While Minister Baird was blustering forth in Bali, a hastily scheduled meeting with ENGOs was called by Environment Canada in the nation's capital to discuss this very regulation. (This meeting was a follow-up to one held six months earlier that spelled out specific details of reductions that would be required in the proposed regulation. Refer to the article "Blowin'Smoke," in the September-October

2007 edition of the *Watershed Sentinel*.)

Sadly, the serious flaws pointed out at the first meeting remain. The GHG regulations are intensity-based, rather than absolute. Inexplicably, the government says this will translate to a 20 percent reduction in GHG emissions by 2020 from the base year of 2006. The Kyoto baseline of 1990 has magically disappeared. The 16 years during which GHG emissions increased by 30 percent have been completely obliterated by a stroke of a pen. So much for government accountability! The tar sands and refineries are being given a free ride – unfettered growth.

A number of convoluted quirks give industries a pass on any immediate action. For example, much of the GHGs emitted from some industries, such as cement, aluminum, and steel, are considered to be emitted by "fixed processes," that is, quoting the government, "emissions tied to produc-

tion and there is no alternative technology to reduce them. The only way to reduce these emissions is to reduce production." So the government does not consider that any reductions are possible from such

processes for at least three years. What kind of perverse thinking is that? Another quirk: new facilities are also exempt from regulation for a three-year period. So much for encouraging technological innovation!

This regulation has got to be one of the most complicated, contrived pieces of legislation, and purposely so. It falls far short of what is needed in Canada. But then, why should we expect anything less than full steam ahead from our resource-driven exploitive economy that values short term gain at the expense of the future?

There has to be a good side to this. Bush will be gone next year, Canada may get a new P.M., and there is heightened public concern and worry about the impact of climate change.

The science is compelling. Deep cuts in GHG emissions are needed; there is no time to lose. The UN's Intergovernmental Panel on Climate Change has called for developed nations to reduce carbon emissions to 25-40 percent below 1990 levels by 2020. This will likely be found to be highly inadequate and, with that, Canada's plan irrelevant.



Anna Tilman is Chair of the Canadian Environmental Network Toxics Caucus

Canada's GHG regulations are intensity-based and measured from 2006 instead of 1990. Growth in the tar sands and oil will outstrip reductions and other industries are given a pass on immediate action.

Measuring Bali by the Science by Stephen Leahy

(IPS) – A tiny step was taken in December to meet the greatest challenge humanity has ever faced. But it was nearly a step backward as the crucial climate talks in Bali almost collapsed when the United States refused to join the global consensus.

However, after Kevin Conrad representing Papua New Guinea told the US delegation that if they weren't going to be leaders, to please get out of the way, the US reversed its position and accepted what is called the "Bali roadmap."

Before considering this new political roadmap on climate change, what route did the scientific roadmap tell us to take?

In November 2007, the Intergovernmental Panel on Climate Change (IPCC), which was recently awarded the Nobel Peace Prize, issued urgent warnings that global emissions of greenhouse gases must peak and begin to decline within 10 to 15 years. Many of the world's leading climate scientists have said that failure is not an option because it will irreversibly destabilize the planet's climate system.

The millions of people already being affected by climate change will rapidly become hundreds of millions without major reductions. And there is a high risk that unique ecosystems that sustain life, such as coral reefs, will collapse.

Climate science says the first important step on our journey to prevent dangerous climate change is for industrialized countries to reduce their emissions by 25 to 40 percent below 1990 levels by 2020. Representatives from industrialized countries actually agreed with the scientists at a UN Framework Convention on Climate Change (UNFCCC) meeting last August in Vienna.

Throughout the two-week Bali climate change talks, Yvo de Boer,

executive secretary of the UNFCCC, often reiterated this was the route that climate science had clearly laid out.

So where does the Bali roadmap lead us?

There is no mention of the 25 to 40 percent below 1990 levels by 2020. Canada, the US, and Japan had steadfastly opposed any specific reduction targets for industrialized countries. This was bitterly opposed by the European Union and many developing nations.

For the sake of reaching an agreement, they eventually compromised, but there are no specific emissions targets in the final agreement. It does acknowledge that "deep cuts in global emissions will be required to achieve the ultimate objective" of avoiding dangerous climate change.

The Bali roadmap is essentially an agreement to start a two-year process of negotiations designed to agree on a new set of emissions targets to replace those in the Kyoto Protocol. While this may not seem like much progress, there had been serious debate about a longer negotiation period that would postpone action well into the future.

Until the last, the US – which alone accounts for about a quarter of the world's global warming emissions – objected to a specific declaration that "deep cuts in global emissions" were needed, saying the science remains uncertain.

Without reduction targets, what was achieved in Bali?

"We've created incentives to make it attractive for countries to act on climate change," said de Boer at the meeting's final press conference.

It does acknowledge that "deep cuts in global emissions will be required to achieve the ultimate objective" of avoiding dangerous climate change.



"We're creating carrots here, and maybe, if need be, later on we'll make sticks to encourage people."

The biggest carrot is to allow rich countries to buy carbon credits from countries that preserve their existing tropical forests. Deforestation is responsible for 20 to 25 percent of global carbon emissions.

Those carrots left some in the NGO sector fuming.

"It's all about how to make a profit out of the climate crisis," said Simone Lovera of the Global Forest Coalition, an NGO based in Paraguay.

Rather than buying credits to pollute, rich countries should be reducing their emissions at source, she said. The UNFCCC has made a big mistake by encouraging the business sector to become heavily involved in the process.

Lovera said there were still hopeful signs, such as the Dutch agreement to stop subsidising oil palm for use as biodiesel, Norway's 2.8-billion-dollar commitment to help developing countries that preserve their forests, and Germany's announcement that it would cut its emissions by 40 percent by 2020.

Most NGOs issued statements congratulating delegates on achieving an agreement but said the Bali roadmap is vague and lacking ambition. Everyone is waiting for the Bush administration to leave office, setting up enormous expectations for the country's new president.

At the moment, Bali's roadmap leads us just a small step forward.





ENERGY

Power Saver

Designing Electricity Use for the 100 Kilowatt-Hour House

by David Simms

Over the decade that my family and I spent living with a windmill to supply all of our electricity, we became acutely aware of exactly how much energy we used. Our appliances gobbled too much power, and many were the times we wished for the magical solutions in household technology that are now available off-the-shelf. In a sense, I now view our experience as a laboratory experiment, the findings of which could be applied to electricity use in the conventional, urban home.

I remember the sense of satisfaction I had when we managed to get our trusty Kenmore washer to run on 32 volts DC. I fixed it up so that a small inverter ran the controls and a wild half-horse electric motor did the real work. There was just one problem. The pulley ratios had to be fine-tuned because the tub turned so quickly that, when we went to retrieve the clothes, we had to gently peel an indistinct glob of multicoloured fibre from the edge of the tub. This glob of nearly dry thread had so vigorously attempted to extrude itself through the holes in the tub that individual items of clothing were nearly unrecognizable. I should have realized that I had also solved the problem of drying clothes, not merely washing them. Had I not been young and inexperienced, I might have recognized some more potential in this craziness.

Today, we don't need to pursue questionable experiments in dingy basements to create energy-efficient appliances. A lot of the heavy lifting has been done. All we need is to figure out how to make the payments when buying this new technology because, in our globalized world, it's all available, somewhere. With global warming well under way, the potential to

drastically cut our electricity use could not come at a better time.

Why?

According to Environment Canada, electricity generation using fossil fuels is Canada's number two source of greenhouse gas emissions (GHG). At 129,000 megatonnes (Mt), electricity generation follows transportation, which has grabbed the gold medal at 200,000 Mt. In terms of individual facilities, the top five spots on the GHG list of big emitters have been awarded to coal-fired power plants. While governments dither, the buck has to stop with the consumer. Why wait for initiatives that may never appear?

Individually, we are capable of reducing our electricity use to about 20% (yes, that is a reduction of 80%) of what is considered to be "conventional." There's no doubt that it would cost money to do this. Yet, when the analysis is done, our investment will show itself to be surprisingly cost effective. Investing in efficient technology today is also a hedge against future hikes in the cost of energy.

In 1997, the Danish island of Samso embarked on an aggressive program to get completely off fos-

sil fuels. Most of the cash needed to build the windmills and set up the district heating systems came from local investors, but the guiding economic rationale is that Samso considers it a much better deal to pay interest, in today's currency and at today's costs, than to face higher oil costs in the future. The same reasoning could be applied to our individual or family situations.

No Hardship

In Table 1 below, I have designed a probable consumption profile for a reasonably average household. Gone is the old energy-hogging beer fridge. Gone is the electrically heated hot tub and gone is the half-horse circulation pump that runs 24/7 to filter water in the backyard Olympic-sized swimming pool. Gone also are the parasitic little digital clocks and power supplies. The monthly total adds up to 552 kilowatt hours (kWh).

Note the big energy consumers: lighting, refrigeration, hot water, and clothes drying.

A quick comparison with Table 2 shows what can be done with a **minimal impact on lifestyle**. The last column of this table also gives the approximate marginal, over-and-above, cost of these technologies when compared to conventional appliances. Here are the options.

Lighting

Lighting efficiency demands that incandescent bulbs be replaced with compact fluorescents. Studies show

this to be a zero-cost solution. Despite the higher purchase price, CFLs pay for themselves through a longer life and through energy savings.

Cooking

There's not much to do about cooking except to pay a bit more attention: use pans that fit the burners, use appropriate heat settings, use the microwave, crock pot, and pressure cooker more, and try to eat more raw vegetables. Resist the temptation to pull stuff out of the freezer and defrost it in the microwave. Give it time to defrost at room temperature and save energy. Cooking larger amounts, for several meals at one time, is also an effective strategy.

Hot Water

Providing hot water is perhaps the most challenging exercise in reducing household energy consumption. It's quite facile to simply allow the word "solar" to roll off our lips. But to even pretend to heat water during the cloudy weather of winter, solar hot water systems must be vastly oversized compared to what is needed to do the same job throughout the warmer months. So we could use a passive, batch-type water heater for spring, summer, and fall. It's just a black tank in an insulated box. It uses no pump, electronics, or antifreeze. It is very resistant to transient, zero-degree temperatures and to overheating. Some people build their own batch heaters, they're that simple. You can find plans at www.builtitsolar.com.

A solar batch water heater would need to be backed up for winter use. For this, use point-of-use, demand water heaters that can save nearly 50% of hot water energy. These units are so cost-effective that I see no barrier to installing more than one of them. Install one, right at the bathroom and

Table 1: Conventional Household Electricity

Category of use	Energy used per day
Lighting, 6 bulbs, 6 hours, 60 watts	2.2 kw-hr
Cooking (range/microwave) 1 kw for 1.3 hours	1.3 kw-hr
Hot Water, conventional tank	6.7 kw-hr
Fridge, less than 5 years old	2.5 kw-hr
Freezer, less than 5 years old	2.5 kw-hr
Clothes washer, 1 load/day	0.3 kw-hr
Clothes Dryer, 1 load/day	2.5 kw-hr
Entertainment, TV/computer, 100 w, 4 hours	0.4 kw-hr
Total	18.4 kw-hr
Monthly Total	552 kw-hr

Table 2: Energy-saving electricity estimates

Category of use	Technology	Energy per day	Cost differential
Lighting	CFL 6, 6, 15 watt	0.54 kw-hr	Negligible
Cooking	Conventional, more raw food	1.0 kw-hr	None
Hot Water	Solar and tankless heaters	1.66 kw-hr	\$3500
Fridge	Sunfrost 12 cu ft	0.29 kw-hr	\$1200
Freezer	SunDanzer 8 cu ft	0.33 kw-hr	\$1000
Clothes washer	Stabler Asko or equivalent	0.15 kw-hr	\$300
Clothes drying	Clothesline	0.0	-\$500
Entertainment	Flat-screen TV, Laptop	0.2 kw-hr	Negligible
Total		4.17 kw-hr	\$5500
Monthly Total		125.1 kw-hr	\$5500

another for the laundry/kitchen. Overall, this recipe should save nearly 75% of the hot water demand. Low-flow shower heads and short-haired people will also help to make this solution feasible.

