

WATERSHED UNDER DURESS

*A Snapshot of Local Impacts
of Global Warming
and
Disregard for the Qu'Appelle Valley
Watershed*

2010-2019

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Preface:

I became involved in watershed protection after we moved to the Qu'Appelle Valley in 2001. I had long been active in environmental groups, including helping stop the expansion of the uranium mining in Saskatchewan into refining, nuclear power plants and a nuclear waste dump. We have had to quickly raise awareness that uranium mining is the front end of the nuclear industry, and that what happened here mattered globally. We built international networks, starting with the *International Uranium Congress* held in Saskatoon in 1988 and later with the good work of Clean Green.

As the climate crisis unfolded, we had to keep from going “*from the fossil-fuel frying pan, into the nuclear fire*”, as I put it when on speaking tours with my book *Canada's Deadly Secret*.¹ Now, facing cataclysmic climate change, and an increasingly cynical and fragmenting public, we have to quickly embrace the fundamentals in the needed ecological paradigm shift. **Protecting watersheds and water is fundamental to the needed transformation towards sustainability.** Focusing on our watersheds can help us change the bottom line from suicidal economic growth, that externalizes environmental costs onto future generations, to preserving local and global environmental health.

The Fort Qu'Appelle KAIROS group became interested as the wider ecumenical movement embraced environmental as well as social justice. This group started to raise awareness about the watershed, of which very few people even had basic knowledge. At the time, few realized that the *Qu'Appelle Watershed* ended up in the Arctic. Ironically, one of the people who carried a bucket of water with us from the Qu'Appelle River to downtown Fort Qu'Appelle, as part of a KAIROS awareness campaign about the lack of water security worldwide, was Andrew Scheer, when he first ran for office. We have never seen him since.

In 2016, some remaining KAIROS activists formed the *Qu'Appelle Valley Environmental Association* (QVEA) to carry on this work. We have been busy trying to get transparency and accountability regarding local land uses that have dire implications for watershed and lake protection. We have been protecting a major marsh area within Fort Qu'Appelle from inappropriate commercial development as a big-boat marina. I think we have won this, though there remains a concerted cover-up of the conflict of interest that occurred when the Town “sold” a North Dakota energy company, Abaco, land that should have been protected as floodway. You can find the results of our in-depth research using Freedom of Information (FOI) records by going to ***The Marsh Papers*** at QVEA.CA.

We are now focusing on the climate crisis, which must be the top priority for all water-protector groups. **We now know that the prairies are warming at a much faster rate than elsewhere.** With the highest per capita carbon footprint in all of Canada, and amongst the highest on the planet, Saskatchewan residents have a particular ecological, moral and political duty to see that carbon is quickly reduced. With a provincial economy heavily dependent on high-carbon resource extraction and agricultural industries, and carbon-slacking politicians that prefer to politicize carbon pricing as a “carbon tax”, this will be a big challenge. We clearly live in the belly of the beast.

There is a lot of climate denying here. Yet the extreme weather we have already faced is clearly the writing on the wall. The climate crisis continues to unfold: B.C. had record wildfires last summer and already, this spring, while we just survived an unprecedented Arctic Vortex, and remain in a serious drought, Alberta, Yukon and Northern Ontario are facing unprecedented wildfires.

Since 2010, I wrote nearly 300 columns on “sustainability” for the *R-Town* newspaper chain. I have gone back over these to see which articles addressed the impact of global warming on our watershed. What was in these articles even surprised me. How quickly our memories fade as we try to cope with new, often unsettling, events and information. **We clearly need to base our local actions to protect our watershed on trendlines and the big picture.**

I hope these articles help. They are a snapshot on how global warming is already changing our local weather and putting our watershed at even greater risk. While this is happening, biodiversity continues to decline, worldwide, and especially in prairie eco-systems such as ours. If we don't want to see continual watershed degradation of marshes, water quality and habitat biodiversity, we need to protect the watershed from further assaults and work quickly to get sensible energy, agricultural and transportation policies and practices that quickly move us towards a low-carbon economy.

Carbon pricing will have to be one approach. Time is not on our side and procrastination is not an option.

– Jim Harding - Crows Nest, Fort San, SK; June 2019

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2010

EXTREME WEATHER: THE ELEPHANT IN THE ROOM

It's been an exceptional spring and summer, so far. Due to near steady rain, only 55 percent of the farmland was seeded by May's end. Even by June's end, after the extended seeding deadline for crop insurance, it was only 70 percent, which left ten million acres unseeded. Extreme moisture will reduce germination and maturation of some crops, further reducing crop yield. By early July, two million seeded acres were also under water, and the input costs for these fields will add further to the cost-price squeeze of farmers. And this will add to the chemical and carbon load on the land, and in the air and water.

One third of Saskatchewan's normally-cultivated land under water is unprecedented, but this was also an early warning. Powerful thunderstorms brought more heavy rains, more hail and more dangerous winds. We've had tunnel clouds and a few tornadoes and what are called "straight-line" or "plow-winds" which come from micro-bursts – downward rushes of wind from thunder clouds which can be as strong as from tornadoes. According to *Environment Canada* we've had the wettest spring and one of the warmest springs, 2.6 degrees C above "the normal", since regional records were kept in 1948. We've already had a record of extreme weather events, and there may be more to come.

EXTREME WEATHER

It started April 9th with heavy wet snow and 100 km/h winds across many locations. Wind storms continued through May, and on June 10th a severe plow-wind did damage southwest of Regina. Things did not lighten up, for on June 22nd 100 millimeters (mm) or about 4 inches of rain fell abruptly in the Maple Creek area. Upstream, around Medicine Hat, even more rain had already overloaded the South Saskatchewan River and its tributaries. Soon, swollen rivers and creeks flooded Maple Creek and washed out the Trans-Canada highway west of town. Cypress Hills Park was closed for the first time ever. Saskatchewan made the national news.

This was just the start. A June 24th thunderstorm brought 27 mm (over 1 inch) of heavy rain and hail to Regina and area in less than half an hour. Underpasses flooded and there were power outages. Luckily the storm passed and sewers held. On June 29th Saskatoon was tested even more, with 80 to 100 mm (3 to 4 inches) of heavy rain and hail over three hours, leading to flooding and power outages. Then on July 1st the Yorkton area had the super-storm; at least 100 mm of rain in less than an hour. Some say 150 mm or nearly 6 inches fell. This deluge overwhelmed the storm sewers and more than half of the homes took in water. Some basements became swimming pools and some residents had to be rescued by canoe. This was not how local people expected to celebrate Canada Day, and Saskatchewan was on the national news again.

The next day, July 2nd, a tornado hit the Kawacatoose First Nation, just north of Raymore, destroying several homes. Thankfully no one was seriously hurt, but the damage will worsen the preexisting housing shortage. *Environment Canada* reported that this may have been an F3 tornado, happening only once in every twenty of Canada's one hundred tornadoes annually. F3 tornadoes have winds from 250-330 km an hour. Saskatchewan again made the national news.

YORKTON TOUCH-DOWN

There were five news-worthy extreme weather events in just ten days! The national news likely got the attention of Prime Minister Harper's handlers, and with the Conservatives holding every federal seat in SK except Ralph Goodale's in Regina, Harper likely had to make an appearance. On July 8th he and Premier Brad Wall flew over the Yorkton area to see the damage. Harper left without commenting or taking reporters' questions; he was in a hurry to get to the opening of the Calgary Stampede.

Coincidentally, that morning federal Agriculture Minister Gerry Ritz announced \$360 million of federal -provincial spending for Saskatchewan's flood-ravaged farmers. Not wanting to be upstaged, Premier Wall later stressed that \$144 million of this, and additional flood aid, totalling \$283 million, was coming from Saskatchewan. The federal-provincial spending amounts to \$30 an acre; which NDP Leader of the Opposition, Dwayne Lingenfelter, who had already called for

\$100 an acre, called “*a slap in the face*”. There will also be a massive \$50 an acre payment in crop-insurance and perhaps other aid after harvest. According to Brad Wall there was already nearly \$300 million in home, business and infrastructure damage across the province. The Province’s Contingency Fund was quickly draining.

Farm-based income could drop by \$3 billion so the amount of domestic aid matters deeply to farmers and rural Saskatchewan. The political “numbers game” however obscures a bigger question. If Prime Minister Harper had been available for questions when in Yorkton, an informed reporter might have asked: “*Mr. Prime Minister, after what you’ve seen are you starting to change your mind about climate change?*” An informed and courageous reporter might have asked: “*Mr. Harper, will your government now stop obstructing international measures to reduce greenhouse gases (GHGs)?*” But, no, Harper was not available for any public discussion of the record-breaking rain and extreme weather events, and I’ve seen no mainstream news report on his in-and-out trip which connects the obvious dots.

ON OUR DOORSTEPS

Harper probably wouldn’t have felt comfortable discussing extreme weather. I would even bet that he and his cabinet colleagues have never opened the cover of the Government of Canada’s 2004 document, “*Climate Change Impacts and Adaptation: A Canadian Perspective*”.² In the section on agriculture several projected changes are listed, including “*increased frequency of extreme climatic events*” and “*drier and wetter conditions.*” These are not contradictory, for extreme weather includes both droughts and flooding. I’ve heard climate change deniers say an especially cold spring, such as we had in 2002, disproves global warming. Not so! The indisputable warming trend which underlies the increasingly extreme weather is measured in global mean temperature, which continues to rise as GHGs rise in the atmosphere. The trendline is clear. Of course, there will be lots of continental and regional variation, including droughts and flooding in the same areas. The world after all is not flat and weather is not linear.

The 2004 report recognizes this uncertainty saying “*increased moisture stress and drought are major concerns.*” Most vital to us in Saskatchewan, it concluded that “*climate change is expected to cause moisture patterns to shift.*” One scenario says “*precipitation is expected to increase*”, though this will “*not be sufficient to offset increased moisture losses from warmer temperatures...*” Another has moisture levels the “*same or higher than present day values*” and highlights “*areas of concern such as southeastern Saskatchewan and southern Manitoba where summer precipitation is projected to increase.*”

Based on our record-breaking moisture and extreme weather events this year, the latter scenario seems more likely. Regardless, bouts of extreme moisture and then droughts will make farming and rural life much more difficult and perhaps, in some places, unbearable. The quick rise of the Quill Lakes by unprecedented precipitation since 2005, exacerbated by widespread big-farmer illegal drainage, reflects this climate change trend line. Time will tell, but there is nothing to be gained by the Wall and Harper Conservative governments keeping their heads in the sand regarding global warming, its cause and mitigation, for it’s now right on our doorsteps.

2010: LOCAL EXTREME WEATHER FITS TRENDLINE

Premier Wall had encouraging words for us after the extreme weather events this summer. But his comment that “*we’ll weather the storm because of a strong economy*” was not just funny but rather ironic, for our extreme weather is linked to “strong” fossil fuel economies such as ours.

A few are still skeptical about the connection between the build-up of atmospheric GHGs trapping more heat in the earth’s biosphere and increasing extreme weather events. But the scientific argument is strong and the direct evidence is continually building. The *Environmental Defense Fund* notes that “*global warming will increase the frequency and intensity of many kinds of extreme weather.*” The *American Meteorological Society* and *Geophysical Union* concur that more severe storms will come with global warming. Steadily warming oceans will fuel more and more powerful hurricanes. Extreme heat will spark more wildfires and more severe heat waves. And the warming trend will intensify evaporation and drought.

These are not in contradiction. As the *Manitoba Eco-Network* says “*air laden with moisture from more evaporation will rise into the atmosphere more quickly and more often.*” And this leads to more storms with heavier rainfall overloading watersheds and creating more erosion, as happened this spring across our province. Meanwhile, accelerating evaporation from the land will create more drought-belts and tinder-box forests.

REMEMBERING MANITOBA

I wonder if it's starting to sink in that climate change is on Saskatchewan's doorstep. Perhaps after watching so much TV coverage of flooding elsewhere (e.g. in China as I write), we thought we were going to be the exception. Not so! You may faintly recall severe thunderstorms with 120 km/h winds toppling nineteen Manitoba Hydro towers in 1996. The insurance claims from that storm were the highest ever faced by Manitoba Insurance. That is, until the next year, when the “*flood of the century*” in the Red River Valley displaced 30,000 people and did \$800 million in damages. Manitoba has had several years of spring flooding that has greatly reduced the land available for agriculture, such as Saskatchewan farmers are now experiencing on a grand scale.

Perhaps you'll remember the most powerful tornado ever recorded in Canada, an F5 west of Winnipeg at Elie, Manitoba on June 22, 2007. A video shows a full two-story house being lifted from its foundation and sent flying 75 feet. This storm was related to a low front from Saskatchewan mixing with the warm, humid air over southern Manitoba. This created the perfect conditions for supercells and thunderstorms with rotating updrafts. I remember this well; the previous afternoon I had watched a supercell, which later contributed to that Manitoba tornado, form right in front of me, over Echo Lake. It was a massive, steadily-enlarging cloud, shaped like a giant on-end football with dark and light rings. It had so much energy that it seemed like an extra-terrestrial “entity” gathering force before my disbelieving eyes. It just sat there, steadily gaining size and strength, and then, in late afternoon, it started slowly moving east, finally out of sight, over the horizon. I've never seen anything like it.

UNDERLYING TREND-LINES

It seems to take extreme events like these to get our attention; we live so much of our time in the bubble that is created by our beliefs. We are all so distracted by what we consider everyday living. If we are to influence governments to act proactively to prevent even more extreme events in our and our children's future, the broader public will need to better grasp the underlying trendlines. *Environment Canada* data helps. It has already reported that this spring, Canada as a whole was 4.1 degrees C above normal, “*the warmest spring on record since nationwide records began in 1948*”. Spring temperatures have steadily warmed over the last six decades, though not as much as winter. This spring, five of Canada's climate regions set new record highs, while four others ranked among their warmest. The Prairies were 2.6 degrees C above the norm. (The warmest prairie spring was in 1977, 3.7 degrees C above normal.) The Prairies, along with three other climate regions, also “*had a wetter than normal spring*”; as it turns out the wettest on record. Meanwhile, again showing the fluctuation in weather that comes with climate change, it was “*at least 20% drier than normal this spring*”, from Ontario to the Maritimes to the far north.

Nation-wide, most springs have had precipitation “*at or above normal since 1972.*” The Prairie's driest spring so far was in 1952 when the rainfall was 42 percent below normal. This spring, the wettest on record, our rainfall was 70 percent above normal. What is “normal” is itself changing with this trendline. We used to call southern Saskatchewan a semi-arid region and people like my paternal grandfather were advised to come here so they could live more easily with asthma. If we didn't have a dehumidifier in our house this year, humidity would be above 80 percent, nearly double what is recommended to keep dwellings healthy. People with asthma suffered greatly this spring. I am experiencing more severe asthma and sinus symptoms as our seasons become less predictable.

