**Environment related Watershed Ways**

**Articles in this document include:**



## Denying the future

22 Oct 2009 Ole Hendrickson

At a recent University of Ottawa talk, Hoggan noted that public relations experts know far more about how you think than you do. He documents all the tricks they, and other climate change deniers use to induce you to deny the reality of climate change.

The basic strategy of the deniers is to create doubt about the scientific facts. Some falsely pose as climate scientists, misrepresenting their research and teaching backgrounds. They speak about areas outside their fields of expertise. They accept money from oil and coal companies. They sow doubt, mistrust, confusion, and delay.

These false climate scientists are backed up by an army of public relations specialists and corporate lobbyists, representing companies whose profits are tied to fossil fuels. Hoggan says there are four climate change lobbyists for every elected official in Washington D.C.

I thought that after the Nobel Prize was awarded to the thousands of scientists who write the reports of the Intergovernmental Panel on Climate Change, climate change deniers would slink away with their tails between their legs.

I was wrong. The deniers are more active, and better funded, than ever.

Why do so many of us continue to deny climate change, when the scientific evidence is so strong,

and the risks are so high?

Some answers are simple. We don't want to change our lifestyle. Retooling to a zero-carbon society would disrupt powerful and profitable industry sectors and require significant government intervention in the economy. If apparently credible spokespersons tell us there is scientific doubt about the reality of climate change, we are only too happy to believe them.

Deniers aim their propaganda at smaller media outlets where reporters lack the resources to check their facts, sources, and credentials.

They take advantage of the fact that climate change is complex. We agreed to ban ozone-destroying substances because it's easy to understand the dangers of a hole in the ozone layer that lets in harmful radiation. But how can scientists communicate the dangers of climate change?

I'm a professional ecologist. I've published peer-reviewed scientific articles on the carbon cycle. Part of my work involves reading studies of how climate change is impacting life on the land and in the seas. Every peer-reviewed scientific study on climate change published in the past decade has confirmed that human-caused greenhouse gas emissions are warming and destabilizing our fragile atmosphere, and causing significant damage to living systems.

The world is headed, faster and faster, for climate disaster. If we fail to act to reduce greenhouse gas emissions, hundreds of millions of people will abandon the world's coastal areas during this century, never to return.

Even worse scenarios involving total melting of the icecaps and stoppage of ocean currents are possible. These could leave oceans devoid of oxygen, covered with purple bacteria, filling the atmosphere with poisonous green clouds of hydrogen sulphide. Earth has experienced such episodes, but not for hundreds of millions of years. Most species would perish – certainly all humans.

Avoiding these catastrophic scenarios will require strong measures and leadership. Consider a global ban on fossil fuels. Could people live happily in a zero-carbon society? Absolutely. As caretakers of the planet, and each other, we would lead full and meaningful lives.

If we lead, politicians will follow.

*Ole Hendrickson is President of the Ottawa River Institute, a non-profit, charitable organization based in the Upper Ottawa Valley.*

**A Burning Issue….**

18 Jan 2007 Janet McNeill

Here in Renfrew County, the Ottawa Valley Waste Recovery Centre serves the municipalities of Pembroke and Petawawa, the Townships of Laurentian Valley and North Algona Wilberforce, and the Sebastopol Ward of Bonnechere Valley. The Centre has a client base of 40,000 and includes a composting facility, household hazardous waste depot, a section for construction and demolition wastes, and a waste oil transfer station. In the spring, you can buy compost there. For more information, check the OVWRC Web site at www.ovwrc.com

Elizabeth Graham, OVWRC Communications Supervisor, reports that there is a solid market for their recycled paper. In fact, they are prepared to take paper not just from the municipalities mentioned above, but also from businesses across the County.

The best way for residents served by OVWRC to put out their household paper including newspapers, fliers, magazines, catalogues, advertising mail, books, greeting cards is to place it loose inside their Blue Box. Shredded paper, from home or office, should be placed in a clear plastic bag. That way, staff at the facility knows it needs to be sent straight for baling, rather than separated out on the assembly line where the sorting of materials takes place.

As to whether to burn or recycle fine paper, it is perhaps not widely understood that the burning of bleached paper (which includes virtually all paper used in offices today) releases dioxins which are highly toxic to humans in small amounts causing liver problems, immune system impairment, certain types of cancer, and developmental problems in children. Burning is definitely not the way to dispose of fine paper waste. If you have confidential material to dispose of, have it shredded and then recycle it.

Burning of household garbage in general - including paper, newspaper and junk mail -contributes to the release of a wide number of pollutants. According to an Environment Canada flier entitled "What Goes Up Must Come Down" these include dioxins, arsenic, mercury, chromium, PCBs, lead, cadmium and many others. According to the flier home garbage fires smoulder and burn at temperatures that create dioxins and many other pollutants go into the air and fall back down as small particles ending up in the food that we eat. "What Goes Up Must Come Down" and many other excellent resources are available on the website of the Canadian Center for Pollution Prevention at www.c2p2online.com/documents/WGU_garbageburninghazard_e_v2.pdf.

Even wood (particularly waste wood), when burned, can contribute to air pollution. It's important to be certain your woodstove is safety-tested and certified; then, it's critical to burn only clean, untreated wood. More information on the responsible use of woodstoves can be found at Woodheat.Org.

As stated on the wood heat website mentioned above, "most forms of paper and plastic can be recycled. Recycling is far kinder to the environment than burning because it avoids the immediate air pollution and reduces the consumption of resources for new products." Since we have excellent recycling facilities locally, it seems recycling is indeed our best choice!

*Janet McNeill is a member of the Ottawa River Institute, a non-profit charitable organization supported by volunteers, local donors and a grant from the Ontario Trillium Foundation. There is no charge for membership in the Ottawa River Institute. We welcome new members who share our vision (www.ottawariverinstitute.ca/vision.htm ) Join on-line at:www.ottawariverinstitute.ca/become-a-member.htm*

**Planning to protect water**

22 May 2006

While lawyers argue over the details of enforcement provisions and so forth, let's take a step back and think about water and watersheds.

Consider a dictionary definition of water: "the liquid that descends from the clouds as rain, forms streams, lakes and seas, issues from the ground in springs, is a major constituent of all living matter, and

when pure consists of an oxide of hydrogen, $H_2O$."

Now consider the definition of watershed: "a region draining ultimately to a particular watercourse or body of water; the drainage basin from which the waters of a river are drawn."

The proposed new Clean Water Act would create committees to carry out watershed-based assessment and planning. Each committee would set out a watershed budget, taking into account the different ways water enters and leaves the watershed, ground water and surface water flows, and existing and anticipated amounts of water taken from the watershed.

The committee would also identify ground water recharge areas, vulnerable aquifers, surface water intake protection zones, and wellhead protection areas. It would identify human activities that pose threats to these areas. Finally, the committee would prepare a plan to ensure that each of these activities "ceases to be a significant drinking water threat."

Keeping our water supplies safe is a common responsibility. Water cannot be contained within political boundaries or property lines.

During this unusually wet spring in the Ottawa Valley, rains have soaked the soil, recharging wells and groundwater aquifers. Rivers are swollen with water seeping from their banks and beds. Streams flow from much further upslope than normal. Water is in motion everywhere.

This serves to remind us that any activity, anywhere on the landscape, affects drinking water. Stewardship of the watershed is not just a matter for the farmer spreading manure, or the waterfront property owner. Our tubs, sinks, driveways, and toilets are all "surface water intake protection zones". Even our bodies - being mostly water - are as much as part of the watershed as the river itself.

However, the proposed Clean Water Act would recognize certain areas and activities as especially significant from a water protection standpoint. Activities in lake shores, riversides, wetlands, recharge zones or areas adjacent to municipal wells pose particular threats - especially if they involve pollutant or sediment discharges, land disturbance, or construction of buildings and roads.

Perhaps we can imagine a world in which each of us is fully responsible for our own and our neighbours' well-being. This is not the world in which we live. Our world is a busy place. Plans are hatched, deals are struck, money and land change hands.

Ecologists urge governments to apply an "ecosystem approach": integrated management of land, water and living resources. This sounds like simple, common sense advice. But consider that transportation, municipal planning, agriculture, and forestry all affect water. Each has its own government ministry.

We generally welcome it when governments plan for economic development. Responsible economic development requires that we take care of our environment. Communities that lack safe water cannot prosper.

As landscapes become busier places, planning becomes more important. Should we ensure a supply of gravel for road construction and maintenance, or a supply of clean water? Under current Ontario law, gravel comes first. The Clean Water Act would put water first.

The proposed approach is to create a watershed-level committee, composed of local stakeholders, representing a range of interests, with resources to do a credible assessment of the watershed, and a mandate to develop a plan to ensure that water sources are protected.

It might not be perfect, but it's a step in the right direction.

*Ole Hendrickson is a member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley supported by volunteers, local donors and a grant from the Ontario Trillium Foundation.*

**A critical moment in Earth's history**

17 Jul 2005 Lynn Jones

Thus begins the preamble to the Earth Charter, a unique document initiated by the United Nations Commission on Environment and Development, and created with input from thousands of individuals and groups from all over the planet in the past decade. The Earth Charter is a collection of shared values that can serve as a guide for all of us as we try to learn how to live in sustainable ways on this beautiful planet we call "Earth".

Most of us are only too familiar with the notion that our present civilization is exceeding the Earth's carrying capacity several times over, and that drastic changes are needed in the way that we live, if disaster is to be avoided. The environmental news is dire. Global warming continues unabated, severe weather events make the news on a daily basis, and species and habitats are disappearing at unprecedented rates. Waste and pollution continue to foul our drinking water and air and consumption of resources has reached a fever pitch as we briefly perch on the peak of global oil production.

If ever in human history, a new approach to living on the planet was sorely needed, it is now. As the Earth Charter preamble states,

> *The choice is ours: form a global partnership to care for the Earth and one another or risk the destruction of ourselves and the diversity of life.*

The Earth Charter presents an inspiring response to this dire predicament. It lays out a set of principles for living sustainable on planet Earth under four main headings:

1) respect and care for the community of life,
2) ecological integrity,
3) social and economic justice, and
4) democracy, nonviolence and peace.

Although the wording in the Earth Charter is bureaucratic in places, its principles are sound and comprehensive. Here is a specific example from the ecological integrity section (slightly paraphrased):

> ***Adopt patterns of production, and consumption that safeguard Earth's regenerative capacities and community well-being....***
>
> *Reduce, reuse and recycle materials and ensure that waste can be assimilated by ecological systems....*

*Act with restraint and efficiency when using energy and rely increasingly on renewable energy sources such as solar and wind...*

These principles form an important part of the Ottawa River Institute's vision and goals; the ORI board of directors recently passed a resolution endorsing the Earth Charter, joining thousands of organizations around the world to do so since the Charter was launched at the Peace Palace in the Hague five years ago on June 29, 2000.

For me personally, the most inspiring thing about the Earth Charter is this growing list of groups that have endorsed it. You can view the list and the Earth Charter itself at www.earthcharter.org.

Endorsers include, for example, the United States Conference of Mayors, several cities in the U.S., the City of North Vancouver in British Columbia, and many religious and other non-governmental organizations. By endorsing the Charter, groups agree to commit to the spirit and aims of the document and to work with others for the implementation of its principles. I hope we will soon see some of our local Ottawa Valley municipalities added to this list!

In the concluding words of the Earth Charter itself:

*Let ours be a time remembered for the awakening of a new reverence for life, the firm resolve to achieve sustainability, the quickening of the struggle for justice and peace, and the joyful celebration of life.*

*Lynn Jones is a member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Electronics recycling**

21 Apr 2005 Janet McNeill

Such a huge quantity of landfill materials would be cause for concern even if one was considering only that landfill sites generally convert good farmland into "dumps" and eventually produce groundwater fouled by toxic leachate but there is more involved to this issue than that.

Electronic wastes contain lead, cadmium, chromium and mercury toxic heavy metals dangerous both to the human beings involved in the manufacture of electronic equipment, and to the air, water and earth we all rely upon when they are eventually disposed of.

As yet, most recycling programs are not equipped to receive our discarded electronic waste and extract, for recycling, the valuable aluminium, ferrous metals and copper that they contain.

Fortunately, several initiatives underway are attempting to address these concerns.

The provincial government has set up Waste Diversion Ontario to find ways of ensuring that companies which profit from making products that wind up in

our landfill sites also pay for their recycling costs. The issue of "e-waste," as it is called, is under study by the WDO, whose Web site is http://www.wdo.ca/

An important new concept is that of extended producer responsibility, or EPR, as it is known. EPR is aimed at having those who produce items of all kinds, from cars to computers, ultimately responsible for taking them back and ensuring responsible and environmentally safe disposal practices. Electronic Product Stewardship Canada (EPS Canada) will be launching a five year national industry program, initially for computers and TV's and eventually taking in other electronics.

In the U.S., a new initiative called "Rethink" was launched on January 6th. Ebay, Intel and other companies have cooperated with the Silicon Valley Toxics Coalition and the Computer TakeBack Campaign to help consumers find responsible ways of disposing of old, unwanted electronic items. The Web site http://ebay.com/rethink will provide information about erasing data on hard drives and will also point to U.S. Postal Service help in delivering personal computers to recycling centres or drop-off points. Some of the items taken in will be sold, while others will be donated to charitable organizations for re-distribution.

Throwplace.com is a Web site that is attempting to help with the global waste problem in a unique way. Items (of all kinds) no longer wanted can be advertised there for donation to charitable groups under one of four sections: U.S. Charity, International Charity, Business/Individual and Up-for-Grabs. An ad I saw when visiting the site was from an Albanian 'ecological group' asking for computer and related equipment (to see the item, go to www.throwplace.com and click on Classified).

Some other Web sites with information about the issue of responsible disposal of electronic equipment are:
Basel Action Network www.ban.org
Computer TakeBack Campaign www.computertakeback.com
Silicon Valley Toxics Coalition http://www.svtc.org

The Environment Canada Web site cited earlier also has several helpful Web links. It advises us to keep electronics out of landfill by:

- encouraging vendors and brand owners to subscribe to a take-back and recycling program for the electronic products they sell or make
- upgrading or repairing electronic products where feasible instead of replacing them with new ones
- donating old equipment to a family member, friend or charitable organization
- checking with the municipality to learn about reuse, recycling and disposal options for electronics in our area.