Refrigeration

We can save over 2 kilowatt hours a day for both the fridge and freezer by replacing them with state-

of-the-art units. Sun Frost is a small California company that developed a line of fridges especially for off-grid, solar use. Fortunately, these refrigerators can also be used on utility power. These units demonstrate what huge differences in energy consumption a few common-sense design changes, like really thick insulation, can accomplish. Sun Frosts are made in upright configurations that can fit into a

Continued on Page 16 ➡

⇐ *Power Saver continued*

regular kitchen. Sun Danzer is another company that sells a horizontal freezer-like unit, built in Romania with a compressor from Denmark. These amazingly efficient units can be set up as either a fridge or a freezer by installing the appropriate thermostat.

Clothes

Over the last few years, the appliance industry has started to move toward front-loading washing machines. They use less energy, water, and soap but they employ one fantastic feature that can result in even greater energy savings: spin speed. When it comes to drying clothes, it helps if most of the water has already been removed. This is what high spin rates do.

We've compared a couple of these front loaders. An older Swedish Asko we once owned could spin at 1,500 rpm, whereas our present Whirlpool peaks out at 900 or 1000 rpm. Since the water-extracting centripetal force varies with the square of the rotational speed, 1,500 rpm will be over twice as effective as 1,000 rpm. The Asko uses dynamic balancers to keep the washers from flying off into Earth orbit, while the Whirlpool uses an internal block of concrete to keep it anchored to *terra firma*. Once we get the equivalent of the washing machine pilot's licence and learn how to run these

things, they can also double as home entertainment centres. Never mind the X-box – an Asko is much more fun!

Drop the dryer! Your grandmother never used one. Although clothes drying can be a challenge during the winter, your high-tech washer should help you to do an end-run around a severely entrenched energy hog.

The Economics

While few people bother calculating payback terms on a favourite set of golf clubs or their brand new Bimmer, some people seem to think that saving energy must be justified in economic terms.

Table 3 shows what the payback period on all of our changes would be. From table 2, we get an estimate of the cost differential – what the conserver technology would cost over and above conventional technology – which is \$5,500 for the package described. Table 3 gives us the simple payback period, based on local power rates. So, if we pay \$.08 per kilowatt hour (we must also include any electricity delivery charges), our energy savings of 427 kWh (552 minus 125) would have a value of \$34.16 per month. At this rate, the so-called “debt” of \$5,500 would get repaid in 13.4 years. After that, we get to enjoy the benefits of conservation at no cost. Since today's investment can be tomorrow's hedge against inflation, the payback time is a conservative estimate.

Table 4 shows what the costs of mortgaging the technology would be. For this table, I assumed a 20-year mortgage, at various interest rates. If we were “mortgaging” the \$5,500 outlay at 6% interest, we'd need to pay \$39.18 per month. To see how close our energy savings would come to paying this, we go back to Table 3 to see what dollar value our savings would have at current rates. To cover the mortgage payment, we'd need power rates a bit

Table 4:

20 year Mortgage for \$5500

Interest Rate %	Monthly Payment
4%	\$ 33.24
5%	\$ 36.15
6%	\$ 39.18
7%	\$ 42.32

over \$.09 per kilowatt hour.

The moral of this lesson is that conservation is **very close to being cost-competitive with cheap electricity**. Compared to more expensive electricity, conservation is the hands-down winner. Conservation doesn't require more coal generation, more nukes, or more land to be flooded. If generally implemented, a conservation “path” might even permit some facilities to be mothballed. A corollary to the economic competitiveness of conservation is that we'd also see considerable economic activity and job creation.

Next time you're talking to your favourite politician, if you still have one, tell him or her about this. A conserver scenario is a win-win proposition; the environment wins and the economy wins.



David Simms is a retired teacher with a lifelong interest in energy matters.

Table 3:

Simple payback period vs unit cost for electricity

Cost kWh	Savings per month	Simple Payback
.06	\$ 25.62	17.9 y
.07	\$ 29.89	15.3 y
.08	\$ 34.16	13.4 y
.09	\$ 38.43	11.9 y
.10	\$ 42.70	10.7 y
.15	\$ 64.05	7.15 y

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From Our Readers

Crisco, the Face Cream

Re: Your "Beauty and the Beast" article about poisons in cosmetics.

Here is my experience. Forty years ago, while I was working in the law office of Mildred Gordon in Courtenay, she had a friend living in New York. This woman related how she often saw trains loaded with barrels of grease coming in from down south somewhere. Most of the barrels went to the Crisco factory, and the remainder went to the face cream plant. So, from that day on, I have never bought an ounce of commercial face cream. I just take my face cream pot and spatula to my can of Crisco, and fill up.

When I tell people about my inexpensive face cream, they look at me in horror as though I was spreading cow manure on my face. I tell them, "It's all the same grease, only mine is much less processed."

After forty years of this simple face cream solution, I am happy to report that my wrinkles are no deeper than those of my expensively-creamed friends. My present can of Crisco "face cream" cost \$7.69, and will last me for many months.

Ruth Masters, Courtenay BC

No Rebate for Low Speed Electric

The news on the revival of electric, zero emissions, cars is quite exciting, even better when we realize that a few of them are Canadian, like the ZENN models. These are considered low-speed vehicles and BC is the first province across Canada that has approved them for public roadways. It seems to me this type of car is an excellent transportation alternative for many small communities in the Gulf Islands.

The best alternative, of course, is just to walk or bike, but unfortunately the majority of these communities have been designed for cars, not for people, and therefore the majority of the places one needs to go are not in walking distance.

Now, something that does not make sense: I checked Transport Canada's 2008 ecoAUTO program that offers rebates for certain fuel-efficient vehicles.

Guess what? The small, zero-emission, cars are not on their list. I have asked them the reason for this, but I am still waiting for a response. It seems that the rationale is that this program was not written to include low-speed vehicles.

BC's Ministry of Small Business offers an Alternative Fuel Vehicles Tax Concession, but it seems this is only for small businesses, not for individuals.

Norberto Rodriguez de la Vega, Whaletown BC

The *Watershed Sentinel* welcomes letters but reserves the right to edit for brevity, clarity, legality, and taste.

Anonymous letters will not be published.

Send your musings and your missives to:

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MoE Small Parks?

The November media announcement by the BC Ministry of Environment to protect small bits of land in the Kootenays appears timed to obscure planned extirpation of the Purcell Grizzly, Wolverine, and Mountain Caribou. A proposal to protect Monica Meadows (Glacier Creek) while the ministry allows large hydro diversions on Glacier/Howser Creek and a 92 km-transmission line over a pristine wilderness pass is nothing less than a sad testament to a provincial government/bureaucracy bent on deceiving the public.

Bill 30, which allows Independent Power Producers freedom from municipal zoning by-laws, will eventually cause the extinction of all endangered species in BC. A couple or three small parcels of protected land may feel good to the environmental stewardship division of BC's MoE, but will be little conciliation to the nearly extinct Bull Trout of Glacier Creek as they struggle for breath in a creek diverted down a 16-foot tunnel.

Tom Prior, Nelson BC

Down the Rabbit Hole

At the November Commonwealth Heads of Governments meeting in Kampala Uganda, Mr Harper led the charge to strike targets from the final meeting summary document. They might as well have signed a Kleenex, blown their noses and thrown it away for all the impact it will have. Clearly, PM Harper is following Pres. Bush down the rabbit hole to oblivion. He is acting like a good fossil fuel industry puppet.

In Australia, they know what to do about such leaders. Obviously, we need to do the same. It is time to consolidate our common political and environmental influence to sweep away these roadblocks to our survival.

It is not that they didn't know. They have been ignoring warnings for many years and now we are getting the consequences.....and more foot dragging.

Name withheld for fear of an elephant stampede.

More letters on Page 33 ➡



Mobilizing to Save Civilization

Most people have heard at least some of the bad news – sea levels rising and ocean life dying, bad storms on the horizon, water shortages, food supplies jeopardized, millions of environmental refugees on the move while population growth continues, governments falling into chaos, social services breaking down – the list is seemingly endless and, by now, horribly familiar. But odds are you haven't heard of Plan B. If the catalogues of horrors above is the result of Plan A, Business As Usual which relies on unfettered capitalism and unlimited access to fossil fuels, Plan B offers a way out of the mess, a road map for beginning to build a better world.

Plan B is a comprehensive plan for reversing the trends that are undermining civilization. Its four overriding goals are climate stabilization, population stabilization, poverty eradication, and the restoration of the earth's ecosystems. At the heart is a detailed plan to cut carbon dioxide emissions 80 percent by 2020 in order to hold world temperature rise to a minimum. This initiative has three components – raising energy efficiency, developing renewable sources of energy, and expanding the earth's forest cover. The goal is to back out of ALL coal-fired power plants.

In mid-January, Lester Brown of the Earth Policy Institute is issuing a substantial revision, hence version 3.0, to his previous Plan B. The *Watershed Sentinel* is pleased to offer readers an excerpted version of the last chapter, "The Great Mobilization." We hope it will encourage readers to go to the website, www.earthpolicy.org and order the book or download the pdf file (free) because there are a lot of very interesting ideas, with documentation, in the entire Plan B.

Chapter 13: The Great Mobilization

by Lester R. Brown

There are many things we do not know about the future. But one thing we do know is that business as usual will not continue for much longer. Massive change is inevitable. Will the change come because we move quickly to restructure the economy or because we fail to act and civilization begins to unravel?

Saving civilization will take a massive mobilization, and at wartime speed. The closest analogy is the belated US mobilization during World War II. But unlike that chapter in history, in which one country totally restructured its economy, the Plan B mobilization requires decisive action on a global scale.

On the climate front, official attention has now shifted to negotiating a post-Kyoto protocol to reduce carbon emissions. But that will take years. We need to act now. There is simply not time for years of negotiations and then more years for ratification of another international agreement.

It is time for individual countries to take initiatives on their own. Prime Minister Helen Clarke of New Zealand is leading the way. In late 2007 she announced that New Zealand will boost the renewable share of its electricity from 70 percent, mostly hydro and geothermal, to 90 percent by 2025. The country plans to cut per capita carbon emissions from transport in half by 2040. Beyond this, New Zealand plans to expand its forested area by some 250,000 hectares by 2020, ultimately sequestering roughly 1 million tons of carbon per year. Additional initiatives will be announced in coming months. The challenge, Clarke says, is "to dare to aspire to be carbon neutral."¹

We know from our analysis of global warming, from the accelerating deterioration of the economy's ecological supports, and from our projections of future resource use in China that the western economic model – the fossil-fuel-based, automobile-centered, throwaway economy – will not last much longer. We need to build a new economy, one that will be powered by renewable sources of energy, that will have a diversified transport system, and that will reuse and recycle everything.