CHECKING MEMORIES

Many of us may already be experiencing climate-related health challenges. All of us will be noticing weather changes in our vicinity. But memories aren't that good without reliable record-keeping. We may remember the Red River flood of 1997 because of its national TV coverage, but not remember the serious spring flooding in Saskatchewan that same year. The dramatic toppling of hydro towers in Manitoba in 1996 may stick in our memories more than the nine confirmed tornadoes during a storm near Saskatoon that same summer. How many of us remember the loss of farmland due to serious flooding in southwest Saskatchewan in 1999? Or one of the heaviest rains ever recorded in

Saskatchewan, the astonishing 330 mm (about 13 inches) that fell on Vanguard over an eight-hour period in 2000? Or, for that matter, the extreme heat, wildfires or hailstorms of 2006? Perhaps we may better remember the Calgary hailstorms of 1991 and 1996, or the national TV coverage of the raging floods in southern Alberta in 2005.

But some local weather events are too dramatic to forget. In 2003 we had a huge plow-wind that uprooted trees and lifted some roofs along the Qu'Appelle Valley. Our newly-constructed passive solar house vibrated as the ferocious winds and rain hit us from the west. Our gravel road from the barn to the Fort San village road was completely washed out. If we didn't have a metal roof, and if I had not attached our roof trusses with screwed-in metal brackets, I'm not sure we would have sustained the storm without serious damage.

And some things don't lie. When we bought our land in 1984 there was a trail down the coulee that was likely used for Red River carts during the last century. (We have rehabilitated two log cabins left from a Metis family homestead from the 1960s). There was no erosion at all along the trail. Now, after many downpours and rivers of melting snow rushing to the lake below, a ditch, in places 5 feet deep, is carved all the way down the coulee. Yes, we've had some years of drought and worrying about grass fires and failed gardens, and these will return, but right now the native grasses are greener and taller than ever.

Global warming is on our doorstep but it apparently hasn't yet reached the steps of the legislature.

2011

MAKING PEACE WITH NATURE

If you believed all the ads flaunting "green products" you'd think we were already on a sustainable path. You might even think that consuming more "green products" is good for the environment, which some of the ads imply. Of course, it's better to buy a car that gets better mileage. But a vehicle that produces one-half the carbon of an older model still produces carbon. Twice the car sales globally and we're back on the same unsustainable track. That is why we have to question the ideology of growth itself.

The green products ethic can be a start, especially if it pushes us towards low-carbon technology, such as renewable-energy and lower carbonplanes, trains, buses and cars. But this shouldn't be confused with a sustainability ethic, which involves much more. Our collective mind-set has to change for us to want to get on a sustainable path; in particular we need to alter how we see ourselves in nature. Sustainability ultimately requires that we make peace with nature.

We make war with nature when Fukushima's reactors have meltdowns and spew carcinogens into the biosphere (from Saskatchewan uranium, by the way). We make war with nature when chemical agriculture and oil spills create more ocean dead zones and when we fill the oceans with ever-more plastics. We make war with nature when we spread toxins into the world's food chains. And there will be inevitable blowback; our toxic body burden increases with each generation.

This may sound slightly "biblical". Fundamentalists of various religions think of their God as being punitive; but it is deceptive to think of natural systems in this way. Nature isn't revengeful, though natural systems definitely respond to the impacts of our ignorant and neglectful practices. And awakening to this non-human process is a spiritual as well as a social and economic imperative. But what kind of religion justifies sacrificing creation for the short-term economic gain of a disproportionate few?

NATURE'S BLOWBACK

How can you look at what Alberta's tar sands are doing to the land, water and air and not see an assault on nature? Alberta's government has subsidized and encouraged the rapid pace of tar sands"development". But it won't admit that there's probably a relationship between the mega forest fire that enveloped the community of Slave Lake and the increasing carbon going into the atmosphere from mega-fossil fuel extraction projects.

Was it simply a freak of nature in 2012 that five hundred homes and businesses were destroyed as 7,000 Slave Lake residents fled the fire? Or was the magnitude of the fire a natural outcome of the global warming trend towards drier

forests and more and larger fires? As is happening across Canada, forest fires in Alberta have been increasing since the 1970s; doubling to 1,811 by 2010. Already this year there have been 471 fires, but, most important, these have already burned 264,000 hectares or three times the 2010 total. According to Professor Mike Flannigan of the University of Alberta, interviewed in the May 21, 2011 *Globe and Mail*, this is "...consistent with what we expect from climate change." Fighting Canada's forest fires has risen to cost nearly one billion dollars a year.

And what about the extreme spring run-off flooding that's hit cottage country along the Qu'Appelle lakes, and put even more farmland under water in Manitoba's Red River Valley? What about extreme flooding along the Richelieu River in Quebec? Should we also be connecting the dots between the higher frequency of flooding here and abroad and climate change? After all, the rising temperature of the atmosphere enables it to hold more moisture. And more of this moisture has been falling in the southern areas of Canada. Depending on the jet stream, which is oscillating more with global warming, far less moisture can sometimes get north to the boreal forest, which is then more prone to fire.

Prairie flooding and forest droughts seem counter-intuitive; but it's the extreme weather scenario predicted by climate change science. And what of the much more powerful and deadly tornadoes, such as recently occurred in Missouri? Shouldn't we also be connecting these to the climate crisis?

FROG IN BOILING WATER

We'd better! We are acting a bit like the frog swimming nonchalantly in a slowly heating pot of water. Unable to establish a baseline and take action to avert the approaching catastrophe, the frog boils to death. We pretend we have created baselines for atmospheric GHGs, in international agreements, but then we move the goal posts. We may not be much smarter than the frog because our bigger brain just seems to get filled with more illusions about our ability to dominate nature and about perpetual economic growth being the path to collective wellbeing. Many Canadians let the 2011 federal election go by without demanding any fundamental discussion of extreme weather, even though unprecedented flooding was occurring across southern Canada. Harper has now won a majority government by appealing to many of our illusions about security. The insurance industry sees the climate change trend; how is it that we still let our politicians off the hook?

There is something very, very wrong. It will be our children who will face the biggest burdens from a lack of action. Yet they had no real say in the 2011 election outcome. And most voters wanted progressive change; less than 3 of 10 eligible voters wanted to keep Harper's status quo, which was erroneously equated with personal security. What kind of personal or family security can there be in a world where flooding, droughts and storms increase?

Natural security is quickly becoming national security. Food security and access to safe drinking water will decrease in a status quo world. Those who grow food for market or who garden have already noticed changes on a local or regional level. Due to extreme moisture last summer, like a lot of gardeners, we lost all of our greenhouse tomatoes due to blight and slugs. It's the first year, ever, for this. This spring is the first ever where our garden wasn't completely in by the May long weekend; the soil was still too wet and cold to plant. Imagine this on a larger scale. Imagine trying to eke out a living in Pakistan, where one-third of the country is presently under water. Imagine what it is like in northern Japan, now facing massive flooding after the earthquake, tsunami and nuclear disaster at Fukushima. Yes, we must think globally and act locally. And act quickly!

Energy, water, food and health are all inter-connected in ecological science and in our experience, if we'll take time to really pay attention. The unsustainable fossil-fuel based economy and governments that subsidize this are fueling counter-productive, and dangerous climate trends. We have the knowledge and knowhow to begin to reverse this, but it seems we have to want to make peace with nature to proceed. Until we realize that the traditional industrial and extraction economy is waging a sort of undeclared war on nature, which will bring blowback on our children's children, we will remain like the frog in the pot.

But we can always buy more "green products" as we tread in the water that is quickly coming to a boil.

2012

ELIMINATING THE SHELTERBELT PROGRAM IS BAD ECONOMICS

In the April 2012, budget, Prime Minister Harper announced a \$250 million cut to Agriculture, which quickly filtered down to the rural constituencies that, for the most part, voted for his Conservatives. The Saskatchewan town of Indian Head woke up to find that the *Prairie Shelterbelt Program*, operating since 1901, was eliminated. This cut was made without any rural consultation, similar to the cutting of the *Canadian Wheat Board*, which was done without the farmer-owner vote required by existing federal legislation.

The elimination of the shelterbelt program directly affects the income of 80 families and thousands more will be affected across the prairies. According to the government's own figures, in spring 2011 the shelterbelt program shipped nearly 3 million seedlings to 7,500 rural people to create an additional 1,200 km of field shelterbelts, 2,218 km of yard and 134 km of riparian shelterbelts. The 28 different deciduous and coniferous species went to 37 distribution points in Saskatchewan, 40 in Manitoba, 67 in Alberta and 2 in B.C. These will protect nearly 16,000 hectares of fields, over 200 hectares of wildlife areas and nearly 700 farmyards.

This is in just one year of operation. Since its founding over a century ago the program has had an enormous impact on rural quality of life, land conservation and prairie biodiversity. Since 1901 it has shipped over 600 million seedlings to nearly 700,000 persons. I am one of them. At my father Bill's initiative, our family planted caragana shelterbelts around a field we were taking out of chemical farming. The hardy shelterbelt now holds snow, reduces wind erosion and provides bird habitat in our hay field overlooking the Qu'Appelle Valley. Shelter-belt buffers along the whole valley wall would help reduce chemical-laden drainage into this watershed.

PUBLIC MEETING

On May 16, 2012 several hundred people crowded into Indian Head's Memorial Hall for an information session on the cuts. No one from the Harper government turned up to explain their actions. Agriculture Minister Gerry Ritz sent his regrets and local MP Andrew Scheer sent his assistant, Joan Baylis, to read a short letter saying he couldn't attend because Parliament was in session.

This was a lame excuse; other MP's regularly return to their ridings when parliament is sitting to discuss government decisions with major ramifications for the area they represent. The elimination of the shelterbelt program has severe implications for people in the riding that Scheer represents and for the Prairie Provinces in general. In his short message Scheer simply said he'd "*stay active on this file*" as if that would excuse him from not showing up. I overheard one person later refer to Andrew as "no-show Scheer". Another stated that cutting the shelterbelt program was "Scheer folly."

Rather than sending Minister Ritz or MP Scheer, the Harper government sent bureaucrats to front for them. Mr. Jamshed Merchant, Assistant Deputy Minister (ADM) for Agriculture and Agri-Food and Mr. Henry de Gooijer, Manager of the Agro-forestry Development Centre, spoke briefly and then took prepared questions from a small panel. This included Scott Wright, Director, Agriculture's Applied Technology Division; Bruce Neill, retired Centre Manager and Lorne Scott, Reeve for RM 156.

I listened closely to their justifications and they talked in circles, continually contradicting themselves. The ADM talked of how Harper was "*transforming the way we do business*", was "*reducing the footprint*" of government, and was initiating "*new priorities*". He made no specific mention of the shelterbelt program; it was all bureaucratic lingo. While admitting the program had helped pioneers and tackled soil erosion in the dirty thirties, Mr. Merchant claimed "*the time is right for the federal government to step out*" of the program.

Canadians should be able to expect public servants to deal more objectively with such decisions and to avoid the babble that is often used when politicians feel heat. But the ADM didn't even refer to the government's own facts, available in a leaflet on a table as you came into the meeting. The facts showed the continuing demand for the program. The facts

contradicted most of what the ADM said. If the shelterbelt program had not met its objectives then why, in 2011, did the front desk receive 5,400 inquiries and mail out 12,000 brochures?

There was no response when past Manager Bruce Neill noted the massive carbon sequestering resulting from the program. The government's own figures suggest that by 2061, the 2011 seedlings alone will have sequestered 1.06 mega-tonnes of CO₂; that's a lot of carbon. Nor was there any acknowledgement of the economic contribution that shelterbelts make. According to the government figures, the crop benefits for the 1,200 km planted from the 2011 seedlings is estimated at \$1.9 million and the value placed on the conservation of topsoil over the next 30 years is \$14.2 million. Apparently, to the Conservatives, the natural world has no value. "*Oil not soil*" could easily be their party's motto.

ECOLOGICAL ECONOMICS

We must put agriculture in its real, natural context and honestly cost the positive contributions that ecological preservation makes to food production. Water and soil conservation and biodiversity have real, measurable benefits for farmers. Just how do you justify cutting a \$2.2 million program when the environmentally-induced benefits from just one year are eight times greater? By ignoring ecological economics.³

Furthermore, the shelterbelt program has growing value in the face of the urgent challenges of the climate crisis and the important role that biomass can play in sequestering carbon and producing renewable energy. But, fixated on oil exports, Harper can't see the forest for the trees. Nor are his political underlings, like Scheer, going to learn anything, including about being a good representative, by avoiding public meetings. One way to ignore facts is to not be exposed to them, which seems to be Scheer's way.

This decision doesn't just reflect bad economics; it reflects Harper's neo-liberal ideological objective of removing government from vital public services. De-regulation and privatization go hand in hand with this. The preference of the Harper government is for a private for-profit firm to take over the shelterbelt program, gaining public assets at bargain-basement prices. If no viable business plan is forthcoming then the program will simply go. That Harper is only allowing a 5-month horizon for an alternative plan shows the low priority and lack of foresight given to this decision.

Those running the Indian Head program were never given the option of cost-cutting to help reduce the federal deficit. And there were other practical alternatives. Harper didn't touch the estimated \$1.4 billion a year subsidy going to the oil and gas industry. Just a 10% cut in this, to match the 10% cuts demanded from departments, would have provided \$140 million to enable Harper to preserve unquestionably beneficial programs such as this one. But Harper does not like facts and certainly doesn't listen to scientists. He's now also announced eliminating *Canada's Experimental Lakes Area*, one of the most important fresh water research programs in the world.⁴

PRESERVING DEMOCRACY

Harper's justification of every cut as being necessary to reduce the deficit is a smokescreen for his agenda. The public would have had a lot to say about this at the Indian Head meeting, but, for some unexplained reason, the organizers wouldn't take any questions or comments from the floor. Regardless of the highly controlled format, the public's sentiments were forthcoming. There was loud applause three times: first, when local Reeve Lorne Scott laid out the economic and environmental benefits of the program and asked the ADM just how much was really going to be saved; second, when the retired Centre manager, Bruce Neill, asked why the Centre wasn't given any option to contribute to cost-cutting; and third, when Lorne Scott asked why Minister Ritz and MP Scheer weren't present to explain themselves.