*Janet McNeill is a member of the Ottawa River Institute, a non-profit charitable organization based in the Ottawa Valley.*

**Knowing where you're going**

05 Apr 2005

Nothing could be truer when it comes to saving the planet.

Society has economic, social, and environmental goals. Of these three sustainable development pillars, the environment is probably fuzziest in our minds. Economics is straightforward - most people want at least enough money for basic needs, and ideally as much as possible. Social goals are simple also - good health, friendly neighbours, peace and good government.

With the environment, we lurch from crisis to crisis. Plug the hole in the ozone layer, ban toxic substances, cut back on greenhouse gas emissions. While economists and lawyers get to deal with the economic and social aspects of sustainable development, with the environment it's like playing global janitor, cleaning up everyone's messes.

When it comes to the environment, what do we really want?

The Swedish government spent considerable time and energy answering this question. In 1999 it came up with 15 national environmental objectives to be achieved within a generation (by 2020). They include clean air, a non-toxic environment, a protective ozone layer, good-quality groundwater, and a good built environment. Natural environments figure prominently in the Swedish objectives: flourishing lakes and streams, thriving wetlands, sustainable forests, and a varied agricultural landscape.

Having agreed to high-level, longer-term objectives, Sweden spent the next few years developing ways to achieve them. In a series of decisions from 2001 to 2003, the Swedish Parliament adopted seventy-one interim targets, indicating the direction and timescale of action to be taken to achieve the fifteen objectives.

Sweden reported on progress last year. Not all the news was good. The report found that four of the objectives will very likely not be attained: reduced climate impact, a non-toxic environment, zero eutrophication, and sustainable forests. None of the objectives will be attained without considerable effort.

The report notes that reducing climate impact requires international cooperation and commitment to meet Kyoto Protocol targets. But key countries - notably the U.S. - have not agreed to participate. Greenhouse gas emissions continue to rise owing to increases in the transport and industry sectors.

The report also concludes that a non-toxic environment is unlikely within a generation. While global agreements and action by industry should make it possible to tackle the production of new hazardous chemicals in the next 20 years, a greater challenge is posed by persistent toxic substances already present in the environment.

Existing buildings and products continue to emit hazardous substances. Progress in cleaning up contaminated sites is unacceptably slow. Dealing with toxic substances is complex, as it requires action by a wide range of enterprises. Both legal and voluntary efforts are important.

On the natural environment side, the report identifies eutrophication, or excess nutrient levels in soil and water, as a continuing source of risks to human health, biological diversity, and uses of water such as fishing and swimming. Fish catches are too high, dampening prospects for rebuilding fish stocks. Full recovery of damaged forest biodiversity will not be feasible within a generation, because of the long time scales for improvements in the factors on which it depends (e.g., dead wood, large trees, and old forests).

The report also contains good news. Prospects for wetlands have been improved by faster-than-expected progress on a national wetlands strategy.

The great value of Sweden's environmental objectives is that the country knows where it wants to go, and can answer the question, "Are we getting there?"

Way to go, Sweden!

Could Canada be next?

*Ole Hendrickosn is a member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Fiddling while the planet burns (energy Inefficient appliances)**

02 Apr 2005

Take electric stoves, for example. We needed a new one a couple of years ago. So we went to a national department store and picked out an inexpensive model.

We could have done a lot better - or a bit worse.

If you want to bake cookies with the kids, watch out with a cheap stove. They have minimal insulation.

On ours, the heat from the oven comes right up through the stove top burners and out into the kitchen. If the burners are off but the oven is on, a plastic container placed on the stove top will melt. A safety hazard, you might think.

Since the oven loses so much heat, it's always going on and off, and it doesn't bake evenly and predictably. Cookies can turn into crispy black objects in the blink of an eye.

Stoves with self-cleaning ovens have proper insulation - otherwise, you'd burn down the house when you turn on the self-cleaning feature. But this feature uses a tremendous amount of electricity. Cleaning the stove more than once a month consumes more energy than is saved with the extra insulation.

A better option for lots of baking is a convection oven. Heated air circulates around the food being cooked. Temperatures and cooking times decrease - a bonus if the kids are hungry. This saves about a third on energy use.

Using a microwave saves about two thirds on energy use - but it doesn't bake cookies.

So, how could our stove be any worse, you may wonder.

Well, the coil burner elements on our stove top aren't so bad. Those fancy solid disk stove tops may be more attractive, but they heat slowly and contain high-wattage elements. Energy consumption goes up, particularly with older pots and pans whose bottoms aren't flat.

Toasters aggravate me even more than stoves. About ten years ago, the appliance manufacturers all decided to make the slots wider, presumably to accommodate "Texas toast", bagels, and the like. But if you want to toast a normal sized piece of bread, you wait, and wait, and wait. I'm perfectly capable of slicing a bagel in three pieces if need be. But I haven't discovered a way to make a thin piece of bread fatter.

Refrigerator-freezers also tend to be quite wasteful of electricity. Models with the freezer on the top consume about twice the electricity as those with the freezer on the side or bottom. So why not ban top-mounted freezers?

Energy efficiency is at least on the radar screen for North Americans. Average household energy consumption has declined since the 1970s - a good thing. But, with population growth, total usage is still going up. And average household consumption remains much higher than the rest of the world - more than twice as high as Europe.

We have a long way to go.

Or we can look on the bright side. If we get serious about energy efficiency we can make sizable gains in a very short time - and help meet our Kyoto target.

Canada only has minimum energy standards for appliances. Energy efficient appliances cost more. Purchasing them is a voluntary act. People don't, unless given a financial incentive. There has actually been a federal program to pay consumers part of the extra cost of energy-efficient refrigerators.

Allowing waste, and paying the few people who are motivated to be energy conservers, makes no sense. Strict energy efficiency standards are the way to go.

A bit more government will power is needed to cut electric power consumption.

*Ole Hendrickson is a member of the Ottawa River Institute, a non-profit charitable organization aimed at fostering sustainable communities and ecological integrity in the Ottawa River Watershed.*

**State-of-the-art waste management in the Ottawa Valley**

22 Mar 2005 Lynn Jones

Dealing with the mountains of waste resulting from our wanton over-consumption is a major challenge for North American municipalities.

Here in the Ottawa Valley, in the heart of Laurentian Valley Township, we have a waste management facility worth crowing about. Since opening in January 2002, this facility - supported by local citizens - has steadily increased the proportion of residential waste diverted from landfill to 55%. This adds many years of life to our landfill site, which serves around 40,000 people in Pembroke, Petawawa and surrounding areas.

Meanwhile, Toronto trucks garbage to Michigan. It diverts only 27% of wastes from landfill. Provincial average waste diversion was 28% in 2002. Not one single Ontario city over 100,000 people has reached 50% diversion. Many are fighting the clock on dwindling landfill space.

A strong hint as to the reason for this facility's success lies in its name: the *Ottawa Valley Waste Recovery Center* or OVWRC for short.

The OWRC includes a standard Material Recovery Facility that recovers saleable materials out of blue boxes, including paper, cardboard, glass, plastic and metals. It also includes a Construction and Demolition Waste Recycling area, a permanent Household Hazardous Waste Depot, two waste oil transfer stations and a landfill.

Where the OVWRC really excels however, is in the recovery of organic material from the waste stream. It does this with not one, but two composting programs: a Centralized Composting Facility and an Outdoor Composting Area, which includes a curing and storage area for compost and leaf and yard waste windrow composting.

Composting of leaf and yard waste is mandatory in Ontario and windrow composting is in place at most landfills but centralized composting facilities are still fairly rare.

The OVWRC handles all organic kitchen wastes: table scraps, meat, fish, bones, fruits and vegetables, coffee grounds and filters, and used paper napkins, towels, plates, and tissues. Residents collect wastes in small green containers and transfer them to Green Carts that are wheeled to the curb and collected biweekly or weekly in warm weather. A summer 2004 curbside audit showed that 86% of residents participate in the Green Cart program.

Green Cart contents are sorted at the center to remove plastics and metal. OVWRC workers mix the organic wastes with wood chips and water to get the right "recipe". They load the mix into a container, take it outside, and hook it to an air supply. The OVWRC currently operates 11 containers.

Workers monitor container temperatures via an automated computer system. Once the mix reaches 55C for three days (which reduces pathogens), the material is moved to the Outdoor Composting Area. Here, it cools and finishes composting (for about six months).

After screening, mature compost is ready to be applied to lawns and gardens. For the last two years, the OVWRC has sold out of the finished compost.

Currently, the OVWRC's residential diversion rate is 55%, well on the way to its 65% goal. Next steps for the Center include working with the commercial sector and local haulers to start diverting more material from places like grocery stores, malls, and restaurants.

In a truly sustainable community, there would be no "waste" and organic matter would be composted as close as possible to its source... it the meantime, the OVWRC is doing a fine job. Members of the local waste management committee showed great leadership in conceiving of this type of facility and getting it up and running. Local citizens owe them a debt of gratitude for their foresight and commitment!

*Lynn Jones is a member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Renfrew County gets its first idle-free zones at schools**

05 Mar 2005 Lynn Jones

"There are many benefits to reduced vehicle idling including cleaner air, reduced greenhouse gases, cost savings, and healthier kids, so this seemed like a positive step" said Kim Shoveller, principal at A.J. Charbonneau. "Our parent council discussed the matter last spring and supported the idea of an idle-free zone outside of the school. A sign marking the idle-free zone was erected in July. Grade 5 students at our school have collected baseline data on the number of vehicles idling outside of the school and will track this throughout the remainder of the year. The students will be sharing information learned with other students within our school."

At McNab Public School, the idle-free zone was established through announcements in the school newsletter.

The idle-free zones at A.J. Charbonneau and McNab schools were set up partly in response to an information package distributed by the Ottawa River Institute with funds from Environment Canada's EcoAction Program and the Ontario Trillium Foundation. The package was sent to all interested elementary schools in Renfrew County in the spring of 2004 and included information on the benefits of idle-free zones as well as highlights of the many initiatives taking place elsewhere in Canada and the United States.

"There are so many benefits to reduced vehicles idling that we felt it would be useful to spread the word" said Ottawa River Institute president Lynn Jones. "For instance, few people realize that engines are damaged by idling and that vehicles will last longer and require fewer repairs if their owners avoid idling".

"There's also the fact that a car's pollution control equipment generally doesn't operate when the engine is idling, therefore the idling fumes are more toxic than those emitted during driving", Jones added. In fact, according to the Idle-free Zone website of Natural Resources Canada, an idling car or bus gives out nearly 20 times more pollution than a car travelling at 50 kilometers per hour.

Several schools in Renfrew County have shared the idling information widely in their school community. At George Vanier Catholic School in Combermere, each family received information and primary students participated in a special presentation which finished with a hearty rendition of the "Driving in the Car" song, invented for the occasion.

Although the Ottawa River Institute project is coming to an end, members hope that the information will keep circulating and that more folks will start turning off their engines when their vehicle is stopped.

For those readers who like a specific guideline, there is a rule of thumb, provided by Natural Resources Canada, which states that "Idling for more that 10 seconds uses more fuel than turning your engine off and restarting it". A great deal of additional information is available on the Natural Resources Canada's "Idle-Free Zone" website.

*The Ottawa River Institute is a non-profit, charitable organization based in the Ottawa Valley.*

**November 26 is "Buy Nothing Day"**

20 Nov 2004 Lynn Jones

Be honest now. Isn't it true that, when we're feeling overwhelmed or a little "down in the dumps", a little jolt of shopping for new stuff helps, at least it helps take one's mind off one's troubles... for a little while.

Judging by the increasingly crowded parking lots at shopping centers and box stores around the country, shopping has become more than an occasional diversion; for many people it seems to be the major form of weekend entertainment.

Lots of shopping is good for the economy, but unfortunately it's bad for a lot of other things. We are rapidly using up resources, creating toxic pollution and heating up the Earth through all this consumption. It has been estimated that if everyone now alive consumed at the same rate as the average North American, we would need seven planets to supply all the raw materials and absorb all the waste.

According to recent European Union research, shopping is also a widespread form of addiction. One-third of adult consumers have problems with lack of control over their spending, with "mild" problems being the most common. North American rates are likely similar.

These are some of the reasons behind Buy Nothing Day, an international event celebrated in over 55 countries around the world. This year Buy Nothing Day will be held on November 26 in North America.

Buy Nothing Day was started in Canada in 1993 by the founders of Adbusters, a non-profit, reader-supported magazine based in Vancouver. In September of this year, Adbusters received national media coverage in Canada for their lawsuit against major broadcasters such as CBC, CTV, CanWest Global and CHUM.

Adbusters has been trying for 10 years to buy advertising spots for anti-commercial ads on television, but networks see such ads as "counter-productive". Adbusters' lawyer Clayton Ruby will argue that the airwaves are public space that citizens should be able to able to buy airtime under the same rules and conditions as corporate advertisers.

Here is a description of one of the ads you won't see on Canadian television this year Rising out of a backdrop map of North America, an animated pig's head chomps, grunts, licks its lips and burps while the narrator says "The average North American consumes five times more than a Mexican, ten times more than a Chinese person and 30 times more than a person from India. We are the most voracious consumers in the world... a world that could die because of the way we North Americans live. Give it a rest. November 26 is Buy Nothing Day."

Personally, I'm rooting for Adbusters. I hope they win. Their ads are thought-provoking and relevant to the urgent issues of our times. You can view more ads that the networks don't want to broadcast at www.adbusters.org.

If you're game to observe Buy Nothing Day, give it a try this Friday, November 26, 2004. Give shopping a pass and enjoy some free time instead.

In addition, at other times of the year, you can ask yourself a series of questions before you buy things. Here are a few examples from Buy Nothing Day U.K. Do I need it? How many do I already have? How much will I use it? Where will I store it? How long will it last? Could I borrow it from a friend or family member? Can I do without it? How will I dispose of it when I'm done using it?

*Lynn Jones is a founding member of the Ottawa River Institute a non-profit, charitable organization based in the Ottawa Valley.*

**Who drew the map?**

13 Nov 2004

A line of particular significance on this map is the border between Quebec and Ontario. In 1791 the British Parliament passed the Constitutional Act, dividing Quebec into Lower Canada and Upper Canada. This provided a separate government assembly for English-speaking Loyalists who had moved north after the United States declared its independence from England.