We can describe this new economy in some detail. The question is how to get from here to there before time runs out. Can we reach the political tipping points that will enable us to cut carbon emissions before we reach the ecological tipping points where the melting of the Himalayan glaciers becomes irreversible? Will we be able to halt the deforestation of the Amazon before it dries out, becomes vulnerable to fire, and turns into wasteland?

....

The key to building a global economy that can sustain economic progress is the creation of an honest market, one that tells the ecological truth. To create an honest market, we need to restructure the tax system by reducing taxes on work and raising them on various environmentally destructive activities to incorporate indirect costs into the market price.

If we can get the market to tell the truth, then we can avoid being blindsided by a faulty accounting system that leads to bankruptcy. As Øystein Dahle, former Vice President of Exxon for Norway and the North Sea, has observed: "Socialism collapsed because it did not allow the market to tell the economic truth. Capitalism may collapse because it does not allow the market to tell the ecological truth."

Shifting Taxes and Subsidies

The need for tax shifting – lowering income taxes while raising levies on environmentally destructive activities – has been widely endorsed by economists. For example, a tax on coal that incorporated the increased health care costs associated with mining it and breathing polluted air, the costs of damage from acid rain, and the costs of climate disruption would encourage investment in clean renewable sources of energy such as wind or solar.

....

Tax restructuring can also be used to create an honest pricing system for ecological services. For example, forest ecologists can estimate the values of services that trees provide, such as flood control and carbon sequestration. Once these are determined, they can be incorporated into the price of trees as a stumpage tax. Anyone wishing to cut a tree would have to pay a tax equal to the value of the services provided by that tree. The market for lumber would then be based on ecologically honest prices, prices that would reduce tree cutting and encourage wood reuse and paper recycling.

The most efficient means of restructuring the energy economy to stabilize atmospheric CO₂ levels is a carbon tax. Paid by the primary producers — the oil or coal companies — it would permeate the entire fossil fuel energy economy. The tax on coal would be almost double that on

natural gas simply because coal has a much higher carbon content. As noted in Chapter 11, we propose a worldwide carbon tax of \$240 per ton to be phased in at the rate of \$20 per year between 2008 and 2020. Once a schedule for phasing in the carbon tax and reducing the tax on income is in place, the new prices can be used by all economic decision-makers to make more intelligent decisions.⁸

For a gasoline tax, the most detailed analysis available of indirect costs is found in *The Real Price of Gasoline* by the International Center for Technology Assessment. The many indirect costs to society – including climate change, oil industry tax breaks, oil supply protection, oil industry subsidies, and treatment of auto exhaust-related respiratory illnesses – total around \$12 per gallon (\$3.17 per liter), slightly more than the cost to society of smoking a pack of cigarettes. If this external or social cost is added to the roughly \$3 per gallon average price of gas in the United States in early 2007, gas would cost \$15 a gallon. These are real costs. Someone bears them. If not us, our children. Now that these costs have been calculated, they can be used to set tax rates on gasoline....

The western economic model — the fossil-fuel-based, automobile-centered, throwaway economy — will not last much longer. We need to build a new economy, one that will be powered by renewable sources of energy, that will have a diversified transport system, and that will reuse and recycle everything.

A carbon tax of \$240 per ton of carbon by 2020 may seem steep, but it is not. If gasoline taxes in Europe, which were designed to generate revenue and to discourage excessive dependence on imported oil, were thought of as a carbon tax, the \$4.40 per gallon would translate into a carbon tax of \$1,815 per ton. This is a staggering number, one that goes far beyond any carbon emission tax or cap-and-trade carbon-price proposals to date. It suggests that the official discussions of carbon prices in the range of \$15 to \$50 a ton are clearly on the modest end of the possible range of prices. The high gasoline taxes in Europe have contributed to an oil-efficient economy and to far greater investment in high-quality public transportation over the decades, making it less vulnerable to supply disruptions.

Tax shifting is not new in Europe. A four-year plan adopted in Germany in 1999 systematically shifted taxes from labor to energy. By 2003, this plan had reduced annual CO₂ emissions by 20 million tons and helped to create approximately 250,000 additional jobs. It had also acceler-

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⇐ *Plan B continued*

ated growth in the renewable energy sector, creating some 64,000 jobs by 2006 in the wind industry alone, a number that is projected to rise to 103,000 by 2010.

We propose a worldwide carbon tax of \$240 per ton to be phased in at the rate of \$20 per year between 2008 and 2020. Once a schedule for phasing in the carbon tax and reducing the tax on income is in place, the new prices can be used by all economic decision-makers to make more intelligent decisions.

Between 2001 and 2006, Sweden shifted an estimated \$2 billion of taxes from income to environmentally destructive activities. Much of this shift of \$500 or so per household was levied on road transport, including hikes in vehicle and fuel taxes. Electricity is also picking up part of the shift. Environmental tax shifting is becoming commonplace in Europe, where France, Italy, Norway, Spain, and the United Kingdom are also using this policy instrument. In Europe and the United States, polls indicate that at least 70 percent of voters support environmental tax reform once it is explained to them.

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Each year the world's taxpayers provide an estimated \$700 billion of subsidies for environmentally destructive activities, such as fossil fuel burning, overpumping aquifers, clearcutting forests, and overfishing. An Earth Council study, *Subsidizing Unsustainable Development*, observes that "there is something unbelievable about the world spending hundreds of billions of dollars annually to subsidize its own destruction."

Iran provides a classic example of extreme subsidies when it prices oil for internal use at one tenth the world price, strongly encouraging car ownership and gas consumption. If its \$37-billion annual subsidy were phased out, the World Bank reports that Iran's carbon emissions would drop by a staggering 49 percent. This move would also strengthen the economy by freeing up public revenues for investment in the country's economic development. Iran is not alone. The Bank reports that removing energy subsidies would reduce carbon emissions in India by 14 percent, in Indonesia by 11 percent, in Russia by 17 percent, and in Venezuela by 26 percent. Carbon emissions could be cut in scores of countries by simply eliminating fossil fuel subsidies.

Some countries are already doing this. Belgium, France, and Japan have phased out all subsidies for coal. Germany reduced its coal subsidy from \$2.8 billion in 1989 to \$1.4 billion in 2002, meanwhile lowering its coal use by 38 percent. It plans to phase out this support entirely by 2018. As

oil prices have climbed, a number of countries have greatly reduced or eliminated subsidies that held fuel prices well below world market prices because of the heavy fiscal cost. Among these are China, Indonesia, and Nigeria.

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Just as there is a need for tax shifting, there is also a need for subsidy shifting. A world facing the prospect of economically disruptive climate change, for example, can no longer justify subsidies to expand the burning of coal and oil. Shifting these subsidies to the development of climate-benign energy sources such as wind, solar, biomass, and geothermal power will help stabilize the earth's climate. Shifting subsidies from road construction to rail construction could increase mobility in many situations while reducing carbon emissions. And shifting the \$22 billion in annual fishing industry subsidies, which encourage destructive overfishing, to the creation of marine parks to regenerate fisheries would be a giant step in restoring oceanic fisheries.

In a troubled world economy, where many governments are facing fiscal deficits, these proposed tax and subsidy shifts can help balance the books, create additional jobs, and save the economy's eco-supports. Tax and subsidy shifting promise energy efficiency, cuts in carbon emissions, and reductions in environmental destruction – a win-win-win situation.

Summing Up Climate Stabilization Measures

Earlier we outlined the need to cut net carbon dioxide emissions 80 percent by 2020 to minimize the future rise in temperature. Here we summarize the Plan B measures for doing so, including both reducing fossil fuel use and increasing biological sequestration.

Replacing fossil fuels with renewable sources of energy for generating electricity and heat will reduce carbon emissions in 2020 by more than 3.1 billion tons. (See Table 13–1.) The biggest single cut in carbon emissions comes from phasing out the use of coal to generate electricity, a step that will also sharply reduce the 3 million deaths from air pollution each year. Other cuts come from entirely backing out all the oil used to generate electricity and 70 percent of the natural gas.

In the transport sector, the greatly reduced use of oil will eliminate close to 1.2 billion tons of carbon emissions. This reduction relies heavily on the shift to plug-in hybrid cars that will run on carbon-free sources of electricity such as wind. The remainder comes largely from shifting long-haul freight from trucks to trains, electrifying freight and passenger trains, and using green electricity to power them.

At present, net deforestation of the earth is responsible for an estimated 1.5 billion tons of carbon emissions per year. The Plan B goal is to bring deforestation to a halt by 2020, thus totally eliminating this source of carbon emissions. The idea of banning logging may seem novel, but in fact a number of countries already have total or partial bans.

We're not content with just halting deforestation. We want to increase the number of trees on the earth in order to sequester carbon. The forestation of wastelands will fix more than 950 million tons of carbon each year. This does not include the similarly ambitious planting of trees to control flooding, reduce rainfall runoff to recharge aquifers, and protect soils from erosion.

The other initiative to sequester carbon biologically is achieved through land use management. This includes expanding the area of minimum or no-till cropland, planting more cover crops during the off-season, and using more perennials instead of annuals in cropping patterns. The latter would mean, for example, using less corn and more switchgrass to produce fuel ethanol. These practices can fix an estimated 600 million tons of carbon per year.

Together, replacing fossil fuels in electricity generation with renewable sources of energy, switching to plug-in hybrid cars, going to all-electric railways, banning deforestation, and sequestering carbon by planting trees and improving soil management will drop carbon dioxide emissions in 2020 more than 80 percent below today's levels. This reduction will stabilize atmospheric CO₂ concentrations below 400 parts per million, limiting the future rise in temperature.

Together, replacing fossil fuels in electricity generation with renewable sources of energy, switching to plug-in hybrid cars, going to all-electric railways, banning deforestation, and sequestering carbon by planting trees and improving soil management will drop carbon dioxide emissions in 2020 more than 80 percent below today's levels.

Although we devoted a chapter to increasing energy efficiency — doing what we do with less energy — there is also a huge potential for cutting carbon emissions through conservation by not doing some of the things we do, or doing them differently.

....

Dietary changes can also make a difference. We learned in Chapter 9 that the energy differences between a diet rich in red meat and a plant-based diet is roughly the same as the

Table 13–1.

Plan B Carbon Dioxide Emissions Reductions and Sequestration in 2020

Action	Amount (million tons carbon)
Energy Restructuring	
Replacing fossil fuels with renewables for electricity and heat	3,140
Restructuring the transport system	1,190
Reducing coal and oil use in industry	100
Biological Carbon Sequestration	
Ending net deforestation	1,500
Planting trees to sequester carbon	950
Managing soils to sequester carbon	600
Total Carbon Dioxide Reductions in 2020	
	7,480
Carbon Dioxide Emissions in 2006	
	9,180
Percent Reduction from 2006 Baseline	
	81.5

energy-use difference between driving a Chevrolet Suburban sports utility vehicle and a Toyota Prius gas-electric hybrid. The bottom line is that those of us with diets rich in livestock products can do both ourselves and civilization a favor by moving down the food chain.

A Response to Failing States

If the number of failing states continues to increase, at some point this trend will translate into a failing civilization. These declining states threaten the political stability of the international system. Somehow we must turn the tide of state decline. One thing seems clear: business as usual will not do it.