If future meetings are publicized as "public", the public must be free to participate. We can't allow the contempt for parliamentary democracy being shown by Harper to filter down to erode grassroots democracy. Canadians at large need to defend their right to fully participate in the political process and to hold politicians to account, especially when they make such ill-conceived, ideologically-motivated decisions. Otherwise, Harper cuts doubly: he cuts valued programs and he cuts public participation in one fell swoop. What we need to do is to cut the crap, as we take all possible measures to cut carbon.

2012: WHY MOST SASKATCHEWAN PEOPLE OPPOSE FRACKING

A recent *Environics* poll found that most Canadians (62%) support a moratorium on the use of “fracking” or hydraulic fracturing as a way to extract natural gas.⁵ Support for such a moratorium was slightly higher (64%) in SK. Why is the opposition to fracking growing so quickly here and elsewhere?

Hydraulic fracturing involves the pumping of vast amounts of water, up to 7 million gallons, with sand laced with huge amounts of toxic chemicals, into shale rock containing natural gas. This is pumped under very high pressure, as high as 9,000 pounds per square inch to create fractures. The gas is then extracted through the fracking well.

Industry has steadfastly resisted public health pressure to release information on the toxic chemicals used in their fracking. Calling this a “trade secret”, they appear indifferent to the implications for environmental health. This is a classic example of the planet-wide battle between corporate “property rights” and the quest for sustainability and protection of the commons.

We now know that the chemicals used can include chlorine, benzene, glycol, ethers, methanol, naphthalene and tetramethylammonium. Some have been linked to cancer or can harm our blood, cardiovascular and nervous systems. The amount of toxic chemicals used in one fracking operation can be over 200,000 litres, which is cause for great environmental concern. These chemicals also endanger the habitats of other creatures.

Some researchers believe fracking is an assault on future generations, on sustainability itself. You can read Bill McKibben’s piece, *Why Not Frack?* in the March 8, 2012 *New York Review of Books*. Also, a book by Tom Wilber, *Under the Surface*, was just published by Cornell University Press.

Due to these threats, fracking has already been banned in Quebec. The U.S. state of Vermont has also banned fracking due to many negative environmental health effects. The United Kingdom has suspended fracking because it’s been linked to minor tremors.

DRINKING WATER

The U.S. *Environmental Protection Agency’s* (EPA’s) first thorough study of the impact of fracking on water quality was done in the Wyoming town of Pavillion which is near many fracking operations. It concluded that there was “*direct mixing of fracking fluids with ground water*”, which led to an order to stop using well water.⁶ The fracking fractures also allow underground methane to contaminate drinking water sources. This has resulted in tap water that burns when lit, as shown in the documentaries *Gasland* and *Burning Water* and the U-Tube film *The Sky is Pink*.

Further, the injected chemical-laced water doesn’t all stay underground. When some is “regurgitated” back to the earth’s surface it brings toxic chemicals with it. It also brings toxic elements previously trapped in the shale rock. Oil traces, chromium, radium and a lot of salt can get into streams and rivers. U.S. environmental journalist Ian Urbina has revealed that radioactivity is being brought to the earth’s surface by fracking.⁷

The toxic fumes coming from the fracking wells also pollute air. Due to the thousands of wells allowed in Wyoming, the state no longer meets federal air quality standards. (Albertans already know what the oil and gas industry can do to air quality; Saskatchewan people are slower to catch on.) Fracking is now also being linked to earthquakes. Ohio officials believe that a 4-point 2011 earthquake likely resulted from the multitude of deep injection wells. Arkansas and Oklahoma also report tremors from fracking. There is now concern that all the fracking for natural gas in northern B.C. is increasing earthquakes. The U.S.’s *National Research Council* has concluded that storing carbon underground (carbon capture) can also trigger earthquakes.

ASSAULT ON THE UNDERGROUND

Industry and pro-corporate governments which are neglecting environmental protection are treating the underground with the same disrespect that has been shown towards the atmosphere and oceans. Rather than make the necessary shift towards sustainable energy, the fossil fuel industry is trying to preserve its profitable market by promoting underground carbon capture, used to enhance oil recovery, and the use of fracking to retrieve more natural gas. Ecologically-valuable aquifers are now at great risk from the climate-altering extraction industry.

Meanwhile the U.S. is facing leaks from its nearly 700,000 waste and injection sites. As David Suzuki reported in a recent *R-Town News column*, from 2007 to 2012 there was one well integrity violation “issued for every six deep injection wells examined”, which amounted to 17,000 violations in the U.S. “More than 7,000 wells showed signs that their walls were leaking”, he noted.⁸

The Harper Conservative government is consistently hostile to scientific evidence. Under Harper, Canada is quickly following the same path as the U.S, treating the underground as a new dump site for the fossil fuel industry, as well as for the nuclear industry. Harper and Alberta have partnered with large corporations like Enbridge to develop carbon capture. Suzuki reminds us that such government-corporate partnerships will leave the Alberta taxpayers liable for any contamination that results, another example of “privatized profits and socialized costs.” The Sask Party government has now partnered with SNC-Lavalin to do carbon capture. Under Harper, SNC-Lavalin also got the privatized assets of the Atomic Energy of Canada Ltd. or AECL.

SASKATCHEWAN FRACKING

The natural gas industry promotes itself as a more environmentally friendly energy than the other fossil fuels, coal and oil. While it’s true that the burning of natural gas produces one-half the CO₂ as coal, natural gas is mostly methane (CH₂), which is a more potent greenhouse gas than CO₂. Don’t be fooled by the “natural” in natural gas. Water is “natural”, too, but it can lead to deadly flooding and landslides. The U.S.’s *National Centre for Atmospheric Research* says a switch to natural gas “would do little to solve the climate problem.” The same has been found with nuclear energy, which is no “quick fix”, and as Fukushima shows, carries its own global environmental dangers.

The push for natural gas is no solution to the challenge of sustainability. The longer we take to make the full conversion to renewables the more toxic we’ll leave the earth for future generations. And Saskatchewan is not only falling behind on renewables but is at the front of the pack for expanding non-sustainable energy sources. Fracking is widespread and exploration for heavy oil and expansion of uranium mining are on the upswing here. Without any regard for what’s happening elsewhere, the assault on the underground continues.

Fracking is widely used for oil recovery in Saskatchewan. According to *The Council of Canadians*, using information from the *Canadian Association of Petroleum Producers*, by 2013 there were over 3,000 active wells in the Bakken fields in southern Saskatchewan.⁹ Saskatchewan’s *Mines and Resources* reports that fracking has been used 33,500 times in oil and gas wells over the past 50 years. There were nearly 9,000 new fracked wells between 2000-2005 and nearly another 8,000 from 2005-2010. This is occurring without firm knowledge about the impacts on aquifers, watersheds, lake chains and groundwater that we, as prairie people, so depend on.

WHY BAN FRACKING?

It’s therefore time to alert the wider public about the hazards of fracking, before the Sask Party government expands this practice and we end up in the situation like Wyoming. A ban on fracking will protect valuable future water sources and our children’s health; it will encourage us to move more quickly towards sustainable energy sources. It will encourage us to shift from economic activity based on extracting toxic non-renewables to a more balanced economy.

Can growing public opinion calling for a ban on fracking get any political traction? Will the opposition NDP pick up on this growing public concern? What will it take to get politicians to not just look at short-term revenues and corporate profit, but to consider the bigger picture? What will it take to put morality and concern for the future back into politics?¹⁰

2012: QU’APPELLE VALLEY LAKES TAKE BACK SEAT TO REGINA STADIUM

For decades Regina’s poorly treated sewage has degraded eco-system health downstream in the Qu’Appelle Valley. Regina’s refusal to prioritize modernizing its wastewater treatment means that people downstream sometimes can’t swim safely, eat the fish or even boat. The wellbeing of Indigenous and settler people who make the valley their home is being disrespected. And there is no excuse; for years Peter Leavitt and his associates at the University of Regina have

shown the major role Regina's sewage plays in degrading this waterway. Meanwhile, rather than biting the bullet and upgrading the system, Regina politicians prefer to make a multi-million-dollar new stadium their highest priority. Out of sight, out of mind!

Metal contamination increases with the growth of agriculture, industry and urbanization. Most of the catchment area for the Qu'Appelle River drainage basin includes industrial exposure – e.g. a steel plant, oil refinery, fertilizer plant and potash mine near Regina. Metal contamination from erosion is increased by agricultural tilling, irrigation, drainage and use of chemicals; coal plants and waste incineration send metals into the atmosphere which also find their way into fresh water.

Metal pollutants accumulate in lake sediment and eventually enter aquatic food webs. Leavitt's research suggests that small aquatic invertebrates in the Qu'Appelle system “*may have been exposed to damaging levels of toxic metals for 100 years*”. This research concludes that “*overall, potential toxic metals from urban and industrial sources accumulate significantly within invertebrate diapausing (dormant) eggs, while less toxic metals preferentially accumulate in the sediment matrix*”.¹¹ The more toxic metals include cadmium, chromium and molybdenum.

Sediment analysis suggests that 70% of the nitrogen pollution in the Qu'Appelle waterways comes from Regina. (Most of the phosphorous likely comes from agriculture.) This elevated nitrogen influx results in heavy algal blooms which can elevate to toxic levels. This excessive algal growth can deplete oxygen levels in lakes and result in mass die-off of fish and other aquatic organisms. Pasqua Lake, the first lake, 175 km downstream from Regina, is the most heavily affected. In earlier research it was estimated that this fairly shallow lake contained about 300% more algae than in pre-colonial times; currently it's estimated to be 500%. Most nitrogen gets sequestered in lake sediment but nutrients are passed downstream when saturation occurs, first to Echo Lake, where we live, then to Mission and on to Katepwa. This is chronic as I write!

There are other pollutants from Regina. *Environment Canada* found personal care products, like aspirin derivatives and some antibiotics downstream.

REGINA'S IRRESPONSIBILITY

The last time Regina made a major upgrade of its wastewater plant was in 1977, to include tertiary treatment, i.e. “clarification” to remove phosphorous. Thirty-five years later this is no longer “*state of the art*” and the City has fallen far behind the treatment standards of other prairie cities. City politicians have had other priorities, like Harbour Landing and a new Roughrider stadium.

I have some personal experience with this matter. When I represented the inner-city ward on Regina's City Council in the mid-1990s, meeting at a session on capital budget, I raised the need for forward planning for upgrading water treatment. I was told in no uncertain terms by Mayor Doug Archer that with property reassessment coming, suburban taxes would increase and most councillors would lose their seats if we dared include these capital costs. Councillors agreed in word or by silence and the matter was dropped. I stood completely alone on this matter. And now the taxpayer will end up paying even more because of the political procrastination. This also applies to global warming, where the longer we wait to reduce carbon, the more costly the global impacts will be.

I'm not privy to how this matter was handled during Mayor Pat Fiocco's term. City officials claim they have budgeted for the wastewater upgrade, yet nothing significant has yet happened. The City is now looking at selling its poorly treated wastewater to a potash company south of Regina, while another potash company has indicated it wants to remove water directly from the Qu'Appelle lakes. But what would all this “pragmatism” do to the downstream flow and water quality in the Qu'Appelle lakes?

So here we are in 2012 with Regina the only major prairie city not to have upgraded its sewage treatment. The cost of doing this has continued to rise and could now be as much as \$200 million. In its 2012 budget the City only budgeted \$19.6 million for wastewater upgrades.

Aquatic eco-system protection simply must be implemented quickly. However, Regina's present mayor and council seem to be trying to end-run the electorate by approving much more spending to build a new stadium with hardly any public input. *Mosaic Stadium* has just had a \$14 million upgrade to prepare it for the 2013 Grey Cup and right after it is going to

be torn down. What a waste of energy and all this with a big carbon footprint. The proposed new stadium will have about the same seating capacity as Mosaic Stadium. Its total cost, including loan interest and maintenance over a 30-year period is estimated to be \$675 million. This amount does not include cost overruns.

The province will contribute an \$80 million grant and the Roughriders will only have to pay \$25 million mostly from corporate sponsorships. According to Regina City Council's funding plan, \$300 million will come from the pockets of Regina taxpayers, who will be required to pay a 0.45% increase in property taxes each year for 10 years. Forced to foot this bill, how will Regina's taxpayers view spending the millions now needed to stop contaminating the Qu'Appelle Valley waterways?

Mayor Fiacco announced the new stadium at a Roughrider game, saying that "*users will pay*", suggesting that raising the facility fee for games by \$4 will cover the provincial loan. Yet only \$100 million of the total \$675 million will likely come from this. Sounding a little like Prime Minister Harper, who also sidesteps democratic due process, he said "*we were elected to make decisions*", while ignoring that stadium upgrades in 1977 came after a plebiscite. When asked about the fact that general taxes will go up, a City official spoke of "*delivering a quality of life in Regina*", drawing an analogy to public transit which, like the stadium, is not used by everyone. No mention that public transit also reduces the per capita carbon footprint.

BREAD AND CIRCUSES

And what about the quality of life downstream from Regina's effluent?

When you go to the City's web page there's mention that an upgrade of sewage treatment will be required by the Province by 2016 and by the feds by 2020, and yet there are no no-strings attached government grants forthcoming for this. Why is the Province guaranteeing \$80 million for a Regina stadium while ignoring Regina's sewage pollution?

And why is the City not stringently lobbying for such assistance? If anything, it leaves the impression that the main problem with sewage is persisting odour. It doesn't mention its role in polluting the Qu'Appelle Valley lakes. Is this because admitting this would bring into question the half-truths and disinformation that "*the lakes have always had high algae*." A 1999 City report even alleges that "*the City is a leader in treating wastewater*". Tell that to the residents and cottagers living along Pasqua or other Qu'Appelle Valley lakes.

The City's diagram on waste treatment highlights its sediment removal, aerated lagoons, clarification and UV disinfecting and then ends abruptly, showing only an arrow for the discharge of its poorly treated effluent into Wascana Creek. For those living downstream this arrow is where the contamination begins. Out of sight, out of mind, even in its diagrams.

How did protecting eco-system health in this major recreational waterway become less important than a new football stadium? Is bread and circuses more important than clean water and sustainability?

2012: LAKE WINNIPEG'S DEGRADATION IS A PRAIRIE-WIDE CALAMITY

Chemical agricultural contaminants and Regina's poorly treated sewage are degrading the Qu'Appelle Valley lake chain. This is a microcosm of a much larger and more devastating trend on the prairies. Waterways in southern Saskatchewan are part of the huge Lake Winnipeg drainage basin which covers one million square miles stretching across the three Prairie Provinces, part of Ontario and four U.S. states. What's happening downstream from Regina's sewage, in the Qu'Appelle lakes, is happening on a more massive scale further downstream, as more pollutants from the vast Great Plains Basin flow into Lake Winnipeg.