The Constitutional Act did not specify precisely where the border lay. This was deemed too sensitive a matter for Parliamentary debate.

In December 1791 King George III declared that Upper Canada was west of the Ottawa River, and Lower Canada east, apart from a small triangle east of a line extending from the present site of the Carillon Dam south to the St. Lawrence River that also remained with Quebec. The boundary went upstream along the river to the head of Lake Timiskaming, and then due north into the hinterlands.

Thus the founding French and English cultures were divided and the Ottawa River watershed along with them. In later years, Upper and Lower Canada were reunified and divided again, and the provinces of Quebec and Ontario gradually took their present shape as their borders moved northwards.

With so many maps that split the Ottawa River watershed between two provinces, we never think of it as a single entity.

No accurate map of the Ottawa River watershed exists anywhere on the Internet. The Ottawa River Regulation Planning Board - an agency established by the governments of Canada, Quebec and Ontario to manage the watershed's major reservoirs - has a map on its web site (reproduced on the Ottawa River Institute web site). But this map cuts off the watershed at the Carillon Dam - at the political boundary - and omits the portion that extends downstream to Montreal.

Before European settlement the watershed was a single political unit - the territory of the Algonquin peoples. Far from being a dividing line, the river was central to their culture, providing food and

transportation. Their territory was never relinquished. Algonquins in Quebec and Ontario have separately filed land claims with the federal government coinciding with the watershed boundary.

The watershed includes both Mont Tremblant in Quebec and Ishpatina, the highest point in Ontario. The mining towns of Rouyn-Noranda, Kirkland Lake, and Bancroft are all within its boundary. Marine fossils, including whales, have been found in portions that were part of the Champlain Sea ten thousand years ago. The origins of the river itself extend back over a billion years to the Grenville Fault, a great crack in the Precambrian bedrock that underlies the continent.

Surprisingly large portions of the river and its basin are remote and virtually inaccessible. Two recent Ottawa Citizen articles described a search for the river's source in epic terms. Indeed, there is no real agreement about where the Ottawa River begins, nor where it ends.

The watershed in which Canada's national capital is located, which figured so prominently in Canada's history, which provided great white pines that were the nation's early economic engine, whose waterway was the original trans-Canada highway, which both unified and divided the French, English, and Aboriginal cultures - is virtually unknown.

King George III was responsible for a line on the map of Canada that uses the Ottawa River as a political division. But the Ottawa River watershed also can serve as a symbol of unity.

It remains a place of great natural wealth and beauty, where the founding peoples of Canada have lived together peacefully for centuries.

*Ole Hendrickson is an ecologist and a founding member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Strawberries and sunscreen**

23 Oct 2004

Freon gas used in refrigerators and air conditioners was drifting into the upper atmosphere. It was destroying the thin layer of stratospheric ozone that protects us from harmful solar ultraviolet radiation. Incidence of skin cancer and cataracts was rising. Scientists urged action.

Countries got together and signed a treaty to phase out freon and other ozone-depleting substances. Known as the Montreal Protocol, this treaty is considered one of the best examples of successful global cooperation to protect the environment.

Even so, we are living with a damaged ozone layer. On days when the UV index is high, we are warned to slip on a hat and sunglasses, and slap on the sunscreen.

One of the ozone-depleting chemicals covered by the Montreal Protocol is methyl bromide. It is a powerful pesticide used to sterilize soils for growing high-value crops such as strawberries. There are no

real alternatives to methyl bromide for soil sterilization, although experiments with cyanide gas are under way.

Agricultural producers were given extra time to phase out methyl bromide under the Montreal Protocol. But California strawberry growers argue that they still have no alternatives to control fungus diseases that affect their crops. They are requesting a special "critical use" exemption.

Is strawberry cultivation more important than protecting the ozone layer? Countries that have signed the Montreal Protocol will debate this at their next meeting.

Agricultural producers also fumigate their products with methyl bromide before they are shipped around the world. This helps prevent global spread of invasive pests and diseases.

The Montreal Protocol exempts these "pre-shipment" uses of methyl bromide. This was considered a minor exemption when it was put in place about ten years ago. But global agricultural trade is increasing, and use of methyl bromide along with it.

Invasive pests hitch-hike on wood packaging materials as well as agricultural products. Increasing global trade has meant a large increase in arrivals of harmful wood-boring insects that threaten our native forests. The Asian long-horned beetle probably immigrated to Canada from China tucked away under the bark on a cheap wood pallet.

To slow this onslaught of invasive forest pests, countries recently agreed to create a new official standard under the World Trade Organization that requires pre-shipment treatment of wood pallets. One approved treatment is methyl bromide.

This creates another problem for Montreal Protocol countries. Is using wood pallets for international trade more important than protecting the ozone layer?

Increasing trade is also a problem for meeting greenhouse gas targets under the Kyoto Protocol. Ships, planes, trucks and trains all run on fossil fuels.

Trade agencies promote globalization and expanded trade as a key development strategy in China, Russia and other countries, including Canada itself. Agriculture agencies try to protect their industry sector from new pests that are spread with trade shipments, but recommend use of a pesticide that damages the ozone layer. Environment agencies try to limit damage from increasing greenhouse gases and ozone-depleting substances.

In the long run, we can't go on filling our houses with food and products shipped halfway around the world, releasing harmful gases and spreading exotic pests and diseases in the process. With oil at $55 a barrel and going up fast, money will put the brakes on global trade even if environmental concerns do not.

In the short run, the choices we make as informed consumers are important.

If you're buying imported strawberries at the grocery store, remember they come with an extra cost. You may as well pay part of that cost up front swing by the aisle where they sell sunscreen and pick up a bottle.

*Ole Hendrickson is an ecologist and a founding member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Rich country, poor performance**

16 Oct 2004

Recognizing that the environment affects our standard of living, the OECD has a program to help member countries "improve their individual and collective performances in environmental management." Last month it released a report judging Canada's environmental performance

The verdict not good.

Emissions of air pollutants in Canada remain very high compared with most OECD countries. Many parts of urban and rural Canada experience unacceptable air quality, notably fine particles and ground-level ozone. Increases in these air pollutants during the 1990s caused health impacts such as chronic bronchitis, asthma and premature deaths. The OECD cites an Ontario Medical Association estimate of health costs from air pollution at $10 billion per year.

The OECD says environmental levels of mercury are increasing; mainly due to long-range, trans-boundary air pollution from coal-burning power plants. Mercury deposited on lands and waters gets into the diet of women of childbearing age, and threatens the health of newborns. Elevated mercury in children impairs their mental development.

The news is bad on the water pollution front as well. Slow progress in cleaning up the Great Lakes demonstrates how hard it is to restore ecosystems once damage has occurred. The report notes that two major drinking water contamination incidents - Walkerton and North Battleford - resulted in deaths. These incidents demonstrated "multiple shortcomings all along the decision-making chain, from provincial governments to municipal governments to the operators of water services."

The report doesn't spare rural Canada. Large increases in animal manure production, particularly from rapidly expanding pig farms in Quebec and Ontario, are cited as of special concern. Poorly inspected and maintained septic tanks (used by over 25% of Canadians) are a safety risk for wells that provide drinking water in rural areas.

According to the OECD, Canada's per capita water use is the second highest in the world. This puts needless pressure on ecosystems and increases infrastructure costs.

The OECD recommends changes in Canada's economic policies. Installing water meters and billing for actual use would conserve water. Homeowners should pay more of the costs of environmental services such as water and sewerage, while government social policies can meet the needs of poorer Canadians. Subsidies for irrigation water could be eliminated. Other measures include charges on toxic emissions and effluents, air and water emissions trading, taxes on fertilizers and pesticides, and advanced disposal fees for products containing toxic substances.

The report suggests that Canadian policy makers still view the environment as something that must be sacrificed for economic growth, and fail to appreciate the potential for win-win solutions. When prices rise to reflect the full environmental costs of production, economic opportunities arise for renewable energy and resource-efficient, non-polluting technologies.

Smart consumers understand these links and the demand for green products is growing. But unless public officials promote green products and explain how environmental charges simultaneously benefit health, the economy, and the environment, many members of the public will reject them as "too expensive" or "just another tax".

The OECD says that sustainable development is routinely invoked by Canadian political leaders, and is the subject of innumerable conferences and technical studies. But there is no integrated federal sustainable development strategy (including greening of the federal budget). Provinces also lack sustainable development strategies. We are not translating words into action.

The OECD concludes that in Canada, "pathways towards sustainability are still often unclear, uncharted and long."

*Ole Hendrickson is an ecologist and a founding member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Payment for services**

09 Oct 2004

Pushed harder, a municipal water user might identify the treatment plant as the source of their water. They might even know from which river or lake their plant draws water.

It's unlikely that anyone will answer, "Our water comes from the [fill in the name] watershed." But - whether you're using municipal water, bottled water, or well water, that is an excellent answer.

Actually, the question of where your water comes from has no right answer. You might as well say "the sky", or "everywhere" - clouds, oceans, trees, soil, rocks, and even other people.

You can go through the same exercise with the question, "Where does your food come from?" You could answer "the fridge", or "the store", or (much better) "a farm".

For food, just as for water, "the sky" is also a pretty good answer. Food comes from the ability of plants to combine carbon dioxide and water into carbohydrates, fats, proteins, and so forth. These two main ingredients come from the sky.

Another good answer to where food and water come from would be "the sun". Its energy drives both the water cycle and plant growth.

But enough of Ecology 101. A more interesting question is "Why do we so seldom consider the sources of life?" One simple answer is "Because they're free." Did the supermarket clerk tack on a clean air and water surcharge when you pushed your turkey through the checkout? No.

You may have said a few words of thanks before digging into that turkey, but it's unlikely you engaged in a prolonged period of contemplation and gratitude for serving as a steward of the only known living planet in the Universe.

An alternate possibility is that the sources of life are free because they're hidden.

This gets us into the realm of economics. Economists insist that issues related to how something is made, or where it comes from, are out of bounds in the realm of international trade. They have an acronym for this PPMs, or "production and processing methods". When the WTO decides whether a member country is behaving fairly in a dispute over a given product, it looks only at the product itself, and not how it was made.

Economic policies that force us to act as if the sources of life are free can become dangerous in a world where supplies of clean air, water, and food are limited, and populations continue to grow.

These policies particularly disadvantage people in rural communities. They are treated as neglected minorities expected to provide clean air and water for free, while growing the cheapest possible food and timber.

The reality is that food and timber production affect air and water resources. Sustainable agriculture and forestry require extra care, and extra costs. Rural communities provide waste management services for urban residents. Landfills are sited in rural landscapes. Air and water pollutants are dispersed into them. They soak up greenhouse gases.

Rural communities need financial help if they are to bear the lion's share of responsibility for acting as stewards of the Earth. Neglecting them in a rapidly urbanizing world is dangerous.

A new urban-rural partnership is needed that values the life support services provided by rural communities and provides adequate financial resources to maintain these services. This will require changes in current economic policies.

*Ole Hendrickson is an ecologist and a founding member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Support growing for idle-free schools**

25 Sep 2004 Lynn Jones

Schools and school boards in many other places in Canada and the United States are considering or have already established idle-free zones outside of schools because of the many benefits of doing so. These benefits include

**Our air stays cleaner.** Driving a car is the single most polluting thing that most of us do (according to the U.S. Environmental Protection Agency). Motor vehicles such as cars and buses, emit a dangerous mix of pollutants including carbon monoxide, benzene, dioxin, arsenic, lead and microscopic soot. Catalytic converters are designed to remove some of the pollutants from car exhaust, but they function less efficiently or not at all when the car is idling. Therefore, greater amounts of toxins are released during idling than when the car is moving. Idle-free zones help to keep some of these pollutants out of our air.

**The health of children is protected.** Pollutants in motor vehicle exhaust cause a host of human health problems from minor eye irritation, to respiratory problems such as chronic bronchitis and asthma, lung damage, impaired immune function and cancer. Health Canada estimates that more than 5000 Canadians die prematurely each year because of air pollution, and thousands more become unnecessarily ill. Children are particularly vulnerable to air pollution because they breathe faster than adults and inhale more air per pound of body weight. They're also more likely to breathe through their mouths, which makes children particularly susceptible to soot and other small air particles. Reduced idling helps to reduce these adverse health effects.

**Vehicles will last longer and require fewer repairs if they are idled less frequently.** Many people believe that stopping and starting a car is "hard on it". Actually, the opposite is true. Idling is hard on a car's engine. An idling engine is not operating at its peak temperature, which means that fuel combustion is incomplete. This leaves fuel residues that can condense on cylinder walls, where they can contaminate oil and damage engine components. For example, fuel residues tend to deposit on spark plugs. As the amount of engine idling increases, the average spark plug temperature drops and spark plug fouling is accelerated. This, in turn, can increase fuel consumption by 4 to 5 percent. Excessive idling can also allow water to condense in the vehicle's exhaust, which can lead to corrosion and reduce the life of the exhaust system.

**Money and fuel are saved.** According to Natural Resources Canada, Canadians waste millions of dollars on unnecessary idling each year. On average, Canadian drivers idle their vehicles for five to ten minutes every day. If each motorist in Renfrew County would avoid idling for five minutes each day, ***more than two millions litres of fuel*** worth ***over a million dollars would be saved every year!***

**Fewer greenhouse gases will be released, helping to slow the process of climate change.** In Canada, the transportation sector is the single largest source of greenhouse gas emissions that contribute to climate change. Emissions from idling vehicles are unnecessary and can be easily prevented with the turn of a key. If each motorist in Renfrew County avoided idling for ***just five minutes each day***, more than ten thousand tonnes of carbon dioxide would be kept out of the atmosphere each year. That's enough to fill close to two thousand gymnasiums!

To date, interested elementary schools in Renfrew County have received information about the benefits of reduced vehicle idling. Additional activities are currently underway. For more information, please contact Skye Faris, project coordinator, at 613-756-5555.

*Lynn Jones is a member of the Ottawa River Institute is a non-profit, charitable organization based in the Ottawa Valley.*

**Rubber and tires**

18 Sep 2004

The same thing applies to tires. More than 20 million vehicle tires are discarded each year in Canada. Although there are lots of ideas about what might be done with them - burn them and use the energy to generate power, or chip them up and use them for paving roads, or simply make them into more tires - there are still far more used tires than markets for them.