Failing states, a relatively new phenomenon, require a new response. Historically, as noted in Chapter 1, the principal threat to international stability and the security of individual countries has been the concentration of power in

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⇐ *Plan B continued*

one country. Today the threat to security comes from the loss of power and the descent of nation-states into anarchy and chaos. These failing states become terrorist training grounds (as in Iraq and Afghanistan), drug producers (Afghanistan and Myanmar), and weapons traders (Somalia and Nigeria).

The goals discussed earlier of stabilizing population, eradicating poverty, and restoring the earth are indispensable, but we also need a focused effort to deal specifically with states that are failing or at risk of doing so. The United Kingdom and Norway have recognized that failing states need special attention and have each set up interagency funds to provide a response mechanism. They are the first to devise a specific institutional response.

....

The world has quietly entered a new era, one where there is no national security without global security. We need to recognize this and to restructure and refocus our efforts to respond to this new reality.

A Wartime Mobilization

As we contemplate mobilizing to save civilization, we see both similarities and contrasts with the mobilization for World War II. In this earlier case, there was an economic restructuring, but it was temporary. Mobilizing to save civilization, in contrast, requires an enduring economic restructuring.

....

In his State of the Union address on January 6, 1942, one month after the bombing of Pearl Harbor, President Roosevelt announced the country's arms production goals. The United States, he said, was planning to produce 45,000 tanks, 60,000 planes, 20,000 anti-aircraft guns, and 6 million tons of merchant shipping. He added, "Let no man say it cannot be done."

No one had ever seen such huge arms production numbers. But Roosevelt and his colleagues realized that the world's largest concentration of industrial power at that time was in the US automobile industry. Even during the Depression, the United States was producing 3 million or more cars a year. After his State of the Union address, Roosevelt met with automobile industry leaders and told them that the country would rely heavily on them to reach these arms production goals. Initially they wanted to continue making cars and simply add on the production of armaments. What they did not yet know was that the sale of new cars would soon be banned. From early 1942 through the end of 1944, nearly three years, there were essentially no cars produced in the United States.

In addition to a ban on the production and sale of cars for private use, residential and highway construction was halted, and driving for pleasure was banned. Strategic goods – including tires, gasoline, fuel oil, and sugar – were rationed beginning in 1942. Cutting back on private consumption of these goods freed up material resources that were vital to the war effort.

The year 1942 witnessed the greatest expansion of industrial output in the nation's history – all for military use.

Table 13–2

Plan B Budget: Additional Annual Expenditures Needed to Meet Social Goals and to Restore the Earth

Goal	Funding (billion \$US)
Basic Social Goals	
Universal primary education	10
Eradication of adult illiteracy	4
School lunch programs for 44 poorest countries	6
Assistance to preschool children and pregnant women in 44 poorest countries	4
Reproductive health and family planning	17
Universal basic health care	33
Closing the condom gap	3
Total	77
Earth Restoration Goals	
Planting trees to reduce flooding and conserve soil	6
Planting trees to sequester carbon	20
Protecting topsoil on cropland	24
Restoring rangelands	9
Restoring fisheries	13
Protecting biological diversity	31
Stabilizing water tables	10
Total	113
Grand Total	190

Wartime aircraft needs were enormous. They included not only fighters, bombers, and reconnaissance planes, but also the troop and cargo transports needed to fight a war on distant fronts. From the beginning of 1942 through 1944, the United States far exceeded the initial goal of 60,000 planes, turning out a staggering 229,600 aircraft, a fleet so vast it is hard even today to visualize it. Equally impressive, by the end of the war more than 5,000 ships were added to the 1,000 or so that made up the American Merchant Fleet in 1939.

In her book *No Ordinary Time*, Doris Kearns Goodwin describes how various firms converted. A sparkplug factory was among the first to switch to the production of machine guns. Soon a manufacturer of stoves was producing lifeboats. A merry-go-round factory was making gun mounts; a toy company was turning out compasses; a corset manufacturer was producing grenade belts; and a pinball machine plant began to make armor-piercing shells.

....

This mobilization of resources within a matter of months demonstrates that a country and, indeed, the world can restructure the economy quickly if convinced of the need to do so. Many people – although not yet the majority – are already convinced of the need for a wholesale economic restructuring. The purpose of this book is to convince more people of this need, helping to tip the balance toward the forces of change and hope.

Mobilizing to Save Civilization

Mobilizing to save civilization means restructuring the economy, restoring its natural support systems, eradicating poverty, stabilizing population and climate, and, above all, restoring hope. We have the technologies, economic instruments, and financial resources to do this. The United States, the wealthiest society that has ever existed, has the resources to lead this effort. Jeffrey Sachs of Columbia University's Earth Institute sums it up well: "The tragic irony of this

The World War II mobilization of resources within a matter of months demonstrates that a country and, indeed, the world can restructure the economy quickly if convinced of the need to do so. Many people – although not yet the majority – are already convinced of the need for a wholesale economic restructuring. The purpose of this book is to convince more people of this need, helping to tip the balance toward the forces of change and hope.

Table 13–3

Military Budgets by Country and for the World in 2006 and Plan B Budget

Country	Budget (billion dollars)
United States	560
United Kingdom	59
France	53
China	50
Japan	44
Germany	37
Russia	35
Italy	30
Saudi Arabia	29
India	24
All other	314
World Military Expenditure	1,235
Plan B Budget	190

moment is that the rich countries are so rich and the poor so poor that a few added tenths of one percent of GNP from the rich ones ramped up over the coming decades could do what was never before possible in human history: ensure that the basic needs of health and education are met for all impoverished children in this world. How many more tragedies will we suffer in this country before we wake up to our capacity to help make the world a safer and more prosperous place not only through military might, but through the gift of life itself?"

It is not possible to put a precise price tag on the changes needed to move our twenty-first century civilization off the decline-and-collapse path and onto a path that will sustain economic progress. But we can at least provide some rough estimates of the scale of effort needed. (See Table 13-2.)

....

Combining social goals and earth restoration components into a Plan B budget yields an additional annual expenditure of \$190 billion, roughly one third of the current US military budget or one sixth of the global military budget. (See Table 13–3.) In a sense this is the new defense

Continued on Page 24 ➡

⇐ *Plan B continued*

budget, the one that addresses the most serious threats to our security.

....

It is decision time. Like earlier civilizations that got into environmental trouble, we can decide to stay with business as usual and watch our modern economy decline and eventually collapse, or we can consciously move onto a new path, one that will sustain economic progress. In this situation, no action is a de facto decision to stay on the decline-and-collapse path.

....

Just as the forces of decline can reinforce each other, so can the forces of progress. Fortunately, the steps to reverse destructive trends or to initiate constructive new trends are often mutually reinforcing, win-win solutions. For example, efficiency gains that lower oil dependence also reduce carbon emissions and air pollution. Steps to eradicate poverty help stabilize population. Reforestation fixes carbon, increases aquifer recharge, and reduces soil erosion. Once we get enough trends headed in the right direction, they will reinforce each other.

The world needs a major success story in reducing carbon emissions and dependence on oil to bolster hope in the future. If the United States, for instance, were to launch a crash program to shift to plug-in hybrid cars while simultaneously investing in thousands of wind farms, Americans could do most of their short-distance driving with wind energy, dramatically reducing pressure on the world's oil supplies.

With many US automobile assembly lines idled, it would be a relatively simple matter to retool some of them to produce wind turbines, enabling the country to quickly harness its vast wind energy potential. This would be a rather modest initiative compared with the restructuring during World War II, but it would help the world to see that restructuring an economy is entirely doable and that it can be done quickly, profitably, and in a way that enhances national security both by reducing dependence on vulnerable oil supplies and by avoiding disruptive climate change.

Combining social goals and earth restoration components into a Plan B budget yields an additional annual expenditure of \$190 billion, roughly one third of the current U.S. military budget or one sixth of the global military budget. In a sense this is the new defense budget, the one that addresses the most serious threats to our security.

In short, we need to persuade our elected representatives and leaders to support the changes outlined in Plan B. We need to lobby them for these changes as though our future and that of our children depended on it – because it does.

What You and I Can Do

One of the questions I am frequently asked when I am speaking in various countries is, given the environmental problems that the world is facing, can we make it? That is, can we avoid economic decline and the collapse of civilization? My answer is always the same: it depends on you and me, on what you and I do to reverse these trends. It means becoming politically active. Saving our civilization is not a spectator sport.

We have moved into this new world so fast that we have not yet fully grasped the meaning of what is happening. Traditionally, concern for our children has translated into getting them the best health care and education possible. But if we do not act quickly to reverse the earth's environmental deterioration, eradicate poverty, and stabilize population, their world will decline economically and disintegrate politically.

The two overriding policy challenges are to restructure taxes and reorder fiscal priorities. Saving civilization means restructuring taxes to get the market to tell the ecological truth. And it means reordering fiscal priorities to get the resources needed for Plan B.

....

In short, we need to persuade our elected representatives and leaders to support the changes outlined in Plan B. We need to lobby them for these changes as though our future and that of our children depended on it – because it does.

....

The choice is ours – yours and mine. We can stay with business as usual and preside over an economy that continues to destroy its natural support systems until it destroys itself, or we can adopt Plan B and be the generation that changes direction, moving the world onto a path of sustained progress. The choice will be made by our generation, but it will affect life on earth for all generations to come.



Climate Action



Green Building Law

German law will require all new homes built after January 1st 2009 to install renewable energy systems for 14% of their heating and hot water. Existing houses (which are many times less energy efficient) will have to be remodeled from 2010 to provide 10% renewable heating. The government will provide US \$517 million each year in grants for homeowners. Heating accounts for 40% of the total energy consumption in Germany.

—www.renewableenergyaccess.com
December 10, 2007

Hydrogen from Waste

Naturally occurring bacteria that feed on vinegar and waste water zapped with a shot of electricity can produce a clean hydrogen fuel, using about a tenth of the electricity as normal water hydrolysis. These so-called microbial fuel cells can turn almost any biodegradable organic material, such as waste from food factories or cellulose, into zero-emission hydrogen gas fuel, according to researchers at Penn State University. The research was published in the *Proceedings of the National Academy of Sciences* in November.

—*ScienceDaily*, November 13, 2007

More than Dreamin'

The amount of greenhouse gases emitted per capita in California has dropped 9.8 percent since 1990, although total emissions continue to rise along with population. California has become the nation's biggest hub for green tech companies. Those compa-

nies employ 22,000 Californians and are soaking up more venture capital money than similar businesses in other states, about \$884 million in 2006.

—*SF Chronicle*, November 14, 2007

Carbon-Free

Carbon-Free and Nuclear-Free: A Roadmap for U.S. Energy Policy demonstrates how the US can eliminate the use of fossil fuels without sacrificing economic growth or building more nuclear power plants. The report says a reliable electricity grid can be created entirely from renewable energy sources developed in a complementary fashion. The text is posted on the web at <http://www.ieer.org>.

—*Institute for Energy and Environmental Research*, December 20, 2007

Coal Plants Cancelled

PacifiCorp has canceled all new coal plant plans for 10 years. The utility services Oregon to Utah and currently generates 65% of its electricity from coal. PacifiCorp cited as reasons for its decision: The likelihood of national carbon emissions legislation, which it said makes accurate cost projections and risk assessment for coal plants "futile," and the fact that most of the coal plants proposed around the United States recently have been canceled, denied permits or been involved in protracted litigation.