Lake Winnipeg is the 10th largest freshwater lake on earth; it's now better known as the most chlorophyll-polluted lake on the planet. Massive algae blooms, covering up to 15,000 square km, now "strangle" Lake Winnipeg. These have increased by up to 500% since 1900. The eutrophication degrades aquatic biodiversity and creates deadly blue-green algae (cyanobacteria) which has increased massively just since the 1990s. Canada is not just getting a bad environmental

reputation for the tar sands; Lake Winnipeg is among the most ecologically-compromised of the world's great freshwater lakes.

This has resulted from fast, vast transformations in prairie land uses. This is extreme in Alberta, the upper headwaters of the Lake Winnipeg basin, where we see "productivity" threatening the carrying capacity of the land. According to Robert Sandford, writing about "*An Unexpected Water Crisis*" in the September 2012 *Literary Review of Canada*, yearly Alberta produces 2 million head of cattle, 3 million swine and 120 million kg of poultry. Add to this 35 million tonnes of crops and 25 million cubic metres of timber. There is also 160 million cubic metres of natural gas, 80 million cubic metres of bitumen, 35 million cubic metres of conventional oil, and 35 million tonnes of coal. Alberta also produces up to 1,500 petajoules of electricity annually.

All of this production in Alberta exploits and degrades water. What Harper's government presents as the model for Canadian "jobs and growth" is actually a recipe for the quick ecological and social decline of the West. And such agricultural, industrial and urban contamination is expanding throughout the Lake Winnipeg drainage basin, including within Saskatchewan, now dubbed the "new Alberta", as the Sask Party opens up the province for more toxic resource extraction. At least Alberta's big cities have upgraded their sewage treatment systems. Regina has not yet done this.

DESTROYING LANDSCAPE

The U.S.'s *National Academy of Science* has chronicled how "*land-cover changes*" such as deforestation, wetland destruction, urban expansion and engineering of the landscape through irrigation and water diversion are increasing the intensity of flooding and droughts. Such unsustainable processes are quickly advancing on the prairies, where up to 90% of the wetlands in the Lake Winnipeg basin have been drained. Netley Marsh, which used to cover 75 square km, is increasingly flooded. *Manitoba Hydro* denies that this is deliberately done to keep water high to generate electricity. Wetlands act as sinks for nutrients like nitrogen and naturally purify run-off water; they provide a priceless ecological function ("service") that is given little or no value in the quest for short-term economic growth.

You can't continue abusing the land, atmosphere and oceans without ecological blowback. Thankfully recent polling shows that only 2 % of Canadians are now all-out climate change deniers. Some of them must be in the provincial and federal cabinets, for their decision-making regarding water and energy doesn't incorporate climate science. This knowledge needs to sink in quickly. From 1948-2007 the mean temperature in Canada increased by 1.3 degrees C. The country is wetter than in the 1950s and heavy rainfalls occur much more frequently. The intensity and damage from more frequent and intense thunderstorms, such as we saw over this last summer, are getting more like coastal hurricanes. The Arctic melt is occurring faster than in previous "worst case" scenarios. Are we ready for more intense droughts and forest and grass fires?

Three-quarters of natural disasters involve the cycles of evaporation, condensation and precipitation that perpetually occur on this ocean-covered planet. We are already facing increased uncertainty about how these global hydrological systems will affect the prairies. Forecasts about Lake Diefenbaker and the water volume in the Qu'Appelle and Saskatchewan Rivers did not prove very predictive before the 2011 flood. This flooding flushed an unprecedented amount of contaminants and algae nutrients into the Lake Winnipeg basin; urban and cottage sewage, excrement from livestock and wildlife and massive agricultural chemicals went into the drainage system. If we want our grandchildren to swim in these lakes, we'd better get our collective act together, and soon.

ATMOSPHERIC RIVERS

Hydrological instability now stares us in the face. This is primarily because the capacity of the atmosphere to hold water goes up with rising temperatures, which mostly come with increasing carbon pollution of the atmosphere from the fossil-fuel based economy. There is about a 7% increase in water-holding capacity with each 1 Centigrade degree increase.¹² Global warming will bring rains of longer duration and greater intensity, a pattern we already see here as elsewhere.

Climate scientists now talk of "atmospheric rivers", massive currents of water contained by warming air that can dwarf continental river systems on the land below. When these rivers overflow their "cloud banks", they flood river banks on the scale that we saw in Pakistan and Australia in 2010. Such unprecedented flooding continues on, somewhere, on this stressed planet.

Meanwhile, we waste and over-consume water in comparison to all countries, other than the US. Many people elsewhere daily consume the amount of water that we use in one toilet flush. But our emerging water crisis comes from something more systemic. The widespread view that we have unlimited water for our relatively low population is purely deceptive; Canada is already exploiting most surface waters and is mindlessly exploiting groundwater without adequate knowledge or concern for future generations. Lake Winnipeg is a huge “wake up call”. Who is listening?

Facing these new economically-rooted realities and challenges is what sustainability is all about. We must preserve and restore natural systems that provide priceless eco-system “services”. Achieving more hydrological predictability and natural security depends on it. This means halting wetland drainage, no matter how small, and shifting to more ecologically-resilient and protective agriculture. It means quickly shifting to renewable energy that doesn’t further degrade the landscape and contaminate waterways and the atmosphere. It means restoring lakes, large and small, from Lake Winnipeg to Saskatchewan’s Pasqua Lake, that are “being strangled” by industrial and urban pollutants.

There are success stories. Lake Constance, straddling three European countries, has been restored over 30 years at a cost of \$2 billion. This primarily required reducing agricultural run-off and improving standards and practices for urban waste water treatment. Does this sound familiar? It should, for it’s what is so urgently needed in southern Saskatchewan. Just how can the Province justify \$80 million dollars to Regina for a new stadium while providing nothing for the city to upgrade its sewage treatment? Or to address ecologically-damaging agricultural drainage?

Restoring the ecological health of Lake Winnipeg will be a much larger national challenge, for it is 45 times bigger than Lake Constance, but we must get on with it. Harper’s hostility towards science and his environmental cuts and deregulation won’t help.

We are slowly learning how economic systems in the past degraded regional natural systems, which in turn brought devastation to social and cultural systems. For the first time in human evolution this process is occurring on a global scale. When we look at how we use and treat water on the prairies, and what has happened to Lake Winnipeg, we see that regardless of the party in power, “business as usual” is neither viable nor acceptable.¹³

2013

COULD THIS SPRING’S FLOODING BE ANYTHING LIKE 2011?

Sometimes people talk about the 2011 spring flood as if it were just part of an ongoing “natural” cycle. Some who were around for past floods, compare 2011 to the severe floods of 1974 or even 1955. As a teenager in 1955 I well remember canoes going down Regina streets near the overflowing Wascana Creek.

Some record high runoff levels still stand from these floods; the highest recorded levels for Buffalo Pound and Wascana Lake were in 1974. And, even after the 2011 flood, the 1955 record levels stand for Last Mountain, Round and Crooked lakes in the Qu’Appelle Valley. On the surface then it doesn’t seem that the 2011 flood was particularly special. Until we carefully look at the figures!

The *2013 Spring Runoff Outlook* from the *Water Security Agency (WSA)* includes statistics on “*Lake Levels at Selected Lakes and Reservoirs in Saskatchewan.*” This includes information on “*normal summer levels*”, “*recorded historical extremes*”, 2011 and 2012 peak levels, as well as 2013 forecasts. These are all reported as meters above sea level.

The recorded historical extreme for Crooked Lake remains 454.38 meters in 1955. That same year, Round Lake reached its highest level of 445.3 meters and Last Mountain Lake reached 492.09 meters. In 1974, Wascana Lake and Buffalo Pound reached their recorded historical extremes, 572.23 and 511.45 meters respectively.

There are other peak years for other Saskatchewan water bodies. In 1979 the Boundary and Cookson Reservoirs reached their historical highs of 561.15 and 753.35 meters. In 1985 Jackfish Lake had its historical peak of 530 meters. Anglin Lake had its historical extreme of 515.84 meters in 1994 and in 1997 Reindeer Lake reached its recorded historic high of 336.8 meters, which came after summer downpours. In the spring runoff of 2007, Wakaw Lake reached its highest level

of 509.9 meters and in 2010 Good Spirit Lake reached its historical extreme of 485.68 meters, again from summer downpours.

Eight of the 23 monitored Saskatchewan water-bodies had their historical extremes in the 30 years between 1955 and 1985, whereas in the 28 years since, 15 water-bodies reached their highest recorded level. But, most noteworthy, **11 of these 15 water-bodies set their historic peak highs just two years ago in 2011**, most after spring flooding, a few after summer downpours: Lake Alameda - 568.58 meters (summer), Lake Diefenbaker - 556.90, Echo and Pasqua Lakes - 480.98, Fishing Lake - 530.92, Katepwa and Mission Lakes - 479.58, La Ronge Lake - 364.98 (summer), Lenore Lake - 527.79, Moose Mountain Lake - 621.71, and Rafferty Lake - 554.05 meters (also summer).

The 2011 spring flood was clearly exceptional, but are there simply big weather cycles or is something else happening? Will the spring 2013 runoff extend a pattern of evermore extreme flooding, including from summer super-rains, as seen in other places on the planet?

Perhaps it's too soon to know but in their March 5, 2013 forecast, the WSA says the "*Areas around Moose Jaw, Regina, Melville, Saskatoon and North Battleford have potential for very high runoff.*" They report that there's "*very high*" snowpack, **over 200% above the normal**, in central southern Saskatchewan, a large area running from Moose Jaw to Regina to Indian Head. The same conditions are reported in a smaller area north of Saskatoon and southwest of Prince Albert. And all around these areas of "*very high*" snowpack, snow levels range between 150-200 % above normal.

There's going to be a lot of snow melting and running into the fairly few river basins in southern Saskatchewan. It might even set some new records, for example in 2013 some lakes are forecasted to be fairly close (within 0.2 meters) to their highest recorded levels. This includes Anglin Lake (515.7 meters), Boundary Reservoir (561), Lake Diefenbaker (556.8), Jackfish Lake (529.9) and Wakaw Lake (509.7).

The WSA qualifies its forecasts, saying it all depends on the melt and whether there is more snow or rainfall in the spring. But if we look at the Assiniboine and Qu'Appelle River basins, the warning is fairly clear: "*...the existing snowpack in the Qu'Appelle River basin is well above normal. Typical spring precipitation and a typical rate of melt is expected to produce flows approaching those experienced in 2011.*"

HISTORIC FLOWS

Can the historic and forecasted flows tell us anything about potential flooding this spring? The historic flows on the Assiniboine River were set in 1995 at Sturgis (111 cubic meters per second), Canora (247 m³/s) and Kamsack (488 m³/s). The 2011 flows at these points were far above the average: 91 m³/s compared to an average of 28 at Sturgis, 234 compared to an average of 29 at Canora and 369 compared to an average of 59 at Kamsack. The 2013 flow forecasts (70 m³/s at Sturgis, 75 at Canora and 170 at Kamsack) are all well below both the historic high and the high 2011 levels.

The Qu'Appelle River basin tells a slightly different story. The historic high flows were in 1974 for various sites: Lumsden, Craven, Thunder Creek, Burdick, and Regina. Near Abernethy the historic flow was in 1976, for Spy Hill it was in 1995 and for Boulder Lake it was in 2006. However, near Loon Creek, Hyde and Welby, the historic flow was in 2011 (163, 254 and 345 m³/s respectively). The 2013 forecasts at all these locations are below their historic highs.

However, there's been a record snowpack in the Wascana Creek basin and the WSA forecasts a 1 in 50 year "*snowmelt runoff event with a peak flow estimate of 90 cubic meters per second*" for the City of Regina. **This forecast is even higher** than the peak flow of 76 m³/s in 2011, though still below the record high of 102 in 1974. And the 2013 forecast of 210 m³/s for the Moose Jaw River at Burdick is higher than the 2011 level of 197. Likewise, the 2013 forecast of 38m³/s near Abernethy is slightly above the 2011 level of 35. These forecasts however remain below their historic highs in the 1970s. The Craven forecast of 100 m³/s is just below the 2011 level of 107 and well below the 1974 record high of 141. The WSA notes that Craven's control structure "*will be fully opened prior to spring runoff*".

The forecasted peak levels and some peak flows nevertheless give reason to prepare, especially in the Qu'Appelle Valley. While forecasting is risky, it's a better basis for planning than selective memory or conjecture. The WSA reminds us: "*A slow melt, similar to what we experienced in 2011, could reduce the peak significantly. Conversely, a rapid melt similar to 1974 and/or significant precipitation between now and runoff could result in a higher peak flow than currently estimated*". At the March equinox we've already had this "significant precipitation" and more is on the way.

Lots of uncertainty remains, but the record snowpack and preliminary forecasts are a wakeup call. A common view is that because of our fairly dry fall, the ground has a great capacity to absorb moisture and this may be partially true, depending on the nature of the melt and any additional precipitation. Others speculate that because lake levels were low coming out of a relatively dry 2012 fall, there's little chance of lakeshore flooding. But according to the WSA, the size of the snowpack and the nature of the melt remain the major factors influencing the magnitude of runoff. We've ordered sandbags in our village.

Happy World Water Day!

2013: WATER IS LIFE: THE QU'APPELLE VALLEY FORUM ON WATER QUALITY

On June 22, 2013, the Fort Qu'Appelle KAIROS group hosted a regional forum on water quality. It was held at the Bert Fox High School auditorium. Over one hundred people came - scientists, indigenous and settler residents, cottagers, municipal and provincial officials, watershed protection volunteers and many others came to hear talks, music and carry on conversations during the barbeque. The event was moderated by local United Church Minister Sharron Bodnaryk and I chaired the Round Table.

The gathering was welcomed to Treaty Four Territory by Edmund Bellegarde from the *File Hills Qu'Appelle Tribal Council (FHQTC)*. He reaffirmed the theme that water is sacred, that water is life, drawing an analogy with how the blood flowing through our bodies maintains our life, with waterways being the "*veins of mother earth*". He expressed FHQTC's concerns about both quality and quantity of water in the Qu'Appelle River system, highlighting increasing demands for water from industry and called for Settler-Indigenous collaboration to address these matters

The keynote speaker was Dr. Marley Waiser, retired water scientist from *Environment Canada*. She outlined the findings of her 2005-07 study on the impacts of Regina's sewage on Wascana Creek, which flows into the Qu'Appelle system. She focused on pharmaceuticals as well as the nitrogen nutrients that lead to toxic algae, mentioning other research showing heavy metal contamination in the waterway.