It wasn't always this way with tires. During World War II, rubber was a highly strategic material. There was great concern when Japan overran rubber-producing areas such as the Malay Peninsula and cut off fresh supplies. Recycling and conservation became an extremely high priority; no scrap of rubber was wasted.

Wade Davis' book "One River" describes how the U.S. government sent Harvard botany professor Richard Evans Schultes to the South American rain forests in search of new rubber supplies during the war. Schultes, one of the world's greatest economic botanists, spent months in incredible adventures on the tributaries of the Amazon. He recruited people as guides and assistants, braved rapids hitherto thought impassible, and beat through dense forests to amass a comprehensive collection of rubber tree species and varieties. He oversaw the planting and tending of the world's most complete rubber tree nursery from specimens he obtained.

Schultes also helped organize and increase existing rubber tree tapping efforts, directly contributing additional supplies to the war effort. This was arduous work. Unlike the plantations of southeast Asia, rubber trees in the Amazon are scattered widely throughout the forest, intermixed with hundreds of other species. The expense of hiring laborers to march through the jungle on long collecting routes could only be justified under the extraordinary conditions of war.

Why not create rubber tree plantations in the Amazon? This was tried many times. The plantations always succumbed to outbreaks of a leaf blight caused by a native fungus. By a quirk of fate - which still raises political hackles - the rubber tree cuttings spirited by the British out of South America were free of the blight. Rubber trees grown in dense plantations in Asia are now important sources of timber as well as rubber.

Schultes was well aware of the leaf blight issue. His specimens were both high-yielding and blight-resistant, laying the basis for a new era of plantation rubber in South America, and ensuring security of global supply should the blight ever reach Asia. But when the war ended, the U.S. government cut his funding, and all his work was lost.

During the war the U.S. had also invested heavily in synthetic rubber made from oil. Synthetic rubber is not as strong as natural rubber, and is unsuitable for certain applications such as aircraft tires. But it played a major role in the war effort, and dominates tire markets today.

The introduction of metal bands in the 1960s made tires difficult and expensive to recycle. By 1995, the tire industry used only two percent recycled rubber (http//www.dnr.state.oh.us/recycling/awareness/facts/tires/rubberrecycling.htm). According to the Ohio Department of Natural Resources, cheap foreign oil and the addition of steel belts to tires destroyed the economics of tire recycling.

While waste tires are finding more uses today, tire dumps still litter the landscape. Shipments of waste tires have been blamed for introduction of West Nile virus and the Asian tiger mosquito to North

America. Keeping water out of tires is impossible, and they are ideal mosquito breeding habitat. Fires in tire dumps last for weeks, creating toxic emissions and damaging health of local residents.

We are running out of oil. Natural rubber may soon replace synthetic rubber as a strategic global resource. This, combined with a genuine commitment to tire recycling, would benefit public health, the environment, and developing country economies.

*Ole Hendrickson is a founding member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**What ever happened to global warming?**

03 Jul 2004 Lynn Jones

Elsewhere in Canada and indeed in many other parts of the world, there is considerable evidence that the planet Earth is warming. The winter of 2003/04 was one and a half degrees warmer than normal across most of Canada and half a degree warmer on the planet as a whole, according to data available online from the Meterological Service of Canada and NASA.

For the past 30 years global temperature has been consistently above the long-term average. 2002 and 2003 were tied as the second warmest year on record since 1880. The 17 warmest years on record have occurred since 1980. The four warmest years on record have come in the last five years. October 2003 was the warmest October since record keeping began more than a century ago.

Glaciers all over the world are shrinking rapidly. Antarctic ice shelves that existed for thousands of years are crumbling. Unprecedented heatwaves in Europe and Asia have killed thousands of people in the last two years. Much detail about the shrinkage of glaciers and sea ice and other negative results of planetary warming is available online from the Earth Policy Institute.

Scientists agree that the Earth is getting hotter but generally use the term "climate change" to refer to the effects of global warming which include much more than increases in temperature. Also changing are wind patterns, ocean currents, amounts and intensity of precipitation, duration of droughts and heat waves, and the frequency and distribution of severe weather events such as tornados.

In an interesting twist, it is even possible that global warming could trigger sudden cooling in Eastern North America and Western Europe. This scenario, referred to as "abrupt climate change," was dramatized recently in the Hollywood movie "The Day After Tomorrow".

Fascinating detail on the mehanism for abrupt climate change and geological evidence of previous abrupt cooling events is available at the website of the Woods Hole Oceanographic Intstitute. In essence, the climates of Eastern North America and Western Europe are moderated substantially by the Gulf Stream. Warm water from the tropics flows northward as part of a great ocean conveyor that circulates around the globe.

Increasing amounts of fresh water entering the North Atlantic from melting glaciers in Greenland and the Canadian Arctic are already affecting this ocean conveyor, shown by decreasing salt concentrations. This could slow or stop the flow of warm water northward. There is a remote but finite chance that dramatic, sudden cooling could occur and last for a considerable length of time, even as the rest of the planet continues to heat up.

Even the term "climate change" is not really broad enough to capture the major changes happening on planet Earth. Scientists use the term "global change" to encompass a set of human-caused forces, including climate change. These interact with each other in complex ways, with novel and unpredictable consequences for life. They include deforestation, land degradation and desertification, dust storms, fires, disease outbreaks, depletion of the ozone layer, increased water pollution, and spread of invasive species.

The bottom line is that climate change is a reality and is a part of much bigger and broader changes that are not well understood or predictable. Whether it's colder or hotter than normal where you are today, your weather

is part of a single global system that is experiencing large-scale warming and more severe weather events. At the same time, the natural vegetation cover that moderates climate and reduces impacts of storms and floods is disappearing.

What can you do? As far as your landscape is concerned, greener is better. Planting trees and shrubs, including windbreaks and hedgerows, is a good strategy. Retain or restore shoreline vegetation. Try to diversify your property, reducing large expanses of grass. Buy less, buy local, drive less. Try to reduce your household energy consumption. All of these are good to do.

*Lynn Jones is a member of the Ottawa River Institute, non-profit, charitable organization based in the Ottawa Valley.*

**Running out of oil**

21 May 2004

Warnings about this are not new. In 1949, Shell Oil geologist M. King Hubbert published an article in Science entitled "Energy from Fossil Fuels". He noted that world production of petroleum had "increased spectacularly" from the 1850s when the first commercial oil wells went into production.

Hubbert observed that growth in oil production could not continue: "The consumption of energy from fossil fuels is thus seen to be but a "pip", rising sharply from zero to a maximum, and almost as sharply declining, and thus representing but a moment in human history."

He then speculated on the impact of this "pip" on industrialized human civilization. He asked if we will make a transition to renewable energy, or "retreat to an agrarian civilization at a much lower population than present."

Optimistically, he said the future "will differ markedly from anything we have experienced thus far." Yet, "...it will still be physically possible to stabilize the human population at some reasonable figure, and by means of the energy from sunshine alone to... maintain a high-energy industrial civilization indefinitely."

Getting there is hard. Hubbert warned that our present course will lead to a series of crises - "overpopulation, exhaustion of resources, and eventual decline". We are still struggling to create a culture based on abundant fossil fuel energy, when scarcity is looming. The rapid transition to our fossil fuel based economy has created a "cultural lag", in his words.

He concluded that "...it is upon our ability to eliminate this lag and to evolve a culture more nearly in conformity with the limitations imposed upon us by the basic properties of matter and energy that the future of our civilization largely depends."

This has been the dominant view of environmental scientists ever since. The transition to a sustainable economy will not happen with business-as-usual, letting markets "do their thing". But, warnings and heroic awareness-raising efforts have made hardly a dent in western culture, driven by advertising, cheap consumer goods, and cheap oil. We must change the way we relate to nature and each other.

Prophets are generally dismissed. But Hubbert, as a geologist, made shorter-term predictions that came true in his lifetime (he passed away in 1989). Most notably, his 1957 prediction that U.S. oil production would peak in 1970 proved remarkably accurate.

Hubbert's 1974 estimate that global oil production would peak in 1995 was a bit off. There have been some major discoveries since the 1970s, and oil companies are secretive about their reserves. But a recent credible estimate by researchers at University of Uppsala in Sweden is that oil production will peak in 2010, and natural gas shortly thereafter.

The Swedish estimate of combined global oil and gas reserves, at 3500 billion barrels of oil, is lower than estimates used by the Intergovernmental Panel on Climate Change (IPCC) in its forecasts of rising atmospheric carbon levels. This has triggered a debate as to whether there is enough oil and gas left to trigger some of the worst effects of climate change.

Large coal reserves remain. The Swedish scientists agree with the IPCC that if the world turns to coal as petroleum is depleted, the worst climate change scenarios could be realized.

We are in the cultural lag phase that King Hubbert described half a century ago.

Time is growing short, but options for reducing our dependence on oil are available. Some of these will be examined in the next few columns.

*Ole Hendrickson is a member of the Ottawa River Institute, a non-profit, charitable organization based in Renfrew County.*

**Ladies and gentlemen: Turn off your engines**

15 May 2004

This year's smog season has been marked by a series of new studies of air pollution and health. All these studies highlight disease risks from vehicle exhaust.

In one study, researchers at the U.S. EPA tracked nine police officers on night shifts. Officers often sit in idling cars for long periods at night, breathing unburned carbon particles from car exhaust. Researchers measured pollutant levels inside the cars and the officers' heart condition at the end of their shifts.

Only the smallest-sized particles - less than 2.5 thousandths of a millimeter (PM 2.5) - worked their way into officers' cars, but these appeared to pose particular health risks. The higher the officers' exposure to these particles, the likelier they were to suffer irregular heartbeats and increased levels of blood-clotting proteins that indicate risk of heart disease.

In the U.S. about 7.5% of adults suffer from asthma, a complex and serious lung disease with an annual estimated treatment cost of $3.2 billion. Between 1980 and 1994, asthma incidence increased 75%, with the largest increase of 160% in preschool children.

Last month, Harvard University Medical School researchers released a major new study on vehicles, climate change, and public health. They concluded that smog causes asthma and worsens its severity.

While all vehicles produce PM 2.5, diesel engines are particular culprits. When breathed into our bodies, PM 2.5 carries pollen and molds deep into our lung sacs, aggravating asthma attacks. The Harvard study suggests PM 2.5 may explain the increase in allergic diseases worldwide. The combination of air pollutants, allergens such as pollen and molds, and heat waves is damaging our respiratory systems. Effects are most noticeable for inner city children.

McMaster University researchers published a paper in the May 14 issue of Science showing that, in addition to the risks of heart and lung disease, air pollution poses genetic risks to humans. They raised two groups of mice near a steel mill and a major highway in Hamilton. Half breathed air with soot and dust particles; the other half breathed filtered air. The mice breathing polluted air had twice as many genetic mutations that could be passed on to future generations.

So, what can we do on smog advisory days? Transport Canada suggests reducing car use by teleconferencing, rescheduling meetings, carpooling, taking public transit, or working at home. Avoid use of gasoline lawnmowers, trimmers, and chain saws; and of pesticides and/or solvents. Turn down your car's air conditioning. Avoid letting it, or any other engine, idle for long periods of time.

In fact, idling should be avoided at any time. An idling engine is not operating at its peak temperature. Unburned fuel residues condense on cylinder walls, contaminating oil and damaging engine components. Excessive idling allows water to condense in the exhaust system, corroding it and shortening its life.

Turning off and restarting a vehicle has little impact on engine components (battery, starter motor). The minimal cost of component wear caused by restarting the engine is recovered several times over in fuel savings from reduced idling - especially with gas prices pushing a dollar a liter.

Many people believe, incorrectly, that restarting a car uses more gas than keeping it idling. In one Alberta study, the average time people said it would make sense to leave a vehicle idling was 4.2 minutes. Natural Resources Canada says the maximum time should be 10 seconds in warm weather, and 30 seconds in cold weather.

When you add the health cost, the wear and tear on your car, and the cost of gasoline, idling is a definite "no-no".

*Ole Hendrickson is a member of the Ottawa River Institute, a non-profit, charitable organization based in Renfrew County.*

**Living without lawn chemicals**

07 May 2004 Janet McNeill

Fortunately, many groups are providing excellent advice!

The following tips compiled from the Pesticide Free Ontario Web site http://pesticidefree.ca/ ("Ten Steps to a Healthy Lawn"), the Sierra Club Web site http://www.sierraclub.ca/index.html ("10 Steps to Non-Toxic Lawn Care" is found under "recent postings") and Natural Life Magazine's site at http://www.life.ca/nl/43/lawn.html ("10 simple steps to ecological lawn care").

1. Choose drought-tolerant grass -- and remember, a thick lawn will crowd out weeds. Consider alternatives to grass, such as ground covers, perennials, wild flowers, herb gardens, shrubs and trees.

2. Mow high; keep your blade at 3 inches. Mow during the evening or on cloudy days, and keep the blade sharp.

3. "Grasscycle" - or keep the clippings on the lawn, thus allowing them to become fertilizer (if they are quite wet, compost them instead).

4. Remove thatch, the layer of dead grass, by raking gently in late spring or early summer (not too soon after winter, when the ground is still wet and spongy).

5. Aerate, i.e., remove small plugs of earth, once a year - in June or the fall. You can hire an organic lawn care company to do this for you, rent an aerator from a nursery and do it yourself, or buy $20. aerating shoes from Lee Valley tools, and do an aerating dance on your lawn!

6. Top-dress and fertilize. Some say it is only necessary to fertilize in the fall; to others, twice a year, both spring and fall, is preferable. Use slow-release granular, organic fertilizers such as compost, rock mineral, bone and blood meal. Top-dressing, with your own compost or with composted cow or sheep manure or mushroom compost, should be done right after aeration, between mid-June and the end of August. Note that chemical fertilizers not only make their way into nearby waterways and damage groundwater, they stimulate algae and weed growth and contribute to the deaths of frogs and salamanders.

7. Water "deeply" - about an inch of water, once a week, in early morning (or not at all, if there has been plenty of rain).