—*The Oregonian*, December 7, 2007

A Solar Grand Plan

The December 2007 issue of *Scientific American* carries a plan

to switch the USA to solar power by 2050. The article notes the scale of the project: "Huge tracts of land would have to be covered with photovoltaic panels and solar heating troughs. A direct-current (DC) transmission backbone would also have to be erected to send that energy efficiently across the nation." The solar system could supply 69 percent of US electricity and 35 percent of its total energy, including transportation. If wind, biomass, and geothermal sources were also developed, renewable energy could provide 100 percent of American electricity and 90 percent of its energy by 2100. The scheme would cost the federal government \$400 billion over 40 years. [The website www.nationalpriorities.org calculates that the war in Iraq is costing the USA, in money, \$225 million a day, for a grand total of \$483 billion as we go to press. -Ed.]

—*Scientific American Magazine*,
December 16, 2007

Nanosolar

The first run of solar panels has rolled off the press at California's Nanosolar factory and been shipped to East Germany for a municipal power plant. Backed by Google investors and the US Department of Energy, the company has pioneered a method of printing solar cells onto thin metal foil backing, with high conductivity, so that the panels are cost-efficient and versatile in form.

—*Popular Science*, November 1, 2007, www.nanosolar.com

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MillWatch

JANUARY 2008

Bank targeted over Aussie mill

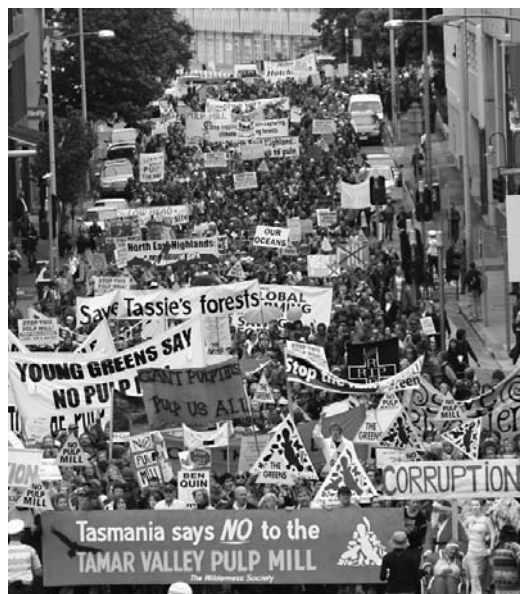
Compiled by Delores Broten

Two days after 15,000 people marched through the streets of Hobart Tasmania in opposition to Gunns' proposed new pulp mill for the Australian island, the Wilderness Society sponsored actions outside the ANZ bank which is supporting the mill financially. Organizers said actions took place in more than 25 communities across Australia and in Japan, Germany, New Zealand and Britain.

Bank customers were informed of ANZ's involvement in forest destruction in Tasmania and Papua New Guinea (PNG) as well as its potential funding of Tamar Valley pulp mill in Tasmania.

After facing defeat in the environmental assessment and with the previous government willing to fast-track permits, activists launched a new phase targeting financial institutions. A majority of citizens, although opposed to the kraft mill, were in favour of a totally chlorine free mill run completely on plantation fibre.

"Financial institutions must understand that if they fund socially and environmentally irresponsible project activities like Gunns' pulp mill or logging in PNG and Tasmania, they will bear the brunt of community outrage and opposition," said Paul Oosting, pulp mill campaigner for The Wilderness Society.



— The Wilderness Society, November 18, 2007
www.wilderness.org.au

Eureka Mill Ordered to Clean Up

In October Evergreen Pulp of Eureka California, the largest unbleached kraft mill in North America, was ordered to install an electrostatic precipitator on its lime kiln and pay a \$900,000 fine to environmental agencies. The mill was charged with emitting particulate and hazardous air pollutants at levels 230 times over federal standards, as well as violating monitoring and reporting requirements.

— ENS, October 2, 2007

US House Switches to 100% PCW Paper

The US House of Representatives, with the help of New American Dream's Responsible Purchasing Network (RPN), is finally switching from copy paper made from virgin wood to 100% post-consumer waste (PCW) recycled paper. Some environmental savings from the switch:

- ❑ 29,400 trees
- ❑ 3.5 million gallons of water
- ❑ 4.9 billion BTUs of electricity
- ❑ 392,000 lbs of solid waste
- ❑ 773,500 lbs of carbon dioxide (greenhouse gas)

The House uses roughly 14,000 cases of copy paper each year with 5,000 sheets per case.

[Memo to Harper, cc Campbell: Easy greenie points! DB]

— Responsible Purchasing Network, November 2007

WWF Guide to Buying Paper

In November, World Wildlife Fund launched its new Paper Guide. From packaging paper to office paper and tissues, the new guide makes it easy to understand the most important environmental impacts of paper-making and to source responsibly-produced paper products. The WWF Guide to Buying Paper and the WWF Paper Scorecard can be accessed in the new WWF Paper Toolbox at

www.panda.org/paper/toolbox

— WWF International, November 28, 2007

State of the Paper Industry

The *State of the Paper Industry* report is based on the Environmental Paper Network's Common Vision, which provides a framework to guide the necessary shifts in paper production and consumption in order to help the paper industry become more sustainable. *State of the Paper Industry* monitors environmental performance in the industry, and challenges industry leaders to adopt socially and environmentally responsible paper and production practices.

— www.environmentalpaper.org,

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When Green Isn't

**Bright Green, Viridian Green, Lite Green, Leaf Green, Dark Green
Must society become a shade of "green" that society will eagerly consume?**

by Norm Reynolds

Bright Green, Viridian Green, Lite Green, Leaf Green, Dark Green? The immense social and technological implications of global warming have highlighted much more than just shades of meaning within the environmental movement.

Indeed, Bruce Sterling, sci-fi author, cyber guru, and founder/spokesperson for the Bright Green environmental movement, suggests that recognition of the significance and urgency of global warming may be the only thing that his Bright Greens have in common with traditional environmentalists/dark greens. According to Sterling, the hallmark of the bright greens is their enthusiasm for economic growth, consumerism, and technological innovation as the only viable solution to the immense social and environmental challenges of greenhouse gas fuelled climate change.

Dark Greens, in Sterling's view, do not represent a credible response to climate change because society is not ready for, nor interested in, their pessimistic, technophobic, moralizing, often misanthropic messages about small-scale local cultures and economies that would put the brakes on – if not reverse – the tides of history.

The only way society at large is going to make the immense adjustments required is if those changes are attractive, glamorous, and seductive. Axiomatically then, society must become a shade of "green" that society will eagerly consume, and – in the words of Bright Green environmental futurist Alex Steffen – harness the engines of capitalism, high technology, and human ingenuity in creating the kind of sustainable future that people want and will accept.

Building on the writings of Steffen and Sterling, a Bright or Viridian Green platform has emerged that replaces the pessimistic call by traditional environmentalists for conservation and an end to growth with an effervescent faith in unlimited growth, based on the possibilities of abundant clean power and technological innovation.

Reflecting seventeenth-century modernist metaphysics

and technological triumphalism, Sterling suggests that it's time to abandon our ineffectual role as caretakers of the earth and embrace our rightful role as its masters.

In the Bright Green world, a sustainable system of consumption and production is not a matter of reducing the footprint of our activities on this planet but of transforming this footprint into a source of replenishment through a completely different system of closed-loop manufacturing.

These spokespersons for the Bright Greens make it clear that the new world view will be one that is completely free of spiritual or mystical overtones. In an op-ed for the *Washington Post*, Sterling proclaims that cyber greens are

winning, precisely because they are not about spiritual potential, natural beauty, justice, or any of the other outdated values of a now discredited environmental movement.

Clearly, the Bright Green hubris of Steffen and Sterling has not considered Albert Einstein's disquieting definition of insanity as: "...doing the

same thing over and over again and expecting different results."

Indeed, there seems little to distinguish Sterling's Bright Green assertion that it's time for humanity to embrace its role as masters of the Earth from Rene Descartes' famous seventeenth-century vainglorious proclamation: "(My discoveries) have satisfied me that it is possible to reach knowledge that will be of much utility in this life; that instead of the speculative philosophy now taught in the schools we can find a practical one, by which, knowing the nature and behaviour of fire, water, air, stars, the heavens, and all the other bodies which surround us...we can employ these entities for all the purposes for which they are suited, and so make ourselves masters and possessors of nature."

Thomas Homer-Dixon, in his 2000 book, *The Ingenuity Gap: How can we solve the problems of the future*, suggests that technology, of itself, is not likely to solve the problems of what he calls the paradigm-shattering challenges of global warming. Starting from a deep apprecia-

A Bright or Viridian Green platform has emerged that replaces the pessimistic call by traditional environmentalists for conservation and an end to growth with an effervescent faith in unlimited growth, based on the possibilities of abundant clean power and technological innovation.

tion of the complexities of the natural world and a substantial skepticism about both the adequacy of scientific knowledge and the capability of technology, Homer-Dixon points to a number of considerations that need to be accounted for before jumping on a supercilious bandwagon like that of the Bright Greens.

To those who believe that human knowledge and technological capacity is up to becoming masters in control of Earth's complex and intricate ecological systems, Homer-Dixon points to the 1990s Biosphere 2 project, which received enormous funding to build and operate a human-engineered ecosystem in a greenhouse covering 1.3 hectares of land in the Sonora Desert of Arizona.

Designed by a heady team of ecologists and engineers, the enclosed artificial ecosystem included 3,900 species of plants and animals, a rainforest marsh, and sophisticated air, water, and waste management, as well as eight fulltime human occupants.

The project, which ran for two years, didn't go well. To avoid a medical emergency, oxygen had to be pumped in. Carbon dioxide levels oscillated wildly. Nitrous oxide soared to levels that reduced biospheric synthesis of Vitamin B12 to levels that threatened to damage brains. Weeds like morning glory flourished to the point of needing constant management. Trees became brittle. Nineteen of twenty-three vertebrate species went extinct – as did all pollinators. Ants and cockroaches abounded. Despite almost unlimited material, energy, and intellectual resources, Biosphere 2 proved to be a sobering awakening to the limits of human knowledge and our capacity to manage the life-supporting services that natural ecosystems produce abundantly, and for free.

Homer-Dixon points out that our current attempts to predict and manage natural systems have been based on the simplistic and discredited idea of a natural balance and stability that hasn't, so far, even been able to adequately predict the impact of keystone species and nonlinear thresholds. Even the apparent resilience of nature may be a trap that lulls us into believing the natural world is infinitely robust and abundant. Thus deluded, we can go on homogenizing ecosystems on a planetary scale and plundering forests, fields, rivers and fisheries.

One prominent underlying assumption of the Bright Greens is that human society – short of a massive shift in values – is capable of setting aside major struggles over wealth and power in order to focus on the single issue of an economic/technological response to a crisis so deep it will require profound changes in all human culture over a short time span. Clearly any project to change the direction of the global economic production must account for the scant suc-

cess of the United Nations efforts, over the past 60 years, in bringing the nations of the world together to stop mass violence and violations of human rights.