More sensitive detection shows "*widespread presence*" of residues from pharmaceutical and personal care products flushed into Regina's and Moose Jaw's sewage systems upstream, including everything from antibiotics to anti-infective hand soaps to birth control drugs. Past sewage treatment plants weren't designed to remove these and there is now scientific concern that "*chronic exposure of low concentrations*" may alter the aquatic food chain. Studies have shown that some contaminants lead to sex changes within fish.

The research site 105 km downstream from Regina, detected such contaminants. Waiser noted that you can't depend on dilution from high water flows to flush the system; sometimes effluent from Regina can be "*100% of the flow in Wascana Creek*".

Waiser advocated stringent monitoring while noting that there aren't water quality objectives for pharmaceuticals. She noted the importance of the *Experimental Lakes Project*, which Harper's government has cut, in doing pioneering research on threats to Canada's water quality. During questions she expressed concern about the "*politicization of Environment Canada*" under Harper, and noted that 80% of its water monitoring budget is now going for Alberta's oil sands, leaving little for the rest of the country. Science shouldn't be used to manage political perception.

INDUSTRIAL DEMANDS

The first panelist, Chief Todd Peigan from *Pasqua First Nation* raised the warning about increasing demands for water from the potash industry. He noted that other than the Western mine near Milestone, which wants to use Regina's waste water, all proposed mines plan to get water from Buffalo Pound. Buffalo Pound is the source of water for both Regina and Moose Jaw.

In March 2012 a *FHQTC Summit on Water* noted that the province's new mines are around Moose Jaw, Regina and Melville. The Summit estimated that, excluding some "Mosaic requirements", existing and proposed potash mines could use over "*62 million cubic meters of water annually*".

The province proposes a new channel from Lake Diefenbaker to Buffalo Pound, which the FHQTC Summit said would increase the flow from 17 to 25 cubic meters a second. There's also talk about creating an irrigated agro-business corridor along this channel. Chief Peigan continually raised the question of "availability"; "where was all this water to come from?"

Lake Diefenbaker provides water for nearly one-half of Saskatchewan's residents. It already provides water for several potash mines and irrigation projects and was once even considered as the location for a nuclear power plant. The vast majority of its water comes from Alberta. Yet researchers from the University of Saskatchewan's *Global Institute for Water Security* recently raised concerns about the levels of phosphorous coming along with that water. Also, global warming has already reduced by one-fifth the Alberta glaciers that help replenish Saskatchewan waterways and there are bound to be periods of future drought. Serious questions about upstream water quality and quantity remain.

Ken Hutchinson, chair of the *Calling Lakes District Planning Commission (CLDPC)*, spoke of the negative impact of degraded lake water on the recreational economy. The CLDPC is a regional planning body that includes Fort Qu'Appelle, Lebret, Fort San, B-Say-Tah, Katepwa and the regional Rural Municipality, as well as several Associates, including Lipton and the Treaty Four Tribal Council.

Hutchinson has raised regional concerns about poor water quality with both levels of government. The federal government says it has "bigger problems", such as raw sewage from big coastal cities still going into oceans. Because of the impact on the valuable commercial fishery the federal government, however, is concerned about the serious state of algae-related fish-toxicity in Lake Winnipeg and this involves the upstream watershed, including the Qu'Appelle lake chain. There will be no shortcuts to restoring eco-system health.

Hutchinson expressed concern that there was "no government leadership" and called on government and First Nations to quickly resolve outstanding issues over control structures. He also raised concern that the non-governmental group established through the WSA, the *Lower Qu'Appelle Watershed Stewards (LQWS)* had set as its water quality objective only "to prevent a decline in quality from current levels", which would mean accepting the high toxic algae that Pasqua residents experience in late summer. He also noted that in correspondence from the provincial Minister about "how priorities (were) established" in drought years, the Commission was told "Licensed users are accorded first priority to water". The Minister also said in "extreme drought years, lakes within the Qu'Appelle basin will fall below their desirable operating range for recreation", which presumably is because industry will get first dibs. Water is still being seen as a property right, which does not abide by the United Nations' view of water as a human right.

John Mark Davies, researcher with the *Water Security Agency (WSA)* that monitors these lakes, reported that though nutrients levels in the system had "come down since the 1970s and 1980s", they were "still high". He said the WSA was starting to model the Qu'Appelle lakes to gain better predictive understanding to help manage the system. He acknowledged that Regina is a major source of nutrients but did not respond directly to questions raised earlier about the implications of growing industrial demand for water or about the need to address cumulative contamination. Along with keynote speaker Wasier, Davies advocated careful monitoring and setting achievable targets as one means to enhance water quality.

The other panelist, Duane Mohn, who has worked with wetlands protection, reminded us that water was excluded from the NAFTA agreement with the U.S. and that there were still water diversion plans "on the table". He raised concerns about agricultural practices that degrade waterways, noting that he knew examples where property rights ("my land") was used as an excuse to dump leftover farm chemicals into local sloughs. Mohn called for a "buffer zone" to protect Saskatchewan waterways and noted the importance of the Indian Head tree nursery, which Harper had cut, for reducing erosion and enhancing biodiversity, which protects water quality. He also called for public access strips along shorelines, such as exist elsewhere, to help protect lake fronts from overdevelopment.

The last panelist, Jessica Gordon, arrived late from a long trip and a workshop was organized to discuss how *Idle No More* activities relate to the protection of water. Event organizers failed to get a spokesperson from the newly formed *LQWS*, but people attended from the *Saskatchewan Associations of Watersheds (SAW)*, *Saskatchewan Environmental Society (SES)* and the Regina group organizing to keep water treatment in public hands. This was likely one of the most diverse gatherings on protecting water quality yet to be held in rural Saskatchewan. The Fort Qu'Appelle KAIROS plans to coordinate some follow-up.

2013: THE CALGARYMEGA-FLOOD IS OUR NATIONAL WAKE-UP CALL

The energy capital of Canada has no energy. And thousands working in the head offices of the oil giants can't get through the flood waters to work. It's another ecological wake-up call. When the Conservatives have to cancel their Calgary national convention, where they hoped to close ranks and lick their wounds after taking such big losses in the polls, with the Duffy-Senate scandal, it is also a political wake-up call.

Since the 2005 Alberta flood we've seen the quick rise of the new, non-progressive, Conservative Party, going from official opposition to a minority and then majority government, and then going full-speed ahead to expand the fossil fuel industry. All talk of extreme weather events such as mega-floods, fires and tornadoes which arise from steadily increasing carbon pollution, has been drowned out by the barrage of political ads about Canada's *Economic Action Plan*. Some may think there is some karma at work, that after such hard lobbying for approval of the Keystone pipeline through the U.S., Alberta's Premier Alison Redford has had to oversee Alberta's recovery from the most damaging flood that Canada has ever seen.

Will Albertans see any connection between the expanding tar sands and this super-flood? Or will we again return to business-as-usual? Politicians aren't likely to range very far from popular consciousness. In making his defense of even more bitumen exports, Harper's Resource Minister Joe Oliver downplayed the percentage of total global carbon coming from the tar sands. It's only a tiny percentage, ".01", he said. This, of course, is faulty, micro-linear thinking. What percentage of the global rainfall did it take to shut down the oil capital of Canada?

The warmer the global atmosphere gets from burning fossil fuels and other GHG's, the more moisture it holds. This comes down somewhere, as it did in Alberta. With global warming we are seeing "rivers" forming in the sky that can hold more water than those flowing on the land below.

We were lucky this spring in Saskatchewan where people worked so hard preparing for yet another spring flood, on the scale of 2011. A dry fall and a slow melt of the record snow pack saved us. Southern Alberta was not so lucky, getting six months of rainfall in just two days. Parts of Manitoba were not so lucky either, with an unprecedented 250 mm (10 inches) of rain in one area leading to severe flooding. What if we'd gotten such a mammoth rainfall just as the huge snow melt was peaking here? Or, when Alberta's flood waters were pouring through our province? The chances of such extremes converging increase with the rate of climate change.

CONSERVATIVE RESPONSE

The magnitude of Alberta's flood is hard to fathom. The 2005 flood was called the "*flood of a century*", yet eight short years later another flood, initially reported to be three times the size and speed, was ravaging southern Alberta. It grew even larger, some say to ten times that of 2005. The torrential waters made Calgary, the economic powerhouse, powerless. Prime Minister Harper, who typically tightly controls his words, seemed sincerely stunned, saying "*I never imagined you could have a flood of this magnitude in this part of the country*". Trained as he is to worship economic growth and oil profits and to undercut climate agreements, he's done everything possible to keep all of us from imagining what comes with catastrophic climate change. As a Petro State, Canada would not be likely to generate much foresight about this. Remember that Calgary, Harper's political homeland, has long been the headquarters of industrially-funded, climate denying networks such as "*Friends of Science*".

Calgary MP, Minister Jason Kenney was uncharacteristically lacking in words. "*People didn't quite believe it was happening*", he said, "*evacuation is not a term we are used to hearing*." Also stunned that this happened in the "*core of Canada's energy industry*", and had totally shut down critical infrastructure, he fast-forwarded into his economic bravado saying they intended to reschedule the Conservative convention as soon as possible to "*send a message that Calgary is back*", and "*open for business*." This is easy to say, but it will be the smaller businesses that will be the hardest hit. While the Conservatives get back to talking big business, small business owners will be facing property damage, losing valuable inventory as well as customers and cash flow.

Premier Redford was clearly broadsided saying “*it would be nice to have two months’ notice but that’s not how floods work*”. Yes, she said this. Actually, the government had nearly a decade’s notice after 2005, including a report on how to better prepare for such an event, but in all the hype about Canada becoming an energy superpower, it was shelved and forgotten until just last year. It recommended that Alberta stop allowing building in flood plains but this practice continued. Redford’s \$1 billion provincial bailout will barely start to cover the many billions in reconstruction costs and Alberta may not see balanced budgets until long after Redford is gone. Will Calgary Conservative MP’s Harper and Kenney now support a federal deficit to bail out the homeland of the Reform Party?

Twenty-seven communities declared a state of emergency. After Calgary, the plight and frustration of 13,000 people driven from their homes in High River got the most media attention. It took nearly a week for reporting of the ordeal faced by First Nations’ communities.

Seventy-five thousand people in Calgary were initially left homeless; 24,000 others were without power. Story after story emerged showing that a political-psychological bubble had broken. A man whose dream home for his coming marriage had been ruined, said, without apparent emotion, that his “*world had been turned upside down.*” A woman deeply shocked by the scale of events, said “*those are the things that happen in other countries.*” Apparently not.

What will be the impact on Albertans? Will their well-known bravado outpace their insights? The organizers of the Stampede quickly commented that this event, had never been cancelled in its 100-year history and will go ahead “*hell or high water*”. Certainly, the high water was hellish and it turned out that some events had to be moved or cancelled. This “*spirit of Calgary*” can also lead to collective denial. As the torrents of water were hitting Calgary subdivisions, people were still rebuilding homes lost from the mega wildfire in Slave Lake in 2011. Meanwhile, a record heat wave sparked mega wildfires in Arizona, killing 19 firefighters.

The rallying of so many volunteers to help others is inspiring and Calgary’s Mayor Naheed Nenshi deserves huge credit for his robust leadership. As extreme weather events compound, we will all be challenged to dig deep into our wellsprings of compassion. But there must be insight and change. There were about twice as many Albertans driven from their homes by this super-flood as there are Canadians, on any one night, left homeless by poverty, unemployment and the emotional and family breakdown that comes with the inequalitarian-rooted stresses of our society. Will the solidarity shown amongst Albertans generalize? After all, aren’t we all in the same planetary “*boat*”?

Perhaps it’s too soon to pose these questions. But if they aren’t asked in the aftermath of this disaster, they may be buried yet again. Day in and day out, people somewhere on the planet continue to scramble to save themselves from the torrents of water unleashed by the atmospheric rivers brought on by global warming. Perhaps the people of small-town Alberta could now twin with the villages in India ravaged by flooding at the same time. There, 3,000 people are still missing and at least 800 are confirmed dead from unprecedented early mega-monsoons. These were compounded by global warming, fueled by carbon from fossil fuels, some of which inevitably came from Alberta’s booming economy. One world requires one solution.

2013: REGINA’S VOTE TO KEEP WATER PUBLIC MATTERS TO US ALL

Next Wednesday, September 25, 2013, Regina’s citizens will go to the polls to vote on whether their new wastewater treatment plant will remain public or go private. People across the province and country will be watching closely.

There’s no doubt that Regina needs to upgrade its sewage treatment; this is long overdue. Heavy metals, nitrogen, phosphorus, ammonia levels that can kill fish, and even pharmaceutical residues, are being found far downstream. The Qu’Appelle lakes have accumulated toxic blue-green algae from decades of Regina’s untreated waste.

But much more than water is involved; local democracy is being impacted too. Regina’s civic life has heated up ever since Mayor Michael Fougere and council voted last February to build the new plant as a P3 or public-private partnership. On the surface it looked straightforward: the federal government would provide a grant of 25% of the capital costs which could reduce the costs to the local taxpayer. The mayor and council are sticking to this story in spite of all the accumulating evidence to the contrary.

There's a lot to learn from other P3's. Their goal is not so much about cost-effectiveness and fiscal responsibility as fulfilling a neo-liberal ideological commitment to privatize public services for profit. This ends up costing us more. Moncton built a P3 water treatment plant in 1998 at a cost of \$31 million, compared to the \$23 million it would have cost had it remained public. Water rates skyrocketed by 75% and Moncton's citizens now pay much higher rates than the Canadian average.

Hamilton, Ontario and Abbotsford, B.C. have also learned their hard lessons from failed P3s. A recent study of 28 P3 projects in Ontario reported in the Oct. 14, 2012 *Globe and Mail* found that "*public-private partnerships cost an average of 16 percent more than conventional tendered contracts.*" This was due to higher borrowing and legal-consulting costs. It's not surprising that Europeans who spearheaded P3s are now returning to fully public services, called remunicipalization. But we don't seem to want or be able to learn from others.

THE REGINA P3

Calculations of the proposed Regina P3 plan suggest it could cost much more than a public project which would nullify any fiscal advantages from seeking the federal grant. Remember that Harper is offering a strings-attached grant; the city must privatize waste water treatment to get it. And this federal grant also comes from the taxpayer. **Harper is using public money to entice Regina to privatize its new wastewater treatment plant into a for-profit market and the local taxpayer would be left to subsidize the extra costs.** This is what we get from Harper's Conservative ideological bullying.