8. Learn to control weeds and insects ecologically - and remember that over 90% of insects are beneficial. Dishwasher soap and water sprayed in warm weather is an effective way to discourage insects. Pour boiling water on weeds growing between patio stones. Dig out some weeds and their roots by hand.

9. Overseed, i.e., fill in bare patches. Loosen soil, spread compost or peat moss, sprinkle grass seeds of a hardy species, press in and water.

10. Develop tolerance for nature's ways - a diversity and abundance of species as opposed to monoculture and sameness - and bear in mind that it is what is inside our heads that determines how we view a lawn. In other words, a change of attitude can teach us to enjoy even dandelions!

With our doctors now telling us they believe we need to ban cosmetic pesticides on a provincial basis, it's time to do some re-thinking. The cost of the chemically-maintained lawn may not seem high in dollar terms, but clearly we can no longer afford its price tag, health-wise.

*Janet McNeill is a member of the Ottawa River Institute and has been actively promoting alternatives to lawn chemicals for several years.*

**Thinking about water scarcity**

20 Mar 2004

Water scarcity will be a fact of life in this century, according to Brown. A just-released federal report, "Threats to Water Availability in Canada", supports this. It describes scientific concerns that climate change could increase the frequency, duration and severity of droughts throughout the country. Mean stream flows have significantly decreased throughout southern Canada over the past 30 years. Disappearing glaciers in the Rockies will reduce water supply for agriculture and other uses.

Brown urges us to rethink the notion that water comes to us pure, is used once, and turns into waste - the "flush and forget model". We've been drinking recycled water all our lives. The Dutch say that every glass of water they drink has already been drunk by eight Germans.

Brown points to four problems with "flush and forget": it wastes water, it takes nutrients from the land and dumps them in the sea, it costs too much, and it is a major source of disease.

Even today in Canada, some cities dump untreated sewage into rivers and seas. Conventional sewage treatment systems are expensive to build and maintain. Some are poorly designed. Industrial wastes and oil and tire particles washed from streets during storms are mixed with human wastes. What should be valuable agricultural fertilizer becomes contaminated with heavy metals and toxic organic chemicals.

A past Watershed Ways column described systems such as John Todd's "Living Machine" and engineered wetlands that can treat sewage for far less cost than conventional systems. International agencies such as the U.N. Development Program are now promoting "ecological sanitation". One of the main principles is to return nutrients to the soil. This has been done for thousands of years in countries like China. Now countries like Sweden are moving in this direction. Waterless toilets are not only for cottages. They are being successfully used in high-rise apartment buildings in Stockholm.

Other opportunities for household water conservation include water-efficient clothes washers, dishwashers, and showerheads. You can even change the way you shower. Get your body wet, turn off the shower, lather and scrub, then rinse. This conserves electricity as well as water.

Changes are also in store for agriculture. Brown points to the obvious benefits of growing as much food as possible with a given amount of water. Agricultural researchers have pushed the limits of yield per hectare - now it's time to push yield per litre. Well-tested technologies exist to increase agricultural water use efficiency, such as shifting from surface irrigation to drip irrigation.

Economic tools for water conservation can be just as important as new technologies. For example, Australia, which is a major grain producing nation with a warmer and drier climate than Canada, has huge areas of cropland that have been contaminated by salt from excess irrigation followed by surface evaporation. This problem is being addressed with tradeable water permits, in the use of which Australia now leads the world.

Water markets encourage farmers to find the highest value for water, and to avoid wasteful use than can lead to salt contamination. Often this means selling water to cities. The lessons learned in Australia might be useful in Canada, particularly if droughts continue in the Prairies.

Whether or not Brown's prediction of a global food crisis comes to pass, we all need food, water, and energy. A little ecological common sense can be quite helpful as we consider how to meet these needs.

*Ole Hendrickson is a member of the Ottawa River Institute, a non-profit charitable organization based in Pembroke, Ontario, Canada.*

**Watershed Ways - The coming global food crisis**

05 Mar 2004

In the 1960s Brown was an international agricultural policy adviser with the U.S. government. The world was preoccupied with the prospect of famine in densely populated countries such as India. Brown and other U.S. officials helped convince India to shift from grain price ceilings to price supports, and to adopt high-yielding wheat and rice varieties. The wheat harvest in India doubled in seven years.

By the end of the decade Brown had left government service. In 1974 he founded the Worldwatch Institute, which issues annual State of the World reports on global environmental trends. While still active in the Worldwatch Institute in 2001 he founded the Earth Policy Institute. It aims to promote a vision of an environmentally sustainable economy and to track progress in getting there. Brown's new book, "Plan B - rescuing a planet under stress and a civilization in trouble" - summarizes this vision.

People often ask Brown if a crisis will be needed before we get serious about climate change and other environmental challenges. He replies that a crisis is coming sooner than we think.

World grain production was been flat for the past eight years, according to Brown. During the last four years, consumption has exceeded production. Last year's deficit was 105 million tonnes, more than twice the average annual wheat production in Canada. We cannot continue drawing down surpluses from past years much longer. Brown predicts a global grain deficit in 2005 or 2006, depending on harvests

Grain production is increasingly dependent on irrigation. Water tables are falling in the major growing areas of all three of the biggest grain producers - U.S., China, and India. In the interior of China, the Gobi Desert is expanding rapidly. Agricultural land is being converted to cities and roads in China's rapidly industrializing east coast. After even one year of bad harvests, China will enter the world grain market in a massive fashion, and food prices will spike dramatically.

Brown points out that importing one tonne of grain is equivalent to importing a thousand tonnes of water. Countries throughout North Africa and the Middle East already rely on grain imports to feed their people. These countries have a water deficit equal to the annual flow of the Nile River. Imported grain is used to make up this deficit.

Farmers have been adapting for millennia. Can't they produce their way out of last year's 100 million tonne grain shortfall?

Brown says it won't be as easy as it was with the Green Revolution. There are no new miracle varieties in the pipeline. We are fixated on yield per hectare, when we should be thinking about yield per liter of water. Furthermore, the early stage of grain development (when the crop is fertilized) is highly temperature sensitive. Rice yields decline above 34C, and total crop failure occurs at 40C. Corn and wheat are also sensitive to early season heat waves, which are increasing due to climate change.

Brown says he is an optimist. The planet can be rescued by rapid action in three areas: increased water efficiency (especially for agricultural production), population stabilization, and greenhouse gas reduction. He says these actions would do more for global security than any amount of investment in anti-terrorism measures.

Lester Brown's vision of a sustainable economy will be examined in greater detail in future columns.

*Ole Hendrickson is a scientist and a "government bureaucrat". He is also a founding member of the Ottawa River Institute, a non-profit, charitable organization based in Pembroke.*

**Losing Nemo**

01 Mar 2004

Interviewer Anna Maria Tremonti asked about the recent Disney movie, Finding Nemo. Cousteau (who assisted with this and another recent movie, Whale Rider) said it has brought more international attention to the future of our oceans than countless scientific studies.

Finding Nemo has had one disappointing result. In spite of the movie's plot - which involves freeing the clown fish Nemo from an aquarium - people are buying this species in record amounts. Hundreds of tropical salt water fish species are being harvested in destructive and unsustainable ways to meet the increased demand. Furthermore, many clown fish buyers do not have the expensive, heated saltwater aquariums the species needs in captivity, so their fish quickly die.

The interview then turned to the topic of other threats to coral reef ecosystems. Could our actions (other than buying saltwater fish) have any impact on tropical oceans half a planet distant? The answer, according to Cousteau, is a definite "Yes".

Corals are animals that take calcium from the ocean to build reefs. They live in association with tiny green plants, called marine algae. The algae use energy from the sun to make food for the coral animals. If the algae are lost, the corals turn white and starve. This is known as coral bleaching. If the conditions that cause coral bleaching are reversed, the algae may recolonize the corals. If not, the reef will die and eventually turn to sand.

What causes coral bleaching? One cause is soil erosion. If excess river-borne silt settles on a coral reef, the algae die because they cannot get enough sunlight. The major cause of soil erosion in the tropics is deforestation. Loss of tropical forests can lead to loss of tropical coral reefs.

However, global warming is the main cause of coral bleaching. In late 2000 the Global Coral Reef Monitoring Network reported that 27% of the world's reefs had been lost or severely damaged. About 16% of this damage occurred during a single 9-month period in 1998, when tropical seas experienced the highest temperatures ever. Algae are expelled from corals during prolonged heat waves. About half the reefs that were bleached in 1998 may recover partly, but the other half are lost forever. These add to the 11% of the world's reefs previously lost due to impacts such as sediment and nutrient pollution, overexploitation, and mining of sand and rock.

Anyone who enjoyed Finding Nemo - indeed, anyone who loves the spectacle and variety of nature - should be concerned. Coral reefs normally last for thousands of years. The massive bleaching of 1998 was unprecedented in recent geological history.

Increasing greenhouse gases in the Earth's atmosphere, resulting mainly from burning of fossil fuels, are affecting ecosystems on a planetary scale. Few scientists continue to deny this reality.

While we may mourn the loss of the world's most beautiful and species-rich ecosystems, there are much more serious consequences for people living in tropical island nations. Coral reefs are the foundation of their economies (mostly through tourism and fishing). They protect coastal settlements from flooding and erosion. Loss of coral reefs can turn them into economic refugees.

Jean Michel Cousteau chooses to remain optimistic. He notes that simple changes in our habits could reduce greenhouse gas emissions by 10-15% overnight. It requires only awareness and commitment.

*Ole Hendrickson is a scientist and a founding member of the Ottawa River Institute, a non-profit, charitable organization based in Pembroke.*

**Living systems for sewage treatment - Part II**

02 Feb 2004 Lynn Jones

In 1999, Time Magazine bestowed a "Hero of the Planet" award on Canadian-born scientist John Todd for his "Living Machine". Here is Time's description of it:

*Raw sewage and air are pumped into a series of linked giant plastic tanks in which plants of 200 species are suspended in wire mesh containers. While the plants drink up nutrients in the sewage, countless bacteria and microbes roots break down pollutants. As the sewage proceeds from tank to tank, becoming progressively cleaner, fish and snails join in the feast. What comes out of the last tank is sparkling water, or at least clear enough for irrigation, toilet flushing or car washing. The plants produce enough flowers to delight any gardener and abundant material for compost. Todd's "machines" cost about half as much to install as traditional treatment plants laden with concrete and plumbing. They don't smell, they are nice to look at, and they are educational.*

John Todd's vision goes way beyond just treating sewage. He says:

*"Where there is waste, there might be new products... there might be fish, there might be trees, there might be flowers. It's my contention that within a decade, waste treatment will be a new kind of economic resource rather than a cost."*

Current examples of living machines tend to be on the scale of villages or small towns. Bear River in Nova Scotia has one that serves 40 households, and South Burlington, Vermont has one that serves about 2000 households. Some larger examples are used to treat industrial waste, and there are many small ones serving single buildings.

No one completely understands how living machines work. Operators often find they can enhance performance by adding muck from local swamps and slips of local vegetation to the mix of plants, animals and microorganisms . What a wonderful affirmation of the adage that nature really does know best! Or as Wes Jackson put it, "It's not that humans don't learn faster than nature, it's just that nature's been at it a lot longer."

Constructed or "engineered" wetlands are another exciting alternative, or complement, to conventional sewage treatment. They can provide tertiary treatment for municipal, agricultural, and industrial wastewaters at a fraction of the cost of other methods. Canadian guru of engineered wetlands, Dr. Gurunathan Lakshman describes them as "ecologically acceptable, environmentally clean, and aesthetically pleasing."

Removing excess amounts of nitrogen and phosphorus (which cause harmful algal blooms) is the key step in tertiary sewage treatment. Cattails and bulrushes used in constructed wetlands act as sponges for these elements. Their roots produce an antibiotic substance that attacks and kills human and animal fecal bacteria. They also trap toxic metals (e.g. mercury) and chemicals (e.g. PCBs) from domestic, agricultural and industrial wastewaters and, in some cases, help break them down into harmless elements.

Constructed wetlands provide food and habitat for wildlife and create pleasant landscapes. Their water can be reused for industry, intensive horticulture, irrigation, aquaculture, and groundwater recharge. They also produce a harvestable biomass, which depending on the nature of the wastewater pollutants, can be processed to produce animal feed, soil conditioner, fuel pellets, edible oils, and other marketable products.

Environment Probe's website, "Constructed Wetlands", identifies their four key components: soil and drainage materials (such as pipes and gravel); water; plants (both above and below the water); and micro-organisms. They can treat sewage water from small communities, individual homes, and businesses; stormwater; agricultural wastewater (including livestock waste, runoff, and drainage water); and landfill leachate. A Septic Smart pamphlet, available on-line from the Ontario Soil and Crop Improvement Association, available online at http://www.ontariosoilcrop.org/Septic_Smart_brochure_available.htm includes information on constructed wetlands for private homeowners.

**Living systems treat sewage better for less - Part I**

01 Feb 2004 Lynn Jones

It's a good question to ask because municipal sewage is a major source of water pollution, posing a threat to both human health and aquatic environments. In addition to human excrement, sewage contains hundreds of chemicals and other toxic pollutants from households, businesses and industrial operations.

Most sewage in Canada is currently dealt with in one of three ways: 1) treated in a municipal sewage treatment facility; 2) flushed into a septic system; or 3) dumped directly into rivers and oceans - Yes! As unbelievable as it may seem, over 90 Canadian municipalities still discharge raw, untreated sewage, including three provincial capitals ( Victoria , Halifax and St. John's ).

Municipal sewage treatment varies, depending on whether the sewage receives primary, secondary or tertiary treatment. In primary treatment, floating and suspended solids are removed. Secondary treatment involves biological "digestion" by bacteria and other microorganisms. Tertiary treatment removes nutrients like phosphorus and nitrogen, toxic compounds, salts, acids and metals. At present, only four out of ten Canadians are served by a tertiary sewage treatment system. Further, in most Canadian cities it is common for wastewater to bypass sewage treatment during heavy rainfalls, combining with storm water in sewer outfalls.

In rural areas such as the Ottawa Valley , many homeowners have septic systems. These are small, private waste treatment systems that work on similar principles to primary and secondary municipal waste treatment described above.