While the Bright Green agenda asserts that technological innovation, along with unlimited growth and the guiding hand of stock markets, will solve the problems of poverty and hunger, along with the – up to this time – devastating environmental effects of industrialized society, there seems little evidence of those benefits so far. According to historical philosopher Ronald Wright, the world's economy has expanded by 40 times over the past century, yet the number of people in abject poverty today is as great as all mankind in 1901; 25,000 people die every day from contaminated water alone; annually twenty million children are mentally impaired by malnutrition. Most discouragingly, the United Nations' studies estimate that providing clean water, sanitation, and basic needs for earth's poorest would cost less than what the US spends on its ill-thought missile shield. Recent successful attempts to subvert the Kyoto agreements by those committed to oil company interests seem to indicate that, even if the technology were capable

Recent successful attempts to subvert the Kyoto agreements by those committed to oil company interests seem to indicate that, even if the technology were capable of sufficiently reducing atmospheric greenhouse gasses, it will not be developed nor deployed until there is a radical transforming in social/political values.

of sufficiently reducing atmospheric greenhouse gasses, it will not be sufficiently developed nor deployed until there is a radical transformation of social/political values.

The issue on which the Bright Greens seem to be utterly confused is their claim that spirituality has no role in addressing the pressing environmental issues of our times. Clearly,

the assertion that values like love, justice, equity, a sense of connection to other species and people are just the flotsam of an age passing, and that what people really want is lots more high-tech, sexy gadgets, is a profoundly spiritual statement about what matters, what is the purpose of human life, how we are related to the entirety of existence and what, in fact, is a moral life.

Ronald Wright, in his 2004 Massey Lectures-based book, *A Short History of Progress*, argues that this idea that material progress can entirely supplant the moral perspectives of past cultures has hardened into an ideology – a secular religion with a magical vision of the possibilities of unlimited growth that, like so many cultures before, will lead beyond reason to catastrophe. Wright examines the kinds of faulty environmental logic that led to the catastrophic collapse of Easter Islanders, Athenians, Romans, and Mayans before concluding the current social vision of a world run by the stock market is as mad as any other suicidally flawed cultural/religious delusion.

If, as the Bright Greens suggest, the vast majority of humanity only want more things, one has to wonder why there

Continued on Page 30 ➡

OPINION

⇐ Green continued

has to be such an endless barrage of advertising on television, radio, magazines, newspapers; on buses, billboards, the sides of buildings, everywhere with the ubiquitous message that whatever you have – it isn't good enough. Jerry Mander in his book *In the Absence of the Sacred*, puts this argument most cogently: "None of these (market) benefits informs us about human satisfaction, happiness, security, or the ability to sustain life on Earth. Perhaps getting places more quickly makes some people more contented... but I'm not convinced. Nor am I convinced that greater choice of commodities... qualifies as satisfying compared with, say, love and friendship and meaningful work."

A Bright Green world would not come into being in the absence of spirituality. It would simply insert its spirituality of high-tech consumer-focused greed and glitz for a dark green social/economic system that values institutions, corporations, legislation, social practices, health care, our educational and legal systems by how much love, compassion, kindness, generosity, ethical and ecological sensitivity they inspire.

Deeply enamored of market mechanisms, neither Sterling nor Steffen seem to have considered that humanity might pay a high price, indeed, imaging our earth and ourselves to be inert bits of matter stuck together by a highly improbable but indifferent accident with no purpose higher than to consume things.

Leon Kass, in his intriguing and carefully weighed book, *Toward a More Natural Science*, argues for an inextricable connection between love for the natural world and respect for the inhering worth of the self: "(A healthy epistemology would) reawaken not only wonder and admiring delight at the given world, but also respect, awe, and gratitude; respect for the powers of living nature, awe before the mysteries of living nature, and gratitude for the unmerited--and, in the face of evolution, simply miraculous – privilege of our being here to experience wonder, delight, respect, and awe... Finally these attitudes and sentiments toward nature will nurture a truer self-respect – no longer one we simply manufacture for ourselves, but one that is ours by nature."



Norm Reynolds, a Unitarian Lay Chaplain and author of *Song of the Sacred*, has been an environmental activist in British Columbia for over thirty years.

Reading:

Alex Steffen, *Worldchanging: A User's Guide for the 21st Century*, foreword by Bruce Sterling, Harry N. Abrams, Inc. Nov. 2006
 Ross Robertson, "A Brighter Shade of Green: Rebooting Environmentalism for the Twenty-first Century," *What is Enlightenment*, Oct.-Dec 2007

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Nuts and bolts, pipes and drains

An eco-shift in engineering turns stormwater into a rainwater resource, and saves the streams for fish

by Leslie Gillett

Odds are most people aren't aware there has been a quiet but profound shift in the operations of storm drains, a greening of the pipes, so to speak.

Unless you are an engineer or a fisheries person, culverts are not something taxpayers spend a lot of time wondering about. They assume that the infrastructure of their city is well planned and doing what it's supposed to do.

Since efficiency in these cases is equated with invisibility – as in, you only see it when it doesn't work – that's fine with Courtenay's director of operational services, Kevin Lagan. But when asked about some of the environmentally sensitive changes to city underpinnings, Lagan is quick to point to the mid-Vancouver Island city's quiet underground revolution.

Gone are the days of seeing roads and buildings as coming first in the planning stages, and impacts on the surrounding area as a very distant second. City planners are shifting to a more holistic view where one side has to meld into the other.

Courtenay – sometimes viewed as a bit of a quiet backwater by other larger cities – is no longer the new kid on the block, environmentally speaking. That's particularly evident when dealing with water use, drainage, and conservation, says Lagan. "We are managing a rainwater resource now," he says, "rather than just looking at storm water drainage. The water balance model that was adopted in 2002 works by establishing systems than are trying to mimic nature."

For example, at the Home Depot store there is a rainwater collection design that doesn't simply send runoff into the drains but works with filters and a deep well injection system to put the water back into the earth on the site. Why? It lessens the chance of flooding of nearby homes and land, protects the balanced ecosystem of the area, and recharges the groundwater.

"We are working to reduce storm flows into rivers, creeks, and streams," Lagan says, which protects delicate wetlands and the fish and wildlife in and around them.

So why rainwater resource rather than storm runoff?

Semantics matter, because words have the power to change how issues are viewed and resolved. "For example, we now have five good years of experience in managing the rainwater resource rather than dealing with stormwater issues," he says. Changing the terms changes the context.

Water resources of all kinds become viewed as integral to the land, a system to understand and manage rather than simply a problem to deal with.

Changes in planning standards, development costs, pilot projects with BC Hydro, a seven-year involvement with the Dark Skies Society – which mitigates unnecessary light spillage – proactive water management, creation of bike ways – all these changes add up to a stronger, more environmentally sustainable city.

Enforcement of existing regulations and collaboration with neighbouring communities are key to the success of the big picture. For example, Lagan is aware that Nanaimo is working with a pervious asphalt that would let some rain through instead of running off into often overloaded highway storm drains. Questions about the freeze-thaw cycle and car oil pollutants have yet to be answered, Lagan says, before putting it into widespread use.

Sharing information that feeds into a common goal works for everyone, hence the collaboration with such groups as the Association of Coastal Communities, Convening Action on Vancouver Island (CAVI), watershed groups, and other environmental stakeholders.

It's a shift in emphasis from small-town excitement at "progress" and growth at all costs to a more mature, balanced view, where all parts of the picture are equally important to creating a livable region. Lagan is quoted on the CAVI website: "We are moving to the next stage, which is to evolve from stating what we want Courtenay to look like to ensuring that it actually occurs on the ground."



See www.waterbucket.ca

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Wild Times



Getting democracy back on track

by Joe Foy

The hawk wheeled around the big cottonwood looking for a place to land – all the while a gang of smaller birds and crows tried to bully it out of the neighbourhood by making an awful racket and dive-bombing its tail feathers. But she gave them no notice and landed on one of the big branches anyway. She really didn't have a choice in the matter, given that this was one of the few pieces of forest left standing. All around and below her the little patch of bush was full of deer, coyote, possums, owls, hawks, crows, woodpeckers, and raccoons. Not bad for a tuft of trees not more than an acre in size.

It was really strange. I had grown up beside this forest, our family having moved here in 1962. Its leafy greenness filled our picture window view and its bird song woke us every morning. Now, more than 40 years after having first arrived here, I was seeing more wildlife in greater variety that I had ever seen before. You would have thought that I'd be happy – but quite the opposite was true. I knew I was watching the death of a wildlife community that had been my friend since childhood. All around our old place hundreds of acres of forest had been recently bulldozed to make way for a series of massive housing developments. The animal refugees that crowded the forest eventually dwindled away looking for habitat to support them. Their final fate I don't know. Last year my parents finally sold and moved on, too.

I wondered how could this have happened. Our neighbourhood in the Clayton Hills section of Surrey had been slated for slow growth in the Greater Vancouver Regional District's Liveable Region Strategy, which had been the result of a huge amount of public consultation throughout the 1990s. Basically, regular folks had said that they wanted growth concentrated in the urban region around Vancouver, Burnaby, and New Westminster and that green areas like Clayton Hills should largely remain green. Obviously, regular folks like those who put their two bits in on the Liveable Region Strategy are no longer the ones in charge. So who is?

Increasingly, it's big business that's in charge these days. Big box developers, trucking firms, shipping companies, and housing tract builders are shaping our lives now. Big business is doing it by systematically getting hold of our public transportation system, piece by piece. Private companies now are slated to run Metro Vancouver's new Canada Line Skytrain line, the highway to Whistler, and the new Golden Ears Bridge – and that's just for starters.

With the forced passage of Bill 43, the BC Liberal government has recently abolished Translink's board of elected representatives and replaced them with an appointed board – mostly friends of big business.

So what's the big deal? Why does big business care so much about owning and controlling Metro Vancouver's public transportation? Surprise! It's all about making money – lots and lots of money.

Twin the Port Mann Bridge and make lots of money building lots of sprawl housing while whispering sweet promises of an easy car commute. Better yet, be the company that owns the bridge and gets to toll all the new commuters who use it! Raise the price of a transit ticket and push more people back into their cars. Heck, push them all the way to new housing tracts in Surrey and Langley and beyond and make even more money!

So what's an ordinary citizen to do? Metro Vancouver and the Fraser Valley have some of the best wildlife habitat and farmland on Earth, and the Fraser River is the largest wild salmon river on the planet. Hawks, Orca whales, coho salmon, and bald eagles are just a few of the wild creatures whose collective fate hangs in the balance.

Will this wildlife-rich region become just another paved-over, smog-infested, gridlocked hellhole for the benefit of the few rich and famous? Or will the Liveable Region Strategy win the day?

It all depends on how successful we are in getting democracy and public ownership back on track again.



Joe Foy is Campaign Director for the Wilderness Committee (Western Canada Wilderness Committee), Canada's largest citizen-funded membership-based wilderness preservation organization. WCWC currently has 28,000 members from coast to coast.

From Our Readers

Getting Cancer Smart

What a great article (Beauty and the Beast) in November's issue of the *Watershed Sentinel*. Like many women, I have succumbed to the siren call of the need to use "beauty" products. It is shocking and disappointing to know that these items that we put on our bodies on a daily basis can lead to disease, even cancer, and that our government, through Health Canada, is doing little to protect us.

I have taken the opportunity to check out the safety of my skin care products and am horrified to find that I, too, needed to throw products out.

I want to bring your readers' attention to the *Cancer-Smart Consumer Guide*, produced by the Labour Environmental Alliance Society. This guide is a handy reference to the everyday products that we use in our lives and what toxins are contained in them. For example, you will learn about pesticides, cleaning products, and water bottles. There are also recommended products so that we can reduce our toxin load.

Information on how to get a copy of the *CancerSmart Consumer Guide* can be found by logging on to the LEAS website at: www.leas.ca

Thanks again for the article and for this wonderful magazine.