Regina's mayor and council simply didn't do their homework and the city has turned to secrecy, manipulation and disinformation to ram through their P3. The city has refused to make the complete consulting report done by Deloitte available to the public, showing how public oversight is already getting sacrificed once you move towards privatization. The city then tried to discredit the public petition from 24,000 residents calling for a referendum. The attempt to disqualify 3,000 people because they didn't put the year 2013 beside their signature was another smack in the face of local democracy. "*What other year could it be?*", residents rightly asked? So, on July 22, 2013 when city council chambers were jam-packed with residents calling for a referendum, the council was pretty much shamed into voting to go ahead. But the deception continues. The city is still inventing numbers to try to fiscally frighten the electorate into voting for the higher costing P3 project.

PRIVATE FINANCING AND FUDGING STATISTICS

In 2013 independent economist Hugh Mackenzie conducted a "*Financial Analysis of the City of Regina Wastewater Treatment Plant Expansion and Upgrade.*" He concluded that the private partner would be responsible for \$103 million of the \$224 million project. The borrowing costs for the private company would be about 2% higher than for the City (say 6% compared to 4%) and legal-consulting costs would also be much higher. Most vital, the profit rate has to be factored in. Assuming 80% of the capital would be borrowed with a 10% return on equity, the private costs would skyrocket to \$164 million, over \$60 million more than if the City controlled the whole project. If the profit rate were 15% the extra cost to taxpayers would be closer to \$80 million.

The mayor and council haven't been candid that all these costs, including covering the profit of the private operator, ultimately go to the taxpayer. As the Deloitte summary report says: "*In no model...does the private sector fund the project; all costs are ultimately born by City of Regina utility ratepayers...and the federal government.*" However, during the referendum campaign, Regina's Mayor and Council continued claiming that their P3 project will save money. Their ads claim that if the public votes to "keep water public" the City will lose \$58.5 in federal funding. Of course, they failed to point out that this grant was tied to privatization. On their publicly-paid-for billboards it states the loss of the federal grant would add \$276 dollars a year for each household's sewer and water.

They are fudging their numbers to try to save face and scare the voter into supporting privatization. The City is ignoring the lessons about higher costs from P3s elsewhere; they are ignoring the higher borrowing costs and the costs of the profit rate. And just where did they get the figure of an extra \$276 a year for sewer and water? They seem to have taken the maximum federal grant of \$58.5 million and then arbitrarily added another \$21 million that they claim will be saved by having the same company design and construct the plant. Then they divided the total of \$80 million by the number of households over a four-year period. Hmmm!

The City has gone so far down the road of disinformation that we likely shouldn't expect much else. The \$21 million in supposed projected savings would equally apply to a public project if it used the same company to design and build. And why did they use a four-year term for a proposed 30-year P3 contract? Was this simply a way to get a big enough figure to get the public's attention? We all know that politics can use statistics to obscure facts.

Meanwhile, Mayor Fougere seems confused about the numbers being used to cajole the vote. In the September 10, 2013 *Regina Leader Post*, he said "Over the course of a 30-year contract, we'll save just under \$80 million... That translates into \$276 a year saving for the average property owner..." Other city sources however say that the \$276 figure comes from calculating only over a 4-year period. Furthermore, it is city council and not the mayor and his handlers that sets the sewer and water rate and this number hasn't even gone to council.

There are some Regina residents with cottages along the Qu'Appelle lakes calling for a new treatment plant. Continual monitoring and phasing in of new sewage treatment technology will be required to steadily restore lake water quality and eco-system health. This will take an integrated plan. A P3 water treatment plant will have a very different bottom line.

Meanwhile promoting the privatization of water is already costing the Regina taxpayer. The Mayor admitted on August 14, 2013 on CJME that the city's pro-P3 campaign is "estimated to reach at least \$340,000." There is something fundamentally wrong here; much more than water quality is involved. We'll see next week whether Regina's voting taxpayers have been staying informed and turn out in large enough numbers to tell their mayor and council to stop the nonsense and get back to the drawing board.¹⁴

2013: IS REGINA DOING ENOUGH TO PROTECT OUR COMMON WATERSHED?

Over a decade ago we moved from an inner city to a rural community in the Qu'Appelle Valley. When you live in urban Saskatchewan you can delude yourself into thinking that the tap water is limitless but when you live by a lake that's downstream from urban sewage you soon realize that this is not so.

Regina and Moose Jaw depend upon Buffalo Pound Lake for their water. Like the rest of us who depend on the Qu'Appelle River waterways, urban residents have a huge stake in protecting this watershed which supports both quality of life and life itself. There may be some legitimate differences in rural and urban priorities but protecting our common watershed is not one of them.

Regina and Moose Jaw's dependence on Buffalo Pound has grown markedly over the last half century. In 1955 the two cities drew 4,000 megalitres (4,000,000 litres) of "raw water" from the reservoir. By 2010 the volume had risen nearly ten-fold to 37,000 megalitres. Regina's growth was largely responsible: in 1966 the city bought 9,000 megalitres from Buffalo Pound, but by 2012 this was up more than three-fold to 29,000 megalitres.

The rate of increase in Regina's demand declined somewhat in the early nineties. Finally, people started to admit that there were ecological limits to the amount of water that could be extracted from a watershed. But the economic growth pressures presently being perpetuated by provincial and corporate policies will surely continue to place increased pressures on Buffalo Pound. Will the Qu'Appelle River watershed be able to meet this, especially considering the potential demands from a rash of proposed new potash solution mines?

WATER CONSERVATION

Water conservation is vital to any sustainable watershed plan. Water can always be used more efficiently and it can be recycled. How effective has Regina been in this regard? According to the City's 2013 *Water Utility Budget* there has been some success. The five-year average for the consumption of Regina's metered water peaked at 24.4 million cubic meters (MCMs) between 1995-99. It started to fall slightly after that, to 23.8 MCMs between 2000-04 and then to 22.7 MCMs between 2005-09. And the figure for 2010 also dropped further to 21.1 MCMs.

But the consumption has again started to rise. In 2011 it was back to 22.1 and the projected consumption for 2013 is 23.1 MCMs, near the 2000-04 level. Even if per capita water use declines, population growth and growing non-

residential uses of water will push consumption upwards. Nearly one-third of Regina's water is presently consumed for non-residential purposes.

There is still a lot of room for improvement. One of the most important aspects of water conservation is reducing the water wasted through leakage and breaks in a deteriorating infrastructure. But according to Regina's own data, the percent of water being wasted continues to rise. (This is fairly easy to estimate; you just subtract the total amount of water billed to all property owners from the total amount purchased from the Buffalo Pound reservoir.) The percent unaccounted for in 2007 was 16.8%, in 2008 it was 17.2%, in 2009 it was 18.1% and in 2010 it was 18.8%. There was a very slight drop in 2011 to 18.2%, but the upward trendline is clear. That's nearly one in every five gallons that comes out of the expensive Buffalo Pound plant.

Regina uses an index of water loss called *Infrastructure Leakage Index* (ILI). In 2011 the ILI for Regina was 3.63 which the City says is within the "good" though not the "excellent" range. If the loss of nearly one in five gallons of water is "good", what would "bad" mean?

Meanwhile, Regina admits "*there is potential for marked improvements*" but in its *2013 Utility Budget* it adds "*that further water loss reduction, although possible, may be uneconomical*". What does it mean by "uneconomical"? That it's cheaper to withdraw even more water from the Qu'Appelle River watershed than to upgrade its own infrastructure? That improving its waterworks is not politically sellable, especially with the coming multi-million-dollar costs of a waste water treatment plant, that is decades overdue and more costly because of past procrastination?

WATER QUALITY

The City also faces costly challenges regarding the quality of water coming from Buffalo Pound's plant. Due to algae and other organics the lake "*has required higher levels of treatment to provide water that meets the City's water quality objectives.*" Yet the continued use of chlorination for disinfection creates "*byproducts known as trihalomethanes and haloacetic acids*" which the city finally admits "*are dangerous to human health*". Its *Long-Term Water Utility Plan* recommends "*reducing the use of chlorine, if possible in conjunction with the addition of ultraviolet light disinfection*". This study also notes that "*The percentage of time that taste and odour control is required has been increasing for a number of years*" and that "*the existing wastewater lagoons are overloaded*". Also, due to the corrosive effect of the treated water there is "*softening of concrete tanks in the water treatment plant and slow deterioration of piping and fittings*", though it adds "*this is not a cause for immediate concern*". Is this another cost being displaced onto future taxpayers?

Regina's backup system is nine wells in and around the city which are "*available for emergency water supply in the event of a failure in the Buffalo Pound water supply*". But these wells provide "*less than the City's typical daily needs*" and further, they have "*levels of iron, magnesium and hardness that do not meet*", what the City calls its', "*aesthetic objectives*".

Every five years a Waterworks System Assessment (WSA) is required to ensure, among other things, the "sustainability" of the system. At present Moose Jaw and Regina "*contribute an amount equal to 10% of the general water charges to a Capital Replacement Fund.*" Regina's share is 73%. But is that Fund accumulating enough resources to enable Regina to address all these pressing challenges? And what value is being given to protect the source, the watershed itself?

The Buffalo Pound plant uses a cost-recovery system with the 2013 water rate set at \$225.02 for one million litres. Compare this to \$1.50 to buy a litre of bottled water. Regina's *2013 Utility Budget* says the 3.9% increase over 2012 is "*primarily due to rising costs for electricity, increases in unit prices for treating chemicals, equipment price increases and increases for wages and benefits*". The cost of the actual water going to Regina is only \$6.4 million for 2013, "*about 53.5% of the total costs*" for supply, pumping and distribution and "*about 13% of the total utility costs*". The water and the watershed are pretty much being taken for granted. This is not ecological economics.

The panacea to ensure economic and urban growth still seems to be "more". Rather than seriously investing in water conservation, infrastructure upgrade and water quality, extracting more water is seen as the "economic" way to go. So, we find in Buffalo Pound's *2012 Annual Report* that in consultations with the *Water Security Agency*, the *South-Central Enterprise Region* is proposing a "*plan for a flow rate of up to 25 cubic meters per second in the Upper Qu'Appelle River; more than three times the volume the current channel can presently accommodate. One suggestion*", it continues, "*is the*

construction and operation of a channel out of the valley, on the south side of the river". And what will this huge channel cost the provincial taxpayer? And how long can we carry on with the delusion that there will always be more?

Regina's long overdue decision to upgrade its wastewater treatment is a start, but Regina has a very long way to go to do its part to protect our common watershed.

2014

THE 2014 FLOOD: MORE THAN A WAKEUP CALL, PREMIER WALL

The summer flooding came as we tried to celebrate Canada Day. But no one was celebrating sewage in their basement or in the lakes they love.

As if unprecedented, prolonged rainfall, or Regina dumping untreated sewage into the Qu'Appelle watershed, wasn't enough. Then low-lying communities flooded and eighty of them ended up in states of emergency. But it wasn't over for we soon found that the Qu'Appelle lakes were contaminated with dangerous E coli. Beaches closed at the height of summer.

It started to sink in that ongoing drainage of agricultural lands compounded the flooding and that Regina could get away with doing nasty environmental things that smaller municipalities could not. Our minds and hearts opened to the new reality, but will our heads-in-the sand governments get the bigger picture?

Soon the calamity was exposing cracks in watershed management. Overseeing water quality and environmental health have not been high on the list of priorities of a government so bent on the unfettered growth of the extraction industry.

By July 3rd, after sampling 28 beaches, Sask Health was reporting "*elevated E coli levels*" in the Qu'Appelle lakes. This was said to be associated with the flooding, which was a no-brainer. A spokesperson later clarified, while not pointing fingers, that "*It is known that sewage from municipal and private sewage systems as well as waste water from cattle areas has entered the lakes.*"

But the *Water Security Authority* (WSA) was already saying that Regina's releases of untreated sewage weren't involved; it would be "*too diluted*", they asserted. By July 9th the tune had changed somewhat, with the WSA admitting that Regina's dumping "*may have contributed to the issue*", while mentioning that "*runoff from agricultural land can also contribute.*" Then on July 11th on a CTV report, a WSA spokesperson said he was "*unsure where it is coming from*", and speculated it could be from "*agricultural operations... unplanned releases from communities... and flooded septic systems*". And then he claimed Regina was only responsible for "*2% of the sewage flow*" into the Qu'Appelle system.

This just added to the confusion and further displaced responsibilities. The flow from Regina may be 2% of the total flow into the Qu'Appelle system. But if this is loaded with untreated sewage it will contribute far higher amounts of E coli into the system. Furthermore, while some septic tank pollution might have happened at Crooked or Round lakes where cottages flooded, this wouldn't explain any contamination of the upstream lakes, such as Pasqua and Echo lake.

Does WSA do sufficient monitoring to be able to isolate sources of such contamination in such detail? The answer is "no". If they did and had the support of their political masters, wouldn't we be able to be more objective and take more effective preventative action to restore our watersheds?

Will we find that the WSA is covering up for Regina's irresponsible dumping of untreated sewage into the most contaminated watershed in the province? There are jurisdictions where governments would already be laying charges against such a large urban polluter. Will we be able to find out the details about the volume and nature of the sewage releases? Or about the political authorization for this? And just why is Regina not required to have a Plan B that doesn't rely on this magnificent, though increasingly vulnerable, recreational lake system as its back-up sewer? It was notable that after it began dumping, Regina reassured its residents that sewage wouldn't be flowing through city limits. Does this make it alright?

WETLANDS AND SLOUGHS

When glaciers receded, they left thousands of prairie sloughs which could store massive amounts of water. These “oases” helped nourish life through prolonged droughts and over time unique prairie habitats evolved. It’s now estimated that we’ve lost 70% of the wetlands, which has degraded watersheds and biodiversity. This has exacerbated the flooding of the Quill Lakes. These wetlands simply must be restored.

The WSA says addressing the widespread drainage of agricultural lands is part of its “25-year plan”. It clearly should be part of its one or two-year plan. Complaints about farm drainage escalated after the 2011 flood and there apparently were still 161 active files in August 2012. What will the number be after the 2014 flood?

We’ll soon see whether the seriousness of the problem truly sunk in for Premier Brad Wall, after he toured the southeast areas hardest hit. Today’s “open for business” governments generally prefer rhetoric over evidence: economy trumps ecology and the present trumps the future. Yet knowledge has been building for decades that the “almost anything goes” approach has been destroying vital prairie wetlands, helping to set the stage for the massive flooding we’ve recently experienced.