After the polluted water from conventional waste treatment systems is discharged, the sewage sludge must be dealt with. Sludge contains many chemical and biological toxins. Here's how it is defined by the*HarperCollins Dictionary of Environmental Science*: "viscous, semisolid mixture of bacteria- and virus-laden organic matter, toxic metals, synthetic organic chemicals, and settled solids removed from domestic and industrial waste water at a sewage treatment plant." Most sludge in Canada is landfilled and thus is subject to the problem of leaching into groundwater. Unfortunately, the more advanced the treatment of the sewage, the more sludge will be produced, and the more unusable and dangerous it will be. So the toss-up seems to be between polluting surface water more with the liquid effluent or groundwater more with leachate from sludge.

Fortunately there are better ways. And it's no surprise that they are based on the way nature has been dealing with human waste since we first walked the planet half a million years ago.

For example, variations on the "Living Machine" concept are in place in many municipalities around the world. According to John Todd, the Canadian-born, Time Magazine Hero for the Planet who pioneered "living machines", they are solar-powered, accelerated versions of the water treatment facilities found in mature natural systems. They incorporate helpful microbes, plants, snails and fish into diverse, self-organizing and responsive communities and re-route waste streams into resources. They are capable of achieving tertiary treatment standards that meet and often surpass municipal discharge requirements and sludge treatment on-site reduces costs and risks associated with off-site disposal.

Around the world, there are currently hundreds of living machines built by John Todd and others who are following in his footsteps. They range in size from 3,000 to 200,000 gallons per day. Canada has at least two that I know of: the municipality of Bear River Nova Scotia, and the Body Shop in Toronto.

Composting toilets are another excellent alternative to conventional sewage treatment. There are many different manufacturers and highly-efficient models available nowdays. Sized and operated properly, composting toilets break down waste to 10 to 30 percent of its original volume, using a variety of

microorganisms. The resulting end-product is a stable soil-like material called "humus," that can be added to soil as a soil conditioner.

See Part II of this article: "Living systems for sewage treatment".

*Lynn Jones is a member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**A vision of the future**

01 Feb 2004 Lynn Jones

We look forward to a time when human activity in the Ottawa River watershed is in harmony with the environment. Individuals and families in the watershed enjoy a comfortable lifestyle while leaving a small ecological footprint on the environment that sustains all life.

At this time in the future that we envision, there are beautiful natural areas in both urban and rural settlements. We have learned to garden and landscape ecologically, and to invite many diverse and wonderful creatures to share the spaces that used to be devoted to monocultures. Roofs are planted with herbs, flowers and food-producing plants, and provide habitats for insects and birds, while providing superior insulation value over the old style of roof that was covered with asphalt. The spaces around buildings are attractively planted in a variety of native plant species that require little maintenance while providing, flowers, herbs, food, and habitats for wildlife.

Within the watershed there are large connected wilderness areas, representing mature forest ecosystems of various types. Forests are appreciated for the invaluable services they provide such as providing abundant clean air and water to all life in the watershed. Protected areas include the sacred sites of the watershed's first people. There are opportunities for all who wish to visit these wilderness areas. Children of the watershed are enabled to spend time in the wilderness regularly and often, discovering their fellow-creatures and learning at a young age to respect and nurture all forms of life.

People travel from place to place in clean, quiet, environmentally-friendly modes of transport. There are fewer cars. Buildings in the watershed are highly energy-efficient. They are made to last, largely of local materials in ways that maximize comfort and aesthetics while minimizing the need for energy consumption. Innovative building styles, suitable to the climate in the watershed, such as earth-bermed and straw-bale have been widely adopted. Garbage dumps are obsolete. People in the watershed carefully use, reuse, and recycle all resources. All organic wastes are composted and returned to

the tended areas on farms, in gardens and other planted areas.

The water in the Ottawa River and all of its tributaries is sparkling clean, clear and potable. It is kept this way by careful use and recycling of resources. Composting toilets have largely replaced flush toilets, and any sewage is treated by living systems, which discharge only clean water into the watercourses.

Many of the resources people use in the watershed for feeding, clothing and housing themselves, are produced in the watershed or near to it, thus the local economy is strong and resilient. For example local foods are widely available. Local diets reflect the changing seasons and bioregional attributes such as soil types and climate. Local cuisines are unique, reflecting the bioregion and the cultural heritage of residents.

Energy used in the watershed is clean, renewable and non-polluting. Many options are available for meeting our energy needs such as wind, solar, micro-hydro, wood biomass, and biogas.

The works of watershed artists are widely enjoyed and help people experience joy, connectedness, and wonder at the beauty that surrounds us all. The history of the watershed is also appreciated by all and helps to contribute to understanding, stewardship and a sense of our place.

Finally, a new kind of decision-making has become universal in the watershed; it is one based on trust, cooperation, care and benefit to all creatures.

*The Ottawa River Institute is a non-profit, charitable organization based in Pembroke.*

**Well Aware program comes to Renfrew County**

01 Jan 2004 Janet McNeill

"Well Aware" is a new project that aims to inform well owners - and the folks who come into regular contact with them - of the most up-to-date practices when it comes to looking after wells - and groundwater - properly. The project is financially supported by the Ontario Ministry of the Environment, and run jointly by the Green Communities Association and the Ontario Ground Water Association. The Ottawa River Institute has been working to implement the project in Renfrew County .

In December, a "Well Aware Information Provider Workshop" was held in Pembroke. This lively and well-attended session was run by Lucy Keating, a provincial facilitator hired to give similar workshops across the province. In attendance were twenty-one individuals from across the county who come into regular contact with well owners. Attendees included local politicians and municipal staff, a representative from the district health unit, the president of the Renfrew County Real Estate Board, some

City of Ottawa planning staff, local planning staff, and several owners of local businesses that provide services and equipment to well owners. I think it would be safe to say that everyone who attended learned some new and interesting facts about looking after wells - and groundwater - properly.

In the second phase of the Well Aware project, there will be two community forums to provide similar, detailed information to members of the public. These will be held on March 24, 2004 in Eganville (Eagle's Nest at the arena) and March 31, 2004 in Cobden ( United Church ). Residents of Renfrew County will be given the opportunity to hear a variety of speakers discuss groundwater basics, well construction and maintenance, health and water testing and source protection. For more information, feel free to give me a call at (613) 584-2101, or send an e-mail to

To learn more about the Well Aware program, you can visit the Web site at www.wellaware.ca

One of the most valuable tools of the program is the "Well Aware" booklet that provides a host of tips for well owners on how to protect their family's health and the groundwater they rely on. The booklet has information on groundwater basics; well location, construction and maintenance; possible contaminants; treatment systems, and hiring a contractor. Locally, the booklets are available at the Renfrew County and District Health Unit offices. If you are interested in receiving a large number of copies (to distribute to friends or neighbours, for example), you can get them free from the Green Communities Association in Peterborough - all you have to pay for are the shipping costs. To order, call or e-mail Kellie, phone: (705) 745-7479, fax: (705) 745-7294. Kellie's e-mail address is and the GCA Web site is www.gca.ca

There is also a Well Aware video that costs $17.20 (including shipping, handling and taxes) that can be ordered from the Ontario Ground Water Association, phone: (519) 847-5717, fax: (519) 847-5716, e-mail: Web site: www.ogwa.ca

*Janet McNeill is a member of the Ottawa River Institute, a non-profit, charitable organization based in Pembroke, Ontario, Canada.*

**Venus, Earth, Mars**

01 Jan 2004

Professor Lovelock was hired by NASA in the 1960s as a consultant to their Viking spacecraft project, designed to search for life on Mars. Scientists already knew that the Martian atmosphere is 95% carbon dioxide, with only trace amounts of oxygen and other gases. Using the branch of physics called thermodynamics, Lovelock concluded that this was just what one would expect if chemical reactions proceeded spontaneously to a maximum state of disorder.

The same is true of Venus, whose atmosphere is 97% carbon dioxide. Its atmosphere is almost 100 times as heavy as Earth. With all that carbon dioxide, the greenhouse effect on Venus has gone wild, with an average temperature of roughly 500 degrees Celsius. Standing on Venus is like being under the broiler element on your oven.

Compared to Earth, Mars has a very thin atmosphere, and Venus a very heavy one. But the big difference is that Earth has so little carbon dioxide.

Lovelock observed that Earth's atmosphere, which is mostly nitrogen and oxygen, is so different from what would be predicted by physics that something very unusual is going on here. He concluded that our highly improbable atmosphere is maintained on a day-to-day basis by life on Earth. He argued that in scientific terms Earth must be viewed as a single living being, and even proposed a name - Gaia.

Most traditional cultures would think it crazy for anyone to believe that Earth is NOT alive. But scientists grumble about the Gaia hypothesis, and mostly ignore it. What good is a hypothesis when you can't do experiments with it? We can't do an experiment to see if the Earth would die if its atmosphere became like that on Venus or Mars.

Or can we?

Earth's early atmosphere was mainly carbon dioxide. For a couple of billion years living green plankton in the oceans used carbon dioxide to make their bodies, which died and settled out on the bottom and eventually turned into rock. Later, land plants got into the act. Carbon dioxide is now mostly dissolved in the oceans and trapped in sedimentary rocks such as limestone (and small amounts of coal and oil). If all this trapped carbon dioxide were released to the atmosphere, our planet would be similar to Venus.

What is particularly frightening is that we are giving the planet a very large push in this direction right now. However feverishly we pump out, dig up and burn fossil fuels, we cannot raise the Earth's surface temperature to that of oven broilers. But scientists fear that releases of fossil fuel carbon plus methane now frozen under the sea floor could cause such a rapid temperature increase that the oceans and limestone rocks will give up their carbon dioxide. In terms of its chemical composition, Earth's atmosphere is already becoming more and more like that of our neighbours Venus and Mars - dead.

Earth has coped with ups and downs of carbon dioxide in the past. Oceans, forests, wetlands and other ecosystems are still soaking up this gas. The Kyoto Protocol is intended to slow down the rate of change enough to give ecosystems a chance to do their thing, even if the climate change bureaucrats are so focused on making rules for buying and trading carbon credits that they have almost forgotten this.

If you're unsure whether to drive or walk over to the quickie market for the paper, think about the fact that you're part of a living planet. And remember, the trees and the seas are your friends.

*Ole Hendrickson is a scientist and a founding member of the Ottawa River Institute, a non-profit, charitable organization based in the Ottawa Valley.*

**Roofing to help save the earth**

01 May 2003 Lynn Jones

What is this new miracle technology you ask?

Why green roofs of course.

Green roofs are also called eco-roofs, nature roofs and roof greening systems. In truth they are not really new at all, having been used in some northern countries such as Iceland for hundreds of years.

Technological advances in the past 30 years have brought greenroofs up-to-date for the 21st century. They are now lighter, more durable and better able to withstand the extreme climatic conditions of the rooftop.

Green roofs can be planted with a wide variety of native plants adapted to the local climate. Thus they become living, breathing extensions of the ecosystem providing habitat for insects and birds in areas that were formerly ecological "deserts". They are also very beautiful to look at and relax in. Some green roofs even produce food.

To see how far this technology has already come and feast your eyes on photos of a wide array of truly beautiful and functional green roofs, visit the website www.greenroofs.com, a wonderful compendium of information and inspiration, initiated by a former University of Georgia landscape architecture student named Linda Velazquez.

Existing green roofs in Europe include a 5000 square meter factory in Belgium, an airport parking lot in the Netherlands, a corporate office building in Hanover, Germany, a Ford dealership in Northern Sweden, and a construction management company in Berlin which is covered with a 1400 square meter golf course!

The popularity of green roofs in Europe is partly a reflection of the incentives provided by governments there for green roof conversions. In Germany for example, 80 municipalities provide such incentives and over 13 million square meters of green roofs have been built in the last five years! Other jurisdictions where bylaws encourage green roofs include Tokyo, Japan, Portland, Oregon and Chicago, Illinois.

Here in Canada, the National Research Council recently completed a study of green roofs at the Toronto City Hall. Each of eight test plots tested a different style of construction and maintenance. The viability of green roof technology was confirmed in this study along with the host of benefits mentioned above.

Green roofs are considered "red-hot" by Metropolitan Home magazine. The current May-June 2003 issue contains an article entitled "What's Red-Hot Now - Design 100 - The Best of the Best: People, Places, Extraordinary Things" which lists green roofs as number 24 out of 100. The article features the Chicago City Hall green roof.

The Chicago City Hall green roof will also be on display at the first North American Greenroof Conference at the end of May. The conference is called "Greening Rooftops for Sustainable Cities".

In rural Ottawa Valley, roof greening may not seem as urgent as it is in large cities. Even so, it's wonderfully encouraging to see such developments taking off around the world!

Are there any greenroofs in the Ottawa River watershed? There are some test plots at the National Research Council in Ottawa. And I think I have seen trees growing on some condominium roofs in downtown Ottawa. Perhaps there are others. Let me know if you see any!

*Lynn Jones is a founding member of the Ottawa River Institute, a non-profit charitable organization aimed at fostering sustainable communities and ecological integrity in the Ottawa River Watershed.*

**World Water Day is March 22nd**

01 Mar 2003 Lynn Jones

Why should we be concerned? Consider the following:

- A third of the world lives in water stressed areas, where consumption outstrips supply.
- A fifth of the world's population is without access to safe water supplies. 6,000 people, mainly children and mainly in developing countries, die every day as a result of dirty, contaminated water.
- Around half of the world's rivers are seriously depleted and polluted.
- Two billion people, around one-third of the world's population, depend on groundwater supplies which are falling and becoming contaminated
- Overall demand for water already far outpaces population growth. If current trends continue, two out of every three people on earth will suffer moderate to severe water shortages in little more than two decades from now.

Canadians waste a lot of water. Canada ranks a dismal 28th among the 29 nations of the Organization for Economic Cooperation and Development (OECD) in terms of per capita water consumption. Only Americans use more water than Canadians.

Canada uses 1,600 cubic metres of water per person per year. This is more than twice as much water as the average person from France , three times as much as the average German, almost four times as much as the average Swede and more than eight times as much as the average Dane. Canada's per capita water consumption is 65% above the OECD average. With a little effort, we can do much better.

Here are the top 10 ways to conserve this most precious resource: (Each one will save hundreds of litres of water each month!)

1. Water your lawn only when it needs it. Step on your grass. If it springs back, when you lift your foot, it doesn't need water.