Karen Cooling, Vancouver BC

FSC to Review Logo for Rainforest Logging

It is hoped that in reviewing the FSC Standards, a real end to FSC approval of old growth forest products will be applied, not just in South America or Indonesia, but here in our own back yard, including Clayoquot Sound.

There are always people ready to look like winners in this game, but if it isn't an end to destructive processes, then it just isn't a winning game for anyone, merely a slower, perhaps nicer way of doing the same thing. We cannot continue to kill the planet in a "nicer" way; we have to turn this game around: say "no" to industrial commercial extraction of resources where people and the planet and other creatures are harmed.

How cutting an old growth coastal tree thousands of years old can get certified as "sustainable" logging is beyond me. Everyone knows that when these trees are gone, they will never be again, not in anyone's lifetime, so what is sustainable about that?

Susanne Hare, Tofino BC



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Nuclear Plants Raise Leukaemia Threat

The risk for children under five years grows with proximity to nuclear power plants

BERLIN, Dec 27 (IPS) - In December, physicians and health researchers from the University of Mainz, 425 km southwest of Berlin, said children living within a radius of five kilometres from nuclear power plants are at higher risk of contracting leukaemia.

The doctors, looking at data collected between 1980 and 2003, listed 77 cases of children suffering from cancer, including 37 cases of leukaemia, in regions around nuclear power plants. The national average for similarly sized groups is 48 cancer cases, and 17 of leukaemia. That indicates twice as many cases of leukaemia among children living near nuclear power plants.

"Our study shows that the risk for children under five years of contracting leukaemia grows with proximity of their homes to nuclear power plants," Maria Blettner, director of the research group at the University of Mainz told IPS.

The Mainz findings are consistent with others in France and Britain. In Britain, a 2002 study confirmed an older one in 1990 that reported the incidence of leukaemia among children of workers at the Sellafield nuclear power plant 400

km north of London was twice the national average. As with the French Viel study, health and nuclear authorities had dismissed the results of the older study.

But in the June 2002 investigation, using data from 1957 to 1991, the researchers found that children of workers at Seascale near Sellafield were 15 times more likely to suffer leukaemia and non-Hodgkin's lymphoma (NHL) than the national average.

Some statisticians have strongly criticised the study. "It is as with the Texan sharpshooter fallacy," statistician Hans-Peter Beck-Bornholdt was quoted as saying in the conservative weekly *Die Zeit*, "If you shoot at random at a barn, and draw a bulls-eye around the bullet holes afterwards, you have proof of a very high probability of hitting success."

The German federal agency for irradiation protection has called the study a key argument against nuclear power.




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Local Action - Doing our part

In the face of grim environmental news, just remember that all we can do is our best. Let us hope that our generation will be remembered as the one that bravely faced the future and made courageous, life perpetuating choices.

by Sarah Downey

We live in a world out of balance. All around us things are falling apart. Great glaciers melting. Extinction of many animals. People waging war on each other. We hear from scientists that global warming and climate change could have devastating global impact on all living entities. How, as individuals and communities, we choose to face the future is up to us.

This is an exciting time to be alive. Maybe more than ever before, humans are aware of and waking up to ideas, problems, and solutions to global challenges. Because climate change requires that big changes be made by all, not just a few, humanity is being collectively called to active participation. More than in any other period, humans are connected and informed about what is happening around the globe. That fact alone gives us great opportunity for making positive change.

We know that to have significant environmental impact our lifestyles must change, but here we are faced with a deeper meaning: for our lifestyle to change in a way that has meaningful environmental impact, our values must change. So truly we must consider what lies at the heart of things and ask ourselves, "What is it that is truly important in life?"

To begin to answer this question, we take advice from those who have worked in their communities in Europe developing comprehensive community plans (often referred to as Energy Descent Action Plans or EDAP) that map out the steps that must be taken to reach a sustainable world. On CBC radio, the question was asked "What advice would you give to Canadians that would embark on this project in their own communities?" The answer rang clear. "Start with children."

This is where Friends of Cortes Island will begin work. FOCI has an ongoing project called Cortes Environmental Youth Initiative (CEYI). This winter, we are breathing new life into CEYI programming and have hired a coordinator to work with school-aged youth in and out of school. We hope that, through a variety of creative activities, young people will be inspired to take an active role in the development of our own Energy Descent plan relevant to this locale. We will be looking at across-the-board creative adaptations in the realms of transportation, housing, food, education, economy and more.

"Adopting a low impact, possible sustainable lifestyle can be liberating and enriching, the opposite to impoverishment... There is no need to constantly strive and struggle for more and more: we already have more than enough"

Christian Gronau & Aileen Douglas, Recipients of the 2007 FOCI JoAnn Green Environmental Award

If you are interested in learning more about Energy Descent here are some useful resources:

Transition Culture – www.transitionculture.org

Transition Towns – <http://transitiontowns.org>

www.fuellingthefuture.org

R. Heinberg, *Peak Everything: Waking Up to the Century of Declines*, 2007.

David Holmgren, *Permaculture: Principles and Pathways Beyond Sustainability*, 2002.

H.T. & E.C. Odum, *A Prosperous Way Down: Principles and Policies*, 2001.

Home Show in May

FOCI has also recently hired two coordinators for the Sustainability Home Show coming up on the May long weekend of 2008. We are very excited to be able to showcase the work done by the Youth Initiative by bringing it to the Home Show, linking the two projects together under the common theme of *Local Action - Moving Towards a Sustainable World*. If you are considering a visit to Cortes, come for the Home Show – it is always an event not to be missed!

January Visioning Meeting

FOCI board members and staff look forward to having a visioning meeting this January. This will be an opportunity to set long term goals, re-evaluate our roles, as well as prioritize our budget. Speaking of our budget, it is a wee bit tight right now with all that we are working on. We are a registered charity and can offer tax receipts. If our projects interest you and you would like to make a donation, please contact us. We would really like to be able to continue with this work and share what we have learned with others.

Friends of Cortes Island Society

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Salmon Wisdom

Text, review and photos by Wendy Kotilla

SALMON PASSAGES

Wild Pacific salmon and I have been bound on a parallel journey that began even before I first breathed west coast air. My grandfather and father were born on Vancouver Island, my dad left to join the Air Force, had a family on the east coast of Canada, and in 1964 we returned home with him. Ever since then, salmon have been intertwined with my own lifeblood, much like wild Pacific salmon are the lifeblood of the west coast.

I have travelled a course with wild Pacific salmon that has gone from the tops of the mountains, to the bottoms of the valleys, and out to the wild blue ocean. This voyage has taken me from learning about salmon in my youth, to the cockpit of west coast trollers, to salmon research and restoration, and to sharing salmon wisdom with youth today.

My soul reverberates with salmon's wild freedom and independence to roam the coast. Our connection feels so strong, it is as if my heartbeat and the heartbeat of salmon are beating together. If the salmon are ever gone, then my heart will shatter in a million pieces, just like the coast will be in pieces without the salmon to unite it all together. If we allow that to happen, I don't think we really know how to put it back together again.

When I think of what wild Pacific salmon mean to the BC coast and to the world, they are ambassadors of wilderness, connectivity, freedom, and generosity. Salmon represent what we love about this place where we live, this vast wild coast with many watersheds, streams, and coastline that all connect together. Salmon are symbols of that connection; they connect the ocean to the land and freshwater streams to the forest. Salmon are a keystone species that nurtures a multitude of land and water creatures, and their habitats. Salmon declines are indicators of the health of the ocean and watersheds where they live, and a warning sign about the state of the relationship humans have with the natural world.



1968 family photo

SALMON WISDOM

Wild Pacific salmon are the teachers and I am the student. I have been honoured to learn many lessons from salmon over the past 43 years, but the stories are their stories. Salmon wisdom can never be owned, it flows like a river flows to the ocean. People used to say they could remember when there were so many salmon spawning in the rivers that you could walk across their backs, but those days are long gone. Now, as salmon numbers are fewer and

less people witness their magic and beauty, their stories need to be shared.

As a girl living in Holberg, on the north end of Vancouver Island, I first became a student of salmon. Family fishing memories are many and I recall standing on my tiptoes to see the Chinook-filled fish bins at BC Packers in Winter Harbour. As a young woman, I was a deckhand on west coast trollers, and followed salmon trails all over the BC coast. Out on the Pacific Ocean, survival and livelihood requires paying attention to every detail of the ocean environment, from what fish are eating, to tide currents and changes, to which way the wind is blowing. I soon realized that salmon stock declines were a problem, and in 1986 joined a local salmon enhancement group.

From 1990 to 1998, I worked at Carnation Creek, a long-term study of the effect of forest harvesting on fish and their habitat. For about eight months a year, I lived at the remote research station monitoring fish-counting fences, weather conditions, and the impacts of logging 83% of a small watershed. During my first year, I hid in the bushes to watch coho spawning in Study Section 5 and felt a sense of wonder at witnessing this amazing event. Over the next five years, I watched the 100 metre section fill in with gravel from steep-slope logging. In the fall of 1995, after a large storm deposited 132 millimetres of rain in 24 hours, the unstable accumulation of gravel in Section 5 relocated downstream.



Carnation Creek Coho, 1996

These days, I share salmon stories with Comox Valley youth through the Youth and Ecological Restoration Program. Most of the youth don't know salmon names and think that they come from hatcheries. I take them out to work with community members who are trying to restore local salmon stocks. Current practices include capturing dwindling numbers of adult salmon before they spawn to take the female's eggs, fertilize them with milt from the males, incubate them over the winter, and release the fry in the spring. The youth and I love being involved, but I feel a deep sadness about ripping salmon off the spawning grounds after they have traveled thousands of miles to complete their life cycle.

Salmon have a legacy of nurturing the west coast land and waters with their abundance. Human relationships are out of balance with the natural world, and salmon are telling us it is not working for them. Our greatest hope for a future with wild Pacific salmon lies in helping people experience salmon in the places they call home. Hearing salmon wisdom means respecting and repairing their place in the world.



SALMON 2100: AN OVERVIEW

Salmon 2100:

The Future of Wild Pacific Salmon

Robert T. Lackey, Denise H. Latch, and Sally L. Duncan, editors. American Fisheries Society, September 2006.

629 pages, with colour illustrations. ISBN 1-888569-78-6 \$39.00 US.

To Order: American Fisheries Society, Orders Dept, 1650 Bluegrass Lakes Parkway, Alpharetta, GA 30004, USA. Ph: 678-366-1411, Fax: 770-442-9742; Email: afspubs@pbd.com

In 2006, the American Fisheries Society (AFS) published a 629 page book called *Salmon 2100: The Future of Wild Pacific Salmon*, edited by Robert T. Lackey, Denise H. Latch and Sally L. Duncan. The authors were asked the following question: What is it *really* going to take to have wild salmon populations in significant, sustainable numbers through 2100? Thirty-six salmon people wrote 23 chapters, presenting a diversity of expertise and opinions on how we might realize a future with wild Pacific salmon.

Reflecting optimism for salmon's future, the front cover has artwork of eyed salmon eggs by Andy Everson of the Comox First Nation who says:

"Beginning" is my rendition of this very start of life for salmon. For the many First Nations throughout the coast, the salmon was given to us by the Creator as an integral source of food ... salmon is also seen as being related to us and, as such, is given an incredible amount of respect. One reason I created "Beginning" was the birth of my son, Matthew. Like the young salmon egg, he is imprinted with a sense of place and a sense of belonging."