John Pomeroy of the U of S’s *Centre for Hydrology* has studied the Smith Creek Basin, a 400 square km area east of Yorkton by the Manitoba border.¹⁵ In the 1950s, 25% of this basin was still wetlands, but it is now down to 11%. Since 1958 the flow has increased by 29%; in the 2011 flood the peak flow was up one-third. Their modeling suggests that if drainage ditching was allowed throughout the complete basin, the 2011 peak flow could have increased by nearly 80%. So, there’s really no doubt that ongoing “*ditching contributed to the deluge*” that we’ve just experienced.

PROPERTY RIGHTS

But will governments abandon the laissez-faire approach where you ditch first and perhaps ask permission later? Environment Minister Ken Cheveldayoff now says they’ll “*crack down on illegal drainage*”, something that SARM has been calling for. But the “rights” of big property owners have become normalized in our political era. And with the huge equipment available to some farmers, they can easily take the matter of “protecting” their own property and crops into their own hands. Track-hoe farming is not the family farming of decades past.

The view that big land owners have inalienably property rights and shouldn’t be held accountable by common standards just compounds environmental and social problems for the rest of us. There are even U.S. jurisdictions where the notion of “right to farm” means the “right to harm”. Such a view has steadily gained ground in Canada, reaching a crescendo in the Harper government. Not willing to provide positive federal governance, important regulatory roles have been gutted or off-loaded, ultimately frustrating rural and urban municipalities. Did it really save the taxpayer money when Harper cut federal hydrology, climate and flood management budgets? As Ralph Goodale put it so well, where is the PFRA, another casualty of Harper, when we need it?

Pomeroy refers to “*Canada’s woeful flood forecasting and management systems*”. While climate science has been predicting new patterns of extreme weather, the WSA has been making plans based greatly on old realities. This is not justifiable in view of the record-breaking 2011 spring flood and the close call we had of a repeat in the spring of 2013.

Weather shifts from climate change are clearly part of a new reality. The steadily warming atmosphere holds more moisture, and the jet stream is relocating. Our deep-freeze winter (the Arctic Vortex) and our recent record summer rainfall can reflect this, as can prolonged heat waves and megafires such as are now occurring in California and the NWT.

Getting rainfall equal to our annual amount in a few days is one thing. Getting this after the soil is already saturated from record-breaking snow-packs is another. Add in the impact of decades of ditching and drainage, which accelerates chemical agricultural run-off, and sewage contamination from inadequate urban infrastructure, and you get a perfect storm. You can probably also add in the recent assault on air quality from the huge forest fires to our north. It was only a matter of time before such a convergence occurred. Fasten your environmental seat belts!

But has the Wall government really got the message? I suspect not. So far, more concern is being expressed about one-year crop losses than about the long-term “costs” to the watershed. \$1 billion dollars is already being projected for crop damage due to the 2-3 million acres affected. This is not ecological economics.

NEIGHBOURLINESS

Of course, I'm sympathetic to a farmer with 40 acres flooded who may lose \$20,000, especially if the farmer couldn't get last year's bumper crop to market. These, however, are calculations from the strictly short-term economic model. Now we have to think of natural systems as having their own value. And we have to bring the Golden Rule and concern for impacts on our neighbours back into governance. People downstream from us in Manitoba, where Lake Winnipeg is being ravaged, are now also our water neighbours.

Even if high industrial carbon emissions are justified as part of job-creation and government revenue, there are great costs that will come as blowback, as this flood shows. The Premier is already predicting that the bill from this summer's flood will outdo the 2011 spring flood. Even if wetland drainage can be justified as cost-effective for a big agricultural enterprise, it's not "economic" in any ecological sense. And it's not neighbourly. Nor is Regina dumping sewage into the Qu'Appelle Watershed.

There are real costs for a high carbon economy, and Saskatchewan still leads the country and much of the world in per capita emissions. (Our emissions are approaching 70 metric tonnes per capita, compared to a Canadian rate of 20 and a global rate around 4 tonnes.) There are real costs for creating ditches that drain wetlands, even if these are excused on a case-by-case basis. And there are real costs for our capital city not proactively building infrastructure that will stop it from contaminating the vulnerable Qu'Appelle Valley watershed.

We simply must insist that our elected officials get their acts together. It's way past the time for a wakeup call. It is time polluters were held responsible for their actions.

2014: WE NEED A WATERSHED ACTION PLAN

On August 20, 2014 nearly 200 people who reside along the Qu'Appelle Valley gathered at the Treaty Four Governance Centre to share concerns about the continuing degradation of the watershed. From the energy in the room you knew there was more anguish than anger. This was not going to simply be a protest meeting and perhaps something deeper was taking shape.

As we drove up to the Centre and saw the cars lining up along the highway, spilling over from the parking lot, I realized this could be a watershed event. The large turnout reflected the steady regional evolution of awareness about the water crisis. Some of the seeds of this event could be traced back to conversations from KAIROS's public forum "Water is Life" held locally the previous June. They should also be traced back to when First Nations issued warnings about water quality, through the *Qu'Appelle Valley Indian Development Authority* or QVIDA, back in 1998.

The event was jointly organized by the *Friends of Katepwa Park*, which recently added "water protection" to its objectives, and the *File Hills Qu'Appelle Tribal Council* (FHQTC), which also participated in the 2013 KAIROS public forum. It was triggered by the unprecedented July 2014 flooding, Regina dumping untreated sewage into the waterway and the closure of many beaches due to high E. coli. Those impacted were still looking to understand how these events interrelated and could be prevented.

A show of hands indicated that most were from cottage country and the turnout was highest from Pasqua and Katepwa lakes. A decade before, a few cottagers were blaming First Nations for not being able to get their boats into the low lake water. This was in the aftermath of PFRA dams being found illegal, after the Charter of Rights acknowledged Treaty Rights in our constitution. Now, sitting in the wide circle of chairs where Chiefs often deliberate, and lined in tight rows under the spectacular high ceiling designed as a giant tee-pee, were cottagers and residents from an array of nearby communities. The Creator would be pleased with the coming together.

Several resource people were invited, including renowned U of R water researcher Peter Leavitt, who provided basic information about the state of the lakes. The chair of the *Calling Lakes Planning Commission*, Ken Hutchinson, who has been advocating for restoration of water quality, Edmund Bellegarde, head of the FHQTC, and Todd Peigan, Chief of *Pasqua First Nation* and long-time advocate for water quality, also spoke; as did Dawn Pratt, who has worked with the nuclear waste industry. I participated as a local village mayor and retired professor of Environmental Studies. Katepwa

cottager Auralee MacPherson moderated. As occurred with the May 16, 2012 Indian Head meeting on the Shelterbelt Program, local MP Andrew Scheer again declined to attend.

OVERCOMING SPIN

I've been investigating the sources of the recent E. coli and other contaminants. Doing public interest research for decades, I'm ready for any "spin" that may be forthcoming from bodies that are complicit in contamination.¹⁶ Also, I've learned that unless you are dealing with exceptional journalists who are committed to investigate and learn, you aren't going to get much insight from the mainstream media. At the same time, there are many well-informed, well-meaning people within government agencies who want to contribute to positive change, even though their political masters may not be so inclined.

Spokespeople from the *Water Security Agency* (WSA) have been giving mixed messages about the role of Regina's untreated sewage, including that its sewage flow was "only 2%" of the total flow into the Lower Qu'Appelle. Overall Regina's effluent is a much higher percentage, and the WSA has confirmed an average flow of 18% of the total after Craven. So where did the 2% come from? After going back and forth with several agencies over two days, it turned out that this came from an estimate of Regina's effluent flow as a part of the flow at Craven during the peak flooding. However, while the overall flow would dilute the untreated sewage and higher levels of phosphorous, all the sewage would still end up in the Lower Qu'Appelle Watershed.

I also found out the really high E. coli levels were in Last Mountain and Katepwa lakes, but all of the beaches were rightly closed as a precaution. But then the argument was made that because it was estimated that Regina's E. coli would take over 5 days to get to Pasqua lake, this couldn't be in the July 3rd sampling that led to the beaches being closed (Apparently there was some UV treatment still operating until June 29th). Though the initial E. coli may have come from general runoff, Regina-originating E. coli would also make it in the lakes.

We need to remind ourselves of the trendline, which was confirmed by the WSA. Overall Regina's effluent contributes more than one-half (52%) of the flow in the Wascana Creek. Sometimes, during winter or severe drought, it accounts for almost all the flow. And Regina's releases are responsible for about 80% of the contamination of that system. This flow then becomes nearly one-fifth of that going into the Lower Qu'Appelle. Over decades this pollution has definitely been a major source of the contaminants degrading the Qu'Appelle Lakes. So, why doesn't the WSA just admit this?

In Regina's 2013 *Utility Budget* the City admitted that "*The existing wastewater lagoons are overloaded and under review*". Their sewage dumping in the summer 2014 flood was therefore of even more concern. To my knowledge no such overflowing occurred from Moose Jaw's lagoons.

No party involved in the degradation of our precious watershed should get off the hook by pointing the finger at others. The two main culprits here as elsewhere are urban sewage, which has come in large amounts from Regina for decades, and agricultural runoff, which has increased as chemical farming and irresponsible drainage practices have replaced the traditional family farm. Add extreme weather flooding from climate change, enhanced from decades of wetland destruction, along with the growing threat to water quality from encroaching fracking and solution mining, and you can see why this watershed is the most vulnerable in Saskatchewan.

Where success stories exist about restoring sick watersheds such as in Europe, contamination from both urban sewage and agri-business has been stopped. That is why the letter to Premier Wall circulated at the August 20th gathering called for government leadership on these two fronts. That letter reads: "*...most scientists agree that the biggest polluters are agricultural and urban waste...we need resources, expertise and resolution before it is too late. I invite you and your government to work on the pollution problem now in a coordinated effort and instead of assigning blame, we need to work together to find out and identify a plan of action on how to make our water clean.*"¹⁷

THE ACTION PLAN

This single gathering couldn't devise the parameters of such an action plan, nor, unfortunately, was it organized or facilitated to move this process along.¹⁸ But these parameters are taking shape. The provincial regulators must ensure that after decades of irresponsible dumping, Regina's wastewater treatment upgrade removes the maximum nutrients

and contaminants so that the lengthy period of lake restoration can begin. Nothing but clean water should be coming downstream from Regina.

Agriculture will also have to become ecologically-sustainable. An organic farmer at the gathering told me that his land didn't create runoff into the lakes during the flood because the soil could absorb more moisture. But we can't wait until agriculture fundamentally changes. The government should immediately instigate a wetland restoration program, which would be a great gift to future generations. The government should also help facilitate an effective non-chemical buffer zone along the creeks, river and hills feeding into the valley lakes.

The needed paradigm shift includes seeing access to safe water and well treated sewage as a human right. Water can't continue to be treated as a commodity and watersheds can't continue to be seen as a waste dump for polluters. Future generations will continue to suffer if this view persists. As Peter Leavitt stressed, the long-term buildup of nutrients in some lake sediment will slow the restoration process down. And as Chief Peigan stressed, it doesn't help that the Harper government deregulated this waterway as part of its notorious Omnibus bills. But, to achieve inter-generational justice, the responsible thing is to quickly get on with the process of protecting this watershed. In that sense the August 20th gathering was about the emerging politics of survival. Let us hope that all of this soon begins to sink in.

2015

WHAT HAVE WE LEARNED FROM REGINA'S SEWAGE RELEASES?

Last summer, Regina released hundreds of thousands of cubic metres of untreated sewage into the Lower Qu'Appelle River and the Calling lakes. It was an all-time record for Regina polluting this watershed, which is one of Saskatchewan's major recreational areas. We cannot let this slip from our memories. To prevent a recurrence, we must shine a bright light on what happened.

On July 15, 2014 I sent a letter of concern to Regina's Mayor Michael Fougere and Council. I sent this as Mayor of the Resort Village of Fort San and on behalf of the Calling Lakes Planning District (CLPDC) and asked six questions. My questions were about the sewage volume, the time span of releases, the E. Coli and other contaminants involved, what permission was obtained, why there was no Plan B and whether the wastewater treatment upgrade would prevent such sewage dumping in the future.

Mayor Fougere responded on July 25th, indicating we would be sent an incident report. He repeated the *Water Security Agency's* (WSA) claim that Regina's untreated effluent was only 2% of the flow going into our watershed and reiterated what the WSA had said about there being many other potential sources of contamination. On September 4th I sent another letter where I provided more information about the magnitude of Regina's effluent going into our watershed and asked whether there was any planned review to prevent this from happening again.

Mayor Fougere responded on September 24th. He acknowledged that the 2% figure was an estimate only for the bypass period, when there was such extreme flooding. He did not dispute that overall, Regina's effluent accounts for at least 50% of the flow into the Wascana Creek and at least one-fifth (18%) of that going into the Lower Qu'Appelle. These were figures that I had previously received from the WSA.

The City's own reports acknowledge the major role that its effluent plays in degrading the water quality of our watershed. Writing in 2006 about the downstream impact of Regina's effluent, Stantec consulting stated: "*Regina effluent constitutes about 75% of the Wascana Creek flow in the summer and about 85% in the winter. In the Qu'Appelle River near Lumsden approximately 23% and 62% of the flow is attributable to Regina's effluent in the winter and summer, respectively.*" However, in spite of this, when pressed on its massive releases of untreated sewage, the City still seemed to want to downplay its environmental responsibilities.

DILUTION NO SOLUTION

This matter was never clarified in public announcements from the City or WSA. The emphasis placed on dilution likely distracted some public attention from the large amounts of untreated sewage and toxins that went into our watershed.

It perhaps also distracted attention from the City's inadequate and environmentally-risky infrastructure. But there was no way that residents along the watershed could deny what had happened with the putrid water right before our eyes.

My September 4th letter also asked whether, before the flooding events of summer 2014, there had been any review underway of the inadequate holding capacity of the City's lagoons. The Mayor's response indicated that the review referred to in the City's 2013 *Utility Budget* report had to do with lagoons at Buffalo Pound and not those at the Regina wastewater treatment plant, where the sewage bypass had occurred.

It is still vital to know what if anything is being done to ensure that sewage bypasses won't be repeated. And what if anything the WSA is doing to ensure that such a proactive approach is being taken by Regina. We have heard nothing.

As promised, the City's incident report was forwarded. It was sent as a Sept. 2, 2014 Memo from the global company AECOM, the City's engineering consultants on its wastewater treatment plant upgrade, to the City's Manager of Environmental Engineering. This suggests that the evaluation was not done by City employees but was contracted out.