2. Fix leaky faucets and plumbing joints.

3. Don't run the hose while washing your car. Use a bucket of water and a quick hose rinse at the end.

4. Install water-saving shower heads or flow restrictors.

5. Run only full loads in the washing machine and dishwasher.

6. Shorten your showers. Even a one or two minute reduction can save **thousands of litres** per month.

7. If you wash dishes by hand--and that's the best way--don't leave the water running for rinsing. If you have two sinks, fill one with rinse water. If you only have one sink, use a spray device or short blasts instead of letting the water run.

8. Don't use your toilet as an ashtray or wastebasket.

9. Capture tap water. While you wait for hot water to come down the pipes, catch the flow in a watering can to use later on house plants or your garden.

10. Turn off the water while brushing your teeth.

There are many more ways to save. Try a Google search on "Water Conservation Tips". More information on World Water Day is available at www.waterday2003.org. To read more about Canada's ranking on various environmental indicators, visit www.environmentalindicators.com.

**Welcome to the Ottawa Riverkeeper**

01 Jan 2003 Lynn Jones

This situation could start to change for the better soon. There is good reason to hope we will move more toward treating the Ottawa River as the precious resource that it is thanks in part, to a new citizen-based, non-profit organization based in Ottawa, the Ottawa Riverkeeper.

The Ottawa Rivierkeeper is one of 99 organizations that form the Waterkeeper Alliance an international coalition based in the United States and headed by noted American conservationist Robert Kennedy Jr. Other current Canadian Waterkeeper organizations exist in New Brunswick and Ontario.

The Ottawa Riverkeeper recently received funding from the Ontario Trillium Foundation which enabled them to hire the first full-time "keeper" for the Ottawa. The new Riverkeeper, who began work a couple of weeks ago, is Lara Van Loon, a friendly, 34-year old native of New Brunswick with a passion for rivers and a great deal of valuable training and experience relevant to her riverkeeping duties.

According to information posted on the Ottawa Riverkeeper's website at www.ottawariverkeeper.ca, the keeper will conduct on-site inspections and boat patrols along the river during the period from May to October when the water is open. During these patrols, she will monitor compliance with environmental regulations and identify areas of particular environmental concern. On-foot, winter-season inspections will also occur.

Throughout the year, violations of existing regulations will be noted, reported and, if necessary, prosecuted in order to effect compliance. Lara will also gather information about areas where regulatory protection is limited or non-existent so that a strong case can be for improved legal protection.

Another of Lara's tasks will be to develop and maintain an expert understanding of the river's ecology and the regulatory framework protecting it. She will also facilitate communication among stakeholders and river research by universities

According to Ottawa Riverkeeper president Dan Brunton, "The Ottawa River is a globally significant waterway. It extends 1271 km and has a 140,000 km² watershed. A long and growing list of human activities and undertakings are challenging the quality and integrity of the river. The "keeper" will lead our effort to preserve and enhance the River's remarkable natural richness through a wide range of investigative, educational and research programs. These will be undertaken independently and in co-operation with numerous existing decision-making authorities and communities along the River.

"The Ottawa Riverkeeper will be prepared to take the appropriate action should the necessary mechanisms not exist or are not being applied," says Brunton. "These programs and actions will help to ensure the continued use, enjoyment and economic benefit of the Ottawa River for its over one million citizens in Quebec and Ontario".

The hiring of the Riverkeeper is good news for all of us who value ecological integrity in this great Ottawa River watershed. We extend a sincere welcome to Lara and wish her well in her endeavors as "keeper" of the Ottawa.

**Making Waste Work for Community**

21 Sep 2002 Administrator

It is a simple and elegant idea. They obtain fleece remnants from the Black Water factory in Foymount. The pieces are too small to be reused by the company and Black Water is reluctant to see the material wasted. They have generously agreed to provide all of the remnants to the Waste Works project that the organizers can handle. The Action Centre picks up the material and then sets to work with a product designer to create products that suit the colours and sizes available. Any products that need to be sewn are given to local sewers.

Through the support of the Ontario Trillium Foundation, The Action Centre has hired a part-time Waste Works manager who is responsible for overseeing the project, developing packaging, and promoting the project. The product line includes a nifty package of four "Screen Sweeps". Squares of fleece are ideal for cleaning computer and television screens. Their "Dust Hand" is a dusting mitt made of fleece that makes dusting easier, if not more enjoyable! A neat gift for reading and car rides are the Waste Works bolster pillows. The tube-shaped pillows are stuffed with small pieces of fleece and are a great neck support. A variety of gift bags are also available ranging from small sizes (that children use to carry marbles and adults use for make-up), to wine gift bags, and book-size bags.

Over the past two years, Waste Works products and textiles have contributed to communities, literally all over the world. Eganville and District Public School (EDPS) used the book-size bags in their Operation Christmas Child project. The bags were sent to children in a developing country. Students at EDPS also made "silly noses" out of fleece and these were sent to CHEO to be distributed to children with cancer. The Adult Day Program of Bonnechere Manor has received several bags of material that have been useful for their craft programs. Camp Trillium received a box of fleece for their recreational activities with children who have cancer. Two computer/business classes at Algonquin College in Nepean studied Waste Works as a small business model and were so excited by the project hat they made a Waste Works banner out fleece, donating it to The Action Centre.

Waste Works is still in a start-up phase and is reaching out to schools in Renfrew County with an innovative proposal. Schools are being offered information that helps students make the connection between Waste Works and their environmental studies. Even better, schools can choose to purchase Waste Works products at a reduced price and then sell them as part of a fundraising effort. Hats off to a fundraising project that teaches children about the environment and supports our community!

**Do your bit for Kyoto and save $200!**

21 Sep 2002 Lynn Jones

But we needn't wait for the government's plan to start doing our bit for Kyoto. Most of us can save considerable amounts of money and keep substantial quantities of greenhouse gasses out of the atmosphere right now, by adopting some no-cost or low-cost measures around the home.

Take the laundry for instance. Washing your laundry in cold water can save you $35 per year and reduce your greenhouse gas emissions by 300 Kg. If you can't conceive of washing all your laundry in cold water, just do most of it that way. You'll still save lots, and it's easier on your clothes. For an even bigger saving of $50 per year, use an indoor or outdoor clothesline instead of an electric clothes dryer. This measure will keep almost half a tonne of greenhouse gases out of the atmosphere.

Lowering the thermostat on your hot water heater from 70 degrees to 55 degrees, could save you $20 a year and reduce your greenhouse gas emissions by 80 Kg. Just be sure to lower the thermostat on both elements (if your water-heater has two) so that one doesn't end up doing all the work and wear out prematurely.

Using a low-flow shower head can save you up to $95 per year. Even the most expensive shower head will pay for itself in about one month in an average home. The greenhouse gas reduction from this measure approaches one tonne!

So there you have it, a, cool $200. And 1 1/2 tonnes of greenhouse gases kept out of the atmosphere!

Want to save even more on no-cost or low-cost measures?

Save up to $20 per year by turning your computer off when not using it, or by enabling your computer's energy saver features.

Computer monitors use a lot of energy. Monitor screen-savers do not save energy; even when your monitor defaults to a screen saver, the monitor is still operating at full power. You can easily turn your monitor off without shutting down your computer.

Whenever possible, turn your computer off when not in use; otherwise, enable its Energy Saver or power management features. You can usually enable these features through the Control Panel menu (Start -> Settings -> Control Panel -> Power Management). For maximum energy savings, enable these settings by selecting the feature and then selecting the shortest available time delay setting (usually 15 min), if any.

Here are some more tried and true ideas for saving energy

- Turn lights off when leaving a room
- Reduce your winter thermostat setting (save 3 5% on your heating costs per degree)
- Air dry dishes instead of using your dishwasher dryer heater.
- Unplug televisions and VCR's when not in use.
- Wash only full loads of dishes and laundry.

Of course if you want to invest money in energy conservation, much more can be done. Savings of up to 60% on your energy bills can be realized by retrofitting and replacing old appliances and windows with new energy-efficient ones. We will review these strategies in a future article, and maybe by then, the $1000 rebate will be in place to make the prospect more attractive!

*Lynn Jones is a founding member of the Ottawa River Institute, a non-profit, charitable organization based in Pembroke.*

**Keeping cool without warming the earth**

21 Jun 2002 Administrator

We responded by cranking up the air conditioning, and that pushed power demands near record levels.

Ironically, the more we try to stay cool, the hotter it gets. Environment Canada officials are pointing a finger at global warming as a probable cause for the unusual weather that we have been experiencing.

Global warming is largely caused by the buildup of carbon dioxide and other greenhouse gases released by the burning of fossil fuels, including coal and natural gas used to generate electricity. When we crank up the air conditioning we use more electricity - massive amounts more if the whole province does it, producing more carbon dioxide and contributing to the problem of global climate change.

But the heat remains. How can we keep our houses cool without contributing to a serious environmental problem? Here are some ideas.

1. Take advantage of the cool night air. Open windows in the evening to let in the cool night air and get rid of the day's accumulated heat. Close windows and curtains in the morning to keep the heat out.

2. Shade the windows. Blinds that block light, pulled down over a sunny window will reflect much of the heat and light back outside. Some people use "window boards", or blocks of Styrofoam cut to fit just inside the window frame. A simple awning over the outside of a south window will shade the window in summer when the sun is high in the sky, but allows the sun to shine in the window and help warm the house in winter when the sun is lower in the sky.

3. Get relief from a tree. There used to be a big elm tree to the west of our house, which we fondly called our air conditioner. It shaded our house from the hot afternoon sun in the summer. Likewise, a neighbour claims that a climbing vine that covers the south sides of his house provides cooling shade.

4. Keep air moving in the attic. Good air circulation keeps attic heat down, and makes it easier to keep the rest of the house cool. Turbines, or whirley birds on the roof can increase attic circulation.

5. Stay cool with insulation. Since we added 6 inches of loose fill insulation to our attic, the second floor is cooler in the summer and warmer in the winter. Insulation helps to keep heat (and cold) in the attic and out of the rest of the house.

6. Stop those hot drafts. We mainly think of draft proofing to keep cold winter air out, but it can also help keep warm air at bay during the summer. You may not be able to insulate or draft-proof before the next heat wave, but you can plan now to have it done before next summer's heat, or next winter's chill.

For comprehensive advise on making your home more comfortable and saving on cooling and heating costs, ask the home performance experts at the Envirocentre in Ottawa for their Home Comfort Service. For more information including cost, call 613-244-5624 or visit www.envirocentre.ca.

**Environment-friendly lawn care, or making friends with a skunk**

21 Apr 2002 Peggy Patterson

I realized that his joke did have a serious side, as he explained ways of working with nature instead of against it to achieve a healthy lawn. More and more people seem to be using this approach. And even more will start next year, when Loblaws stops selling chemical pesticides in all of its 440 garden centers across Canada!

I found that there are staff at local nurseries with plenty of knowledge about environment-friendly lawn care. The tips below are from my conversations with them, and some research on the internet:

**Starting out** For people who are starting a new lawn, it really helps to have a top quality topsoil (or mix in compost). Grass is more likely to flourish, and grubs are not likely to set up shop. The choice of grass seed is also important. Ask the nursery staff for advice on a mixture of seeds that grow vigorously, and are tolerant of drought.

**Seeding** Over-seeding can be done in the spring, by hand or with a mechanical spreader. If the soil is low in nitrogen it's a good idea to include white clover seeds, as clover draws nitrogen into the soil and helps to retain moisture.

**Cutting** The cutting blades should be set higher (about 3 inches) so that the part of the plant that produces food from sunlight and supplies energy for root growth is not cut off. Longer grass can more easily out-compete the weeds.

**Building the soil** Ask the nursery for a information about having your soil professionally tested for pH, organic matter, and the nutrients nitrogen, potassium and phosphorus. Then acidity and nutrients can be adjusted accordingly.

**Watering** Grasses naturally become dormant during hot, dry weather, so watering is not really necessary in the summer. Water is important from mid-August to mid-October, as this is an important time for growing in the life cycle of grass.

If you do water, wait until the leaves show signs of drying out. This will ensure that the root system has grown deeply (past the weeds). Water to a measured amount of 2-3 centimeters. Water in intervals so there is no run-off. This type of watering should last for 3 to 4 weeks.

**Weeding** One caution about environment-friendly lawn care is that it takes years, not days to develop healthy grass and soil. If all else fails, weeding in the spring and fall can be a way to get fresh air and exercise (look on the bright side).

A good book on this topic is How to Get Your Lawn and Garden Off Drugs by Carole Rubin. For a great article on simple, natural ways of getting rid of white grubs in your lawn (that don't involve skunks) visit www.torontoenvironment.org Click on "campaigns", then click on "pesticides".

*Peggy Patterson is a member of the Ottawa River Institute, a non-profit organization dedicated to fostering sustainable communities in the Ottawa River watershed.*

**Why was the river so high this spring?**

21 Apr 2002

In past springs water levels dropped more quickly. After the snow melted, the flooding subsided. But not this year.

Cool temperatures meant that trees leafed out slowly this year. Did that have anything to do with water levels?

As I drifted down the Indian River in my canoe on a cool and cloudy morning, I thought about all the water that trees pump out of the ground.

Trees use tremendous amounts of solar energy to move water from the soil, up their trunks, and out into the air through tiny pores in their leaves. Forests are giant humidifiers.

Broadleaved trees - the maples, aspens, birches, oaks and such - cannot start pumping until their leaves are out. The conifers start as soon as the ground is unfrozen, but they make new leaves later in spring and become more active.

Water seeps through soil into streams and rivers, adding to their flow. Hydrologists call this shallow groundwater recharge. The saturated area, or recharge zone, is largest in spring. It shrinks in the summer as green plants pull water through their leaves and dry out the soil.

This spring has been great for canoeists. Lots of water means a longer season for running small rivers that become too rocky in mid-summer. But I've talked to several canoeists, and none of them knew how trees were connected to this.

Most of the sun's energy is used in moving water around the world. Hydrologists have shown that the Amazon forest makes its own rain. They debate whether deforestation in Central America is creating deserts there.

China cuts down its forests and Yangtze River floods kills millions of people. Giant dust storms from China spread microbial particles and even diseases around the world. As John Muir once said, when you look you find that everything is hitched to everything else.