Salmon History

About 4,000 years ago, as ice-age glaciers receded, more freshwater habitat was available and ecological conditions began improving for salmon. First Nations salmon harvest subsequently increased and, prior to 1500, more of a balance existed between salmon and humans. Salmon numbers started to decline shortly after the California gold rush days in the 1850s. On the Columbia River, salmon runs were in serious decline by the 1880s, and when the first dam was constructed in 1933, only one-fifth of the original stocks remained.

Each of the salmon species has many stocks that have adapted to specific ecological and watershed conditions over long periods of time. These stocks represent genetic variations crucial to the survival of salmon. Nehlsen et. al. (1991) determined that in California, Oregon, Idaho, and Washington, more than 200 wild salmon stocks were at moderate or high risk of extinction; a similar assessment by Slaney et. al. (1996) for British Columbia and the Yukon identified over 702 populations at moderate or high risk. What would be the result of a current evaluation on wild Pacific salmon stocks?

Wild stock declines are generally understood to be a combination of factors including: changing ocean and climate conditions, excessive fishing, farming and ranching, dam construction, water diversion and withdrawal, pollution, hatchery production, fish farms, habitat degradation, urban development, forest harvesting, predation, competition with nonnative fish, diseases, parasites, and others.

Continued on Page 38 ➡

↩ Salmon continued

Salmon are a connector species that have a critical function in bringing marine nutrients to watersheds; in the southern half of their range, these nutrients are estimated to be less than 10% of historical levels. This decline represents a significant impact on the survival of juvenile salmon and their freshwater habitat that is not well understood. As a keystone species, the survival of salmon is linked to the survival of many other species, both plants and animals. What is the impact of declines in wild Pacific salmon on bears, eagles, orca, ducks, otters, aquatic insects and many others?

Core Policy Drivers

Salmon 2100 editors identified four core policy drivers that form the foundation of the present status of wild Pacific salmon. By focusing on more obvious factors of salmon declines and an assortment of solutions, society's attention is being drawn away from significant truths. These four core policy drivers are central for determining what society wants for the future.

Core Policy Driver #1 – Rules of Commerce: Cheap consumer products for humans do not include the ecological cost of restoring the environment or wild Pacific salmon.

Core Policy Driver #2 – Increasing Scarcity of Key Natural Resources: Human demands on fresh water, land, and other natural resources compete with what wild Pacific salmon require for life and abundance.

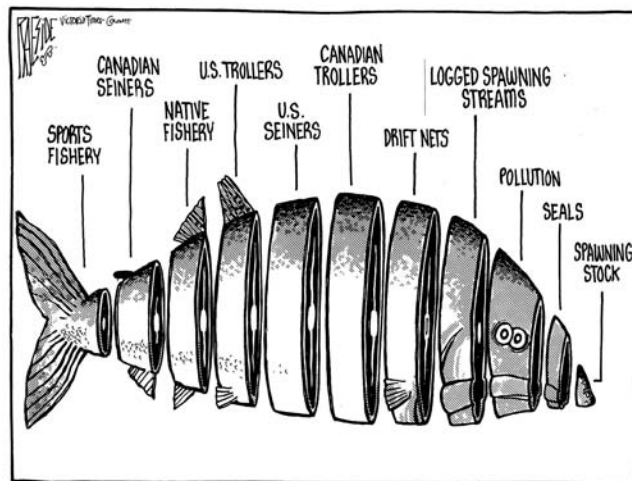
Core Policy Driver #3 – Regional Human Population Levels: Pacific Northwest human numbers are forecast to increase from about 15 million to 50 million or more by 2100; cumulative lifestyle demands will lead to decreasing support for wild Pacific salmon space.

Core Policy Driver #4 – Individual and Collective Preferences: Society's behaviour consistently indicates our preference for goods and services over our desire for a future with wild Pacific salmon.

Wild Pacific salmon depend on habitat that increasing human populations require for water, electricity, food, and recreation. These services are managed by myriad agencies at many levels, and are rooted in cultural values that are subject to change, unforeseen and beyond our control. Major changes include energy and water shortages, and future technology that we cannot envision. Most people support salmon recovery, but will that extend to giving up their private property rights or standard of living?

Author Recommendations

Somewhere between pessimism and optimism are realistic ecological and social policies that include the survival



of wild Pacific salmon. Salmon renewal involves a broad range of issues from economic to spiritual to ethical. Their complex life history requires huge regions of marine, freshwater, and land habitats that cross national and international boundaries and jurisdictions. *Salmon 2100* authors had four general themes for sustaining salmon.

1. **Maintain enough freshwater and estuarine habitat to sustain wild runs.** Limit protection of wild Pacific salmon to choosing specific streams as sanctuaries.
2. **Change institutional structures to more effectively implement salmon recovery.** Minimize bureaucracy to develop local watershed management strategies, and change harvest limits and policies on wild Pacific salmon.
3. **Increase role of the science and technology in recovery efforts.** Integrate current practices with expanding knowledge of human impacts on wild Pacific salmon.
4. **Change people's values and beliefs, which are assumed to translate into changes in practices and actions.** Shift cultural beliefs to include the reality of human impacts on wild Pacific salmon and the human choices required for their recovery.

Summary

Salmon 2100 final chapters by the editors noted the authors' struggles with answering the futuristic salmon question and the unknown variables of the next hundred years. Human population increases and global climate change were paramount considerations. Forward thinking requires contemplating subjects like perpetual ecosystem dynamics, non-linear thinking, shifting worldviews, and impacts of human decision making on ecosystems.

Making development projects pay for infrastructure, protecting farm land and greenbelts, and implementing

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Smart Growth strategies may help to control future urban sprawl. Restoring wild Pacific salmon is directly dependent on society making some "painfully difficult choices," but current trends of salmon declines are probable if human population numbers continue to increase. It is a societal illusion to think we can maintain healthy wild salmon populations AND the lifestyle to which we have become accustomed.

The authors all commented that "political interference and manipulation of science is a serious problem." Science is a compass not intended to be used alone, but short-term politics have come to be the main guide for environmental decisions. Some suggested that the public is not aware of what it means to lose wild Pacific salmon. Over time, fewer salmon numbers would result in fewer people having a personal connection with salmon. That would be a crisis for both salmon and humans.

Salmon 2100 contributors agreed that transformation of our approach is essential for humans to restore a balance with wild Pacific salmon. The majority synopsis was, "If we give up on wild salmon, we give up on ourselves." Recognizing the larger human and social dimensions of declines in wild Pacific salmon is required if there is any hope for a future with them. We could also learn from First Nations traditions of respecting salmon as a gift from the Creator, and having a sense of knowing this place as home.

♦
Wendy Kotilla lives in the Comox Valley and co-ordinates Youth and Ecological Restoration Program, to educate young people about the connections of the natural world.



Commercial Fishing, 1986

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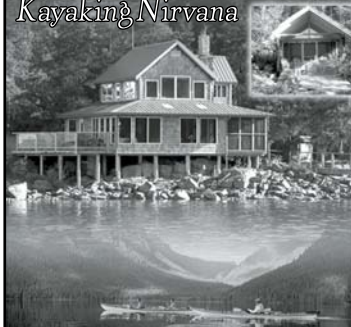
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Think Sun, Wind...and Canadian Tire?

by Leslie Gillett

When one of Canada's largest mainstream retail companies sells across-the-counter solar panels and has a new website devoted to all things environmental, one can safely say to Kermit the frog: "It's no longer hard being green."

"Canadian Tire recognized a growing need for environmentally sustainable choices a couple of years ago," says head office spokesperson Sarah Rodgers.

"We are looking to provide solutions to those customers who are forward thinking about environmental issues. We now have a research and buying team specifically for solar and wind power products."

They waded through the growing number of items that are out there promising off-the-grid power, and choose what they consider to be the most practical, economical, and efficient, Rodgers says.

While campers and RVers have used portable generators and solar panels for a number of years now, she says, the real push in the last few months has come from your regular Saturday-afternoon-at-Canadian Tire shopper.

The number of questions led the Canadian company to establish its own website, Advance Green, accessible at canadiantirepower.ca.

"If you're ready to go GREEN, Canadian Tire can help," according to the website. "ADVANCE GREEN offers the broadest range of energy management solutions anywhere. From monitoring devices to energy-efficient and insulating products, from water-conserving toilets and shower heads to spot-heating with electric fireplaces, there are lots of smart ways to save money while you save the environment."

The website highlights energy and water conservation products, everything from "outdoor dryers,"

other-known as w i s e clothes-lines, to pipe wrap, dimmer switches and low-flow toilets. Some parents and grandparents may be amused to find that the "turn the light off when you're not in the room" philosophy is no longer considered an old-fashioned rant but rather a mantra for the future.

A good way to market change is to combine the ideas of saving energy and saving money. Customers are assured by Canadian Tire that they don't have to resort to oil lamps and cold showers to be conservation-minded and energy efficient.

Rodgers says, "You don't have to make major changes to reduce energy consumption. By installing products designed to conserve energy, you can begin reaping the benefits almost immediately."

The pivotal time that sees the unusual transform into the norm has indeed come, according to one local Canadian Tire manager.

"It's been really evident over the past year," he says. "We're now talking about providing people with everyday choices, energy-efficient products that are increasingly commonplace, rather than technology that's way out there. There are a lot of companies working to make technology like solar and wind power much more accessible to people."

The website works at demystifying alternate energy technology and answering frequently-asked questions. "Using solar panels, wind turbines, inverters, and batteries you can generate your own electricity from the inexhaustible energy of the sun and the continuous power of wind. With no harmful emissions, a renewable energy power system will give you peace of mind and energy independence.

Jumping on the green bandwagon is becoming increasingly commonplace. As mainstream companies start extolling everyday products and common sense solutions, it's evident that being green-minded is no longer the exclusive territory of back-to-the-landers, CBC listeners, and other counter-revolutionaries. It's rather reminiscent of 30 years ago when you found store-bought granola on retail shelves next to the Corn Flakes. Strange then, common now.

When the majority shifts in such a way, meaningful change is possible. The last word goes to Canadian Tire's Advance Green:

"Energy conservation benefits more than the environment. By taking control of your energy consumption and thinking GREEN, you'll not only help save valuable resources and protect the planet; you can also look forward to savings on energy bills.

"Energy conservation - a few small changes can make a big difference."



The Boreal

Protecting forest, storing carbon, saving lives

In November, the Canadian and First Nations governments announced the protection of more than 10 million hectares of boreal forest, withdrawn from development planning in the Northwest Territories.

With attention focused on the Arctic and climate change, the timing couldn't be better to act to protect these sensitive Northern ecosystems, said Steve Kallick, director of the International Boreal Conservation Campaign at the Pew Environment Group.

The Canadian Boreal Forest is the largest intact forest remaining on the planet, rivaling the Amazon in size and ecological importance. It stores more carbon than any other terrestrial ecosystem – more than twice as much carbon per hectare as tropical rainforests – and plays a vital role in climate regulation. It also teems with wildlife, including nesting grounds for billions of migratory songbirds and 40% of North America's waterfowl. Canada's Boreal is also home to some of the world's largest remaining populations of grizzly and polar bears, wolves, woodland and barren-ground caribou.

Earlier this year, 1,500 scientists from around the globe recommended protecting at least 50% of the 1.5 billion acres of boreal forest in Canada.

– *Canadian Boreal Initiative, November 2007*

Canadian Boreal Forest:
More than twice as much carbon
per hectare as tropical rainforests.

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