It's hard to think globally and act locally, but one of the best ways is to think about water. Water molecules just keep moving. In the ground, in the trees, in the air, in your lungs, around and around they go.

Nobody can really own water. It's something we all share.

*Ole Hendrickson is a founding member of the Ottawa River Institute, a non-profit organization dedicated to fostering sustainable communities in the Ottawa River watershed.*

**Using fewer pesticides**

21 Apr 2002 Administrator

"I don't like pesticides, but we had to do *something* about the weeds."

These are two thoughts that came up recently when discussing lawns care with neighbours.

Having lush, green, grass-only lawns seems to be important to homeowners in the Ottawa Valley, myself included. However, using pesticides to get them that way has become controversial in recent years.

Two years ago, on May 16, 2000, the Canadian Parliament's all-party Standing Committee on the Environment and Sustainable Development released a report called, *"Pesticides, Making the Right Choice for the Protection of Health and the Environment"*. According to the report, "the committee heard compelling testimony that pesticides pose a threat to human health and the environment." Among other things, the report recommended that pesticides used to treat lawns, golf courses and parks should be phased out over five years. It also suggested new cosmetic pesticides should not be registered and current ones should be gradually removed.

Municipal government actions to reduce pesticide use were already in full swing even before the House Standing Committee report. For example, in response to mounting consumer pressure, the town of Hudson, Quebec passed a bylaw in 1990 that tightly restricted the use of pesticides for non-essential (or cosmetic) uses on public and private land within its boundaries. Chemlawn and Spraytech, two lawn care companies decided to challenge the town's right to enact such a bylaw.

The two companies took the case all the way to the Supreme Court of Canada - and lost. On June 28, 2001, a Supreme Court decision upheld the ability of municipal governments to protect the health of their citizens and their local environment.

Close to 40 Canadian municipalities have now banned the cosmetic use of pesticides on municipal property and many are now looking at developing bylaws similar to that of Hudson, Quebec. Ottawa has banned pesticide use on municipal property since 1980. This year the City of Ottawa is proceeding with a strategy to reduce cosmetic use of pesticides on private property, beginning with a public education campaign about safe alternatives.

To find out what's going on here in Renfrew County, I called a few municipal offices. For the most part I found that staff have already adopted lawn care practices that use little or no herbicides and pesticides on public land. The two main strategies used here are: 1) promote vigorous grass growth so that the grass out-competes the weeds, and 2) just keep the grass cut and tolerate the weeds.

Some municipalities use over seeding in the spring to help fill in any holes with grass rather than weeds. Grass varieties that grow vigorously are ideal.

Lawns are cut regularly so that dandelions and other weeds do not have a chance to produce seeds and multiply that way. Although the lawns do contain weeds, they are groomed and green.

Some playing fields are still sprayed for weeds. They also get special treatment because they are heavily compacted. They are aerated regularly to help moisture and air penetrate down to the grass roots, which promotes vigorous growth.

Our municipalities are to be commended for using lawn care practices that respect the environment.

**For more information:** The Canadian Federation of Municipalities is addressing growing community concerns about the effect of pesticides on human and ecosystem health. Visit www.pestinfo.ca.

*Peggy Patterson is a member of the Ottawa River Institute, a non-profit organization dedicated to fostering sustainable communities in the Ottawa River watershed.*

**Lawn care according to God**

21 Apr 2002 Lynn Jones

"Frank you know all about gardens and nature. What in the world is going on down there? What happened to the dandelions, violets, thistles and stuff I started eons ago? I had a perfect, no-maintenance garden plan. Those plants grow in any type of soil, withstand drought and multiply with abandon. The nectar from the long-lasting blossoms attracted butterflies, honey bees and flocks of songbirds. I expected to see a vast garden of colors by now. But all I see are these green rectangles."

"It's the tribes that settled there, Lord. The Suburbanites. They started calling your flowers 'weeds' and went to great extent to kill them and replace them with grass."
"Grass? But it's so boring. It's not colorful. It doesn't attract butterflies, birds and bees, only grubs and sod worms. It's temperamental with temperatures. Do these Suburbanites really want all that grass growing there?"
"Apparently so, Lord. They go to great pains to grow it and keep it green. They begin each spring by fertilizing grass and poisoning any other plant that crops up in the lawn."
"The spring rains and cool weather probably make grass grow really fast. That must make the Suburbanites happy."
"Apparently not, Lord. As soon as it grows a little, they cut it-- sometimes twice a week."
"They cut it? Do they then bale it like hay?"
"Not exactly, Lord. Most of them rake it up and put it in bags."
"They bag it? Why? Is it a cash crop? Do they sell it?"
"No, sir. Just the opposite. They pay to throw it away."
"Now let me get this straight. They fertilize grass so it will grow. And when it does grow, they cut it off and pay to throw it away?"
"Yes, sir."
"These Suburbanites must be relieved in the summer when we cut back on the rain and turn up the heat. That surely slows the growth and saves them a lot of work."

"You aren't going believe this Lord. When the grass stops growing so fast, they drag out hoses and pay more money to water it so they can continue to mow it and pay to get rid of it."
"What nonsense! At least they kept some of the trees. That was a sheer stroke of genius, if I do say so myself. The trees grow leaves in the spring to provide beauty and shade in the summer. In the autumn they fall to the ground and form a natural blanket to keep moisture in the soil and protect the trees and bushes. Plus, as they rot, the leaves form compost to enhance the soil. It's a natural circle of life."
"You better sit down, Lord. The Suburbanites have drawn a new circle. As soon as the leaves fall, they rake them into great piles and have them hauled away."
"No! What do they do to protect the shrub and tree roots in the winter and keep the soil moist and loose?"
"After throwing away your leaves, they go out and buy something they call mulch. They haul it home and spread it around in place of the leaves."
"And where do they get this mulch?"
"They cut down trees and grind them up."
"Enough! I don't want to think about this anymore. Saint
Catherine, you're in charge of the arts. What movie have you scheduled for tonight?"
"Dumb and Dumber, Lord. It's a real stupid movie about..."
"Never mind I think I just heard the whole story."

*We were unable to determine the original source for this. If anyone knows, please tell us!*

*Lynn Jones is a founding member of the Ottawa River Institute, a non-profit charitable organization aimed at fostering sustainable communities and ecological integrity in the Ottawa River Watershed.*

**Learning to love the green cart**

21 Apr 2002 Lynn Jones

Much to my surprise Terri told me that her municipality and most of the province of Nova Scotia has been using green carts for at least past two years. Their carts and mini-bins are a little larger than ours, but the program is similar. They put the same types of organic materials in their carts. The carts are emptied mechanically every two weeks and the compost is taken to a central processing facility. I had thought (and still do), that the Green Cart program is very progressive, and so I was a little surprised to learn that Nova Scotia is at least two years ahead of us on this.

Terri **loves** her green cart. However, her relationship with the cart did not start out quite so warmly. She, like most people, was annoyed about the extra trouble of sorting yet more of her garbage and figuring out "where and when" to put it. She had concerns about the mess, the possibility of attracting various varmints, producing odours, and spreading disease.

Gradually, one by one, her concerns fell by the wayside. She got used to separating compost and felt she had better control over the organic waste her household was producing. Her garbage was less smelly. She found the carts to be quite varmint proof, and she was relieved to learn that the heat generated during the composting process kills most human and plant pathogens. Using her green cart now is just a normal part of everyday life, and one Terri enjoys very much.

Composting is Nature's way of recycling. Nature recycles everything and must do so in order to sustain life on our planet. Compost is the beautiful black humus that results from the breakdown of organic material by bacteria and other microorganisms. Gardeners refer to it as "Black Gold" because it does so many things to help plants grow better. Besides providing an abundance of nutrients, it enables soil to hold more water for longer, and insulates soil against extremes of temperature. What a great chance the green carts give us to help Nature produce this valuable natural resource, instead of toxic leachate, which is produced when we bury organic waste in a landfill site.

Here are a few things you might want to try to increase your enjoyment of your green cart:

- Keep your meat scraps, bones, fat and oil in the freezer until the night before pick up
- Spread out a few sheets of newspaper and empty your mini-bin onto them at the end of each day; wrap carefully and put in the green cart.
- Wash your mini bin with soapy water after each emptying

More information about the green cart program is available from the Ottawa Valley Waste Recovery Centre 735 - 7537. If you would like to know more about composting, Cornell University's Waste Management Institute maintains an excellent composting website. If everything you ever wanted to know about composting is not there, a link to it almost certainly is. To get there just go to www.google.com, type "Cornell composting" in the box, and hit the "I'm feeling lucky" button.

Composting curiosities you can find on the internet include:

- "Composting happens" bumper stickers for sale.
- "Composting: A great rotten idea" teaching kit!

*Lynn Jones is a founding member of the Ottawa River Institute, a non-profit organization dedicated to fostering sustainable communities in the Ottawa River watershed.*

**Ottawa River Institute sets up shop in the valley**

21 Apr 2002 Lynn Jones

So what are "watershed ways", or even more basically, what is a watershed?

A watershed is an area of land that catches rain or snow and drains into a marsh, stream, river, lake or groundwater. The Ottawa River watershed is quite a large watershed as watersheds go. According theNational Atlas of Canada, the Ottawa River is 1,271 km long and its drainage area is 146,300 square kilometers. (That's an area the size of about 20 Renfrew Countys.) The Ottawa River watershed includes many smaller watersheds such as the Bonnechere, the Gatineau and the Madawaska, and is itself contained in St. Laurence River watershed, a land area ten times its size. Watersheds are nearly always part of larger watersheds.

A watershed then is a place, a place we as humans can identify as our home in the environment. It is a place where all of the wonderful, mysterious processes of Mother Nature keep happening to give us

everything that sustains us: food, water, air, soil, forests, and our fellow creatures. Identifying with a particular watershed is a way to start being more aware of our environment and how much we depend upon it.

There is another meaning though. "Watershed" can also mean a crucial dividing line or factor, ***a turning point***. Many people would agree we are at a crucial point where, as a society we have to learn how to live in harmony with our environment. Evidence that this is so can be seen in daily news reports of collapsing fisheries, shrinking forests, eroding soils, expanding deserts, rising carbon dioxide levels, falling water tables, rising temperatures, more destructive storms, melting glaciers, rising sea levels, dying coral reefs, and disappearing species.

"Watershed ways" then can be understood in at least two ways. First, there are the many wonderful processes and connections in the cycles of life in the watershed; some of these will be the topic of future columns. But perhaps a larger focus will be a different kind of "watershed ways", the ways that we human beings are learning to live more in harmony with our surrounding environments.

It can be overwhelming to consider the scope of environmental degradation that is happening in our time. And some of the major changes that seem to be necessary seem almost impossible from our vantage point; things like driving our cars a great deal less than we do now. (Did you know that the average distance traveled every year by each vehicle in the typical Ontario family is half way around the circumference of the Earth?) Fortunately there are many small ways we can begin to make a difference. And many small ways in many people can amount to a major shift.

For example, according to The Ontario Ministry of the Environment, just by rinsing your toothbrush in a cup and turning off the tap while brushing, you can save 4,000 litres of water a year! That's encouraging!

It's also encouraging to note that several excellent watershed conservation efforts are already established in the Ottawa Valley. Some of these include the Rideau River Roundtable, the Ottawa River Basin Conservation Project, and closer to home, the Bonnechere River Watershed Project and a variety of innovative conservation measures in the Snake River watershed near Cobden. We are grateful to the Bonnechere River Watershed group for partly inspiring the title of this column "Watershed Ways"; they have developed a set of guidelines for the way their group will function that is called "The watershed way".

Until next time, thank you for reading, and please contact me and share you examples, ideas and concerns at 735-4876 or info@ottawariverinstitute.ca.

*Lynn Jones is a founding member of the Ottawa River Institute.*

**Climate change is here**

01 Mar 2002  Lynn Jones

Some people say it's just a blip and we'll pay the price next year with several weeks in the minus 40's. Well maybe, but if you look at the evidence that the earth's climate is warming it's pretty convincing.

According to the World Meteorological Organization, 2001 was the second warmest year on record since record keeping began in 1860. (1998 was the warmest.) Nine of the ten warmest years have occurred since 1990. In Canada, we have officially now had 19 straight seasons of above-average temperatures. Global warming seems to be well underway. If you're still not convinced, check out the temperature trend information and graphs produced by the Meteorological Service of Canada( www.msc-smc.ec.gc.ca ).

It was hard to get upset about the lovely mild winter that global warming brought us here in the Valley. However we need to be mindful of the many adverse effects that it also brings: excessive heat, drought, extreme weather events, melting glaciers and rising sea levels. Scientists reported recently that the Earth's ice is melting faster that predicted by the Intergovernmental Panel on Climate Change. Already a number of small island states in the South Pacific have seen some of their islands submerged during high tides and thousands of their citizens are having to emigrate to other places.

A big part of the reason for this warming that is causing ice to melt, and sea levels to rise, is the burning of fossil fuels by human beings. We burn fossil fuels such as coal, oil, and gas to generate electricity, heat our homes and buildings, power our cars and trucks and fuel the factories that produce all of our consumer goods. The burning of fossil fuels produces carbon dioxide and other gasses that trap heat near the surface of the earth. Emissions of carbon dioxide have increased 4-fold in the past 50 years. Canada produces about 17 tonnes of carbon dioxide per person per year, four times the global average.

According to Brian Hunt, President of the Canadian Automobile Association, all Canadians including motorists, can and should take steps to reduce greenhouse gas emissions. The average vehicle produces 2.4 kilograms of carbon dioxide for every litre of gasoline used. Mr. Hunt suggests keeping your car properly tuned thereby greatly improving fuel efficiency. He also points out that excessive idling is an enormous waste of fuel and money

There are many other ways we can reduce our personal and household contribution to CO2 and global warming. Here are a few:

- Drive a bit less/walk a bit more
- Turn the thermostat down a degree or
- Turn lights (and appliances) off when not using them
- Only buy things we really need.

We'd be glad to hear from anyone willing to share experiences with or suggestions for reducing household energy consumption. With your permission we will share experiences and suggestions in a future column.

*Lynn Jones is a founding member of the Ottawa River Institute, a non-profit charitable organization aimed at fostering sustainable communities and ecological integrity in the Ottawa River*