It mentions that during June, 2014 "*Regina received a total of 175 mm of rain, about 2.3 times the normal amount*". With increasing extreme weather, it is now clear that there is a "new normal" for which all levels of government must prepare. It says, "*To minimize the risk of the collection system backing up and flooding basements, flow coming from the McCarthy Boulevard Pumping Station (MBPS) had to be directly bypassed into Wascana Creek.*" It says that the valve was opened first on June 29th, then "*opened up further*" on July 1st until July 3rd.

It says that on June 26th the City "*began bypassing partially treated wastewater from the lagoons.*" It diverted "*part of the flow from the lagoons that normally flows to the tertiary clarifiers*". Then on June 30th "*the City had to increase flow from the lagoons to (Wascana) Creek*". It also "*began bypassing the flow from the tertiary clarifiers to the Creek by bypassing the UV disinfection stage*". From July 3rd to 5th there was increased pumping "*to help with draining the lagoon to the Creek*". By July 5th UV disinfection was reinstated and by July 7th "*the lagoon bypass valve was closed*" and the sewage treatment system was back to "normal operations". This suggests that there were, indeed, problems involving Regina's lagoons.

NOT INFORMED

The memo says that the volume of untreated sewage released was estimated from the "*flow metres and field measurements*" to total 877,800 cubic metres (CM). This is broken down into 226,600 CM blended with clarifiers with UV, 381,600 CM from lagoons with no UV treatment and 269,600 CM from clarifiers with no UV.

The consultant's memo to the City says that Sections 3.6-3.7 of Regina's Water Permit allows such a bypass and that the WSA approved it. It says that the City informed the Spill Control Line and "*informed downstream water users*". To my knowledge none of the municipalities along the Calling Lakes were informed; the village of Fort San and other valley municipalities found out about this sewage dumping through the media. We need to find out why thousands of downstream Settler and Indigenous residents were not informed of Regina's sewage treatment bypass.

2015: SPIN AND SPECULATION WON'T SAVE QU'APPELLE WATERSHED

In its consultant's report Regina justifies its releases of nearly 900,000 cubic metres of untreated sewage by saying that the "*elevated levels for some parameters (e.g. total suspended solids, phosphorous and E. coli) ... were within Permit levels for the month of June and July.*" The City's report goes on to say that "*the Permit requirement for phosphorous are based on a six-month average and it won't be confirmed that the requirements for this parameter will be met until the end of December 2014*".

The City's consultants averaged the releases from the bypasses from June 26th to June 30th and those from July 1st to 7th into two different months. Then they apparently used a six-month period to get the phosphorous levels acceptable in

terms of the Water Permit. While this may justify the releases in political and legalistic terms, this does not justify them in terms of ensuring watershed protection.

Just why is there more attention paid to the time period needed to average the levels out to comply with the Province's Water Permit, than to the actual amounts of sewage and the impacts of this contamination. Why aren't the actual releases of the algae-forming nutrient phosphorous discussed in any depth?

The Lower Qu'Appelle watershed is already known to be highly stressed from decades of buildup of these nutrients. Algae in Pasqua Lake, the first lake downstream from Regina, is said to be at least 500% higher than in pre-colonial times. It is the additional contamination that is of greatest concern to residents along these lakes.

Instead of addressing this, the report simply suggests that there would be "*negligible*" effects. It says that the effects of the "*bypass discharge as far downstream as the Qu'Appelle River are expected to be negligible due to dilution from other incoming flows and death of the bacteria in stream*". It even says, "*The wastewater that was bypassed to the creek would have been of notably lower strength than under normal conditions due to dilution from the rain water.*" This is likely a stretch. It also admits that there are significant ongoing releases of wastewater into this vulnerable watershed.

Is the City using "*dilution*" to displace its responsibility for contaminating the Lower Qu'Appelle watershed? Is Regina actually suggesting that higher levels of contamination from untreated sewage going into this watershed can be justified if this is more diluted and averaged out? This is unacceptable. What is the position of the *Water Security Agency (WSA)* on this? Will they also play the numbers game?

E. COLI LEVELS

Due to rising E. coli levels during last summer's flooding the Province had to close down 28 beaches in the Calling Lakes recreational waterway. **The role that Regina's sewage releases played in this remains to be seriously investigated.**

The City report says that the "*highest sample result for E. coli during the bypass operations was 770 MPN/100 mL*", which, it says, was below the "*absolute maximum level for E. coli of 1000 MPN/ 100 mL*" allowed under the Permit. In another place it says that "*At the height of the bypass operation, June 30th, the sample results were between 10,000 and 20,000 E. coli/100 mL.*" It adds that by July 5th the count was down to 200 E. coli/100 mL, which is below Canada's *Water Quality Guideline* of 400 E. coli/100 mL.

The report, however, speculates that "*given the time of travel...and the extensive dilution...appreciable E. coli concentrations are not expected to have entered the Qu'Appelle system...*". Just what do they mean by "*appreciable*"? It adds, "*...loading of E. coli is expected to have occurred all along the creeks and river as a result of local overland runoff.*" No direct evidence is given, there is only speculation. While it is likely true that there was some contaminated runoff all along the watershed, this does not mean that Regina sewage wasn't the major source.

Possible septic contamination during the extreme flooding at Round and Crooked Lakes cannot explain any of the high E. coli levels found **upstream at Katepwa or Last Mountain Lake. None of the Calling Lakes – Pasqua, Echo, Mission or Katepwa – flooded in the summer of 2014.** Further, I have checked and no lagoons along the four lakes contributed to lake contamination. While cottage and agricultural runoff of nutrients and toxins remains a concern to watershed residents, it would be irresponsible to ignore the impact of the greatest known source of the pollution last summer, which was Regina.

The City of Regina was clearly the main known single source of phosphorous, E. coli and other contamination going into this watershed during its summer 2014 sewage bypass. Pointing the finger at other non-specific and likely minor sources is not a responsible way to address one's role in downstream watershed contamination. Is Regina trying to completely absolve itself of any role whatsoever in the contamination of the waterways? Is the City saying in a roundabout manner that it doesn't think it has done anything wrong by releasing hundreds of thousands of cubic metres of untreated sewage into the Lower Qu'Appelle watershed? **Its incident report reads more like an apologism than an apology.**

MOVING FORWARD

Regina justifies last summer's sewage bypass into the Lower Qu'Appelle watershed by using legal-political not environmental health criteria. It speculates, without direct evidence, that the impacts of its untreated sewage releases

were negligible. This is not the way that impacts on water quality or watershed health should be assessed. The Lower Qu'Appelle watershed is already highly stressed and the cumulative impacts of the contaminants from the prolonged sewage bypass should be honestly assessed and then prevented from occurring again.

If this scale of untreated sewage release can be justified under an existing provincial WSA Water Permit then the nature and standards of the Water Permits need to be opened to public scrutiny and re-evaluated. Further, the City's incident report does not indicate that the City will make it a priority to upgrade its lagoons along with its wastewater treatment system, so as to prevent any future reoccurrence. This will be of great concern to everyone who values protecting our water. Trying to bury what happened with selective statistics and speculation will not address the problems of deteriorating water quality.

Direct communication is going to be required for us to effectively collaborate to better protect the health of this highly stressed watershed. There should be complete transparency of any relevant WSA testing. It would not be that difficult, for example, to distinguish between human and animal fecal matter to help determine actual sources of E. coli contamination.

There is talk of cottage owners who are also Regina residents and ratepayers sending a delegation to City Council. It is important for them to find out if the City will commit to work with others to ensure that there is no further downstream contamination. It is important to find out where downstream water protection fits in with its other priorities: its new stadium, the viability of its pension plan, its overall infrastructure deficit and its concerns about recycling and solid waste reduction. Water must be put at the top of the list.

There is also talk among *Qu'Appelle Valley Environment Association* (QVEA) supporters of holding a Round Table of all stakeholders – provincial, municipal, First Nations, cottagers, farmers, etc. – to systematically address three questions: 1) what is currently degrading this recreational watershed? 2) what challenges will global warming bring? and 3) what needs to be done to restore the watershed's resilience and health. We have seen other cities and countries reverse watershed degradation; why can't we do the same? Taking direct responsibility rather than pointing fingers at others is going to be necessary to move forward.

An evidence-based Action Plan will be required to move forward to protect and restore this precious waterway. But most of all there has to be the political will to admit that such water protection must immediately become our common priority. So far, we don't see this.

2015: WHY WE NEED NATIONAL, ENFORCEABLE WATER STANDARDS

We aren't yet very conscientious when it comes to protecting water. We're neither respectful nor effective in this important work. This is not a case of "*what you don't know won't hurt you*". We need to have the best knowledge possible and be willing to use it if we are going to avert a deepening water crisis.

The *Saskatchewan Environment* Minister called last year's unprecedented flooding a "*500-year event*". **Actually, it was the third extreme weather event in the last five years.** It was a huge wakeup call for many when Regina dumped 900,000 cubic metres of untreated sewage into the Lower Qu'Appelle, that this was allowed under the Water Permit, and that there were going to be no consequences. Regina officials tried to justify the dumping by saying that dilution would make the impact "negligible". This is wrong-headed for sewage is one major source of the contaminants that the federal government highlights in its water quality guidelines.

Just as city officials were reassuring us that everything would be fine once their water treatment plant finally got upgraded, Regina faced yet another water crisis. An early and warm spring probably linked to global warming had built up so much algae that it was plugging Buffalo Pound's filters and reducing its ability to treat water by 50%. Regina's Director of Water stated, "*it isn't a circumstance we had a plan in place for because it's not a circumstance that we've experienced.*" Yet another admission that the City was caught off guard. City officials called for a 25% reduction in water consumption. Thankfully, they had 8 backup wells to draw on while this water supply crisis was managed. This shows **why the aquifers that feed these wells must be protected.**¹⁹

The immediate solution was to “*flush out the problems*”. The flow of water from Lake Diefenbaker into Buffalo Pound was increased, as was the flow of water going out of Buffalo Pound Lake into the Qu’Appelle River. Like city sewage last summer, the high algae water got flushed downstream, towards us and then our Manitoba water neighbours.

There’s no wisdom in constantly relying on dilution to manage water pollution; the problems need to be addressed at their sources. Both urban and agricultural contamination must be curtailed. University of Regina biology professor Chris Yost has wisely recommended “*cleaning up the rivers and lakes rather than using chemicals in the distribution system*”.²⁰ At present, Buffalo Pound must use high levels of chlorination to disinfect highly polluted water for drinking purposes, a process which itself creates toxic byproducts. We also now know that these chemicals can interact with agricultural chemicals, such as the neonics, to further undercut human health.²¹

Meanwhile the province has grandiose plans to use Buffalo Pound not only for Moose Jaw and Regina drinking water, but for a rash of new potash solution mines. A new channel to increase agricultural irrigation from Lake Diefenbaker is being considered and a 200% increase in water use is being projected in the Upper Qu’Appelle by 2060. You can see that there’s really no sustainable water protection plan in place.

It is long past time to take a clearer look at the deepening water crisis in our midst. Optics and spin won’t help, nor will save the water clichés, cozying up to authority figures, or pretending that things will change if we just celebrate the water. Most certainly we have to value and respect the water, but fundamentally we need to understand the sources of water degradation and press for the changes in policy and practice required to protect and restore watershed health. We need knowledgeable, community-based coalitions for effective change to occur and we need them soon. This will require lots of listening, learning, negotiating and consensus-building.

Regina’s ongoing water crisis is a wakeup call for us all. Earlier and warmer springs and extreme weather swings, such as from flooding to drought as we saw from early spring to early summer this year, will continue to threaten water quality. Flooding, unregulated drainage, wetland damage and erosion bring more contaminants into the watershed and when water becomes scarce, such as at Buffalo Pound this spring, these contaminants will directly threaten water supply.

It would be foolish to not admit that the extremes have to do with global warming. We can’t deny that the threats to our water are getting more serious and that protecting water quality is getting more challenging. So, what do we collectively need to do?

ESTABLISHING NATIONAL STANDARDS

We first have to face how far Canada is behind other countries. **The *World Health Organization* rightly calls for member countries to have binding national standards to protect water.** This isn’t just for the protection of human drinking water but for the protection of aquatic habitats. Ultimately environmental and human health are the same thing.

We shouldn’t be smug about this. Yes, unlike the U.S., we have a universal Medicare system. But, unlike us, the U.S. has mandatory and enforceable national water standards, as do most EU countries. Canada only has water quality guidelines and each province decides what to test. The province’s priorities have not been about water protection but about resource extraction, including mining the soil. Meanwhile we know that many industry-originating carcinogens and other toxins are entering our waterways. While some contaminants may meet some guidelines, the cumulative toxic mix will most certainly continue to undermine human and environmental health.

No wonder Regina can get away with dumping raw sewage into a recreational watershed. No wonder that we see unfettered expansion of environmentally-risky agricultural practices, including the use of high-carbon, toxic chemicals and damaging drainage practices. No wonder that there has been such disregard for marshes, wetlands and floodplains that naturally clean water. In an era of catastrophic climate change we need to restore not degrade watersheds.

We act as though water contamination is collateral damage; an unfortunate consequence of water being used as a commodity for economic growth. The mindset, lack of policies and disrespectful behavior are all threats to watersheds. Water simply must be respected as a natural system, always remembering that “*water is life*”.

Since 2010, the UN has called for a “*human right to safe and clean drinking water and sanitation*”.²² We have neither in Saskatchewan nor Canada. We don’t have a right to safe drinking water, but only guidelines which may or may not be followed. And we don’t have a right to safe sewage disposal, as Regina’s sewage dumping in our watershed so blatantly shows.

Health Canada has water guidelines for 75 contaminants. In a recent investigation, the CBC found that only one city, Ottawa, did complete testing. Regina tests for only 52 contaminants; Saskatoon for 61.²³ The contaminants that Regina tested for include 13 pesticides, which is a good thing in such an agriculturally-intensive region. Yet another 11 pesticides were among the 23 contaminants that were not tested for, as were five radioactive elements.

Provinces and cities will argue that some contaminants couldn’t be problematic because they aren’t used regionally. So why test? In the U.S., all states have to test for all contaminants and if they find some aren’t present, they can then apply to exclude these from further testing. And it is better to be safe than sorry. We know that contaminants move with global weather systems; Canada’s north has pesticides from plantations in South America. Radioactivity can spread across oceans and continents, as we’ve seen after the Fukushima nuclear meltdown in Japan in 2011.

The pesticides that Regina doesn’t test for have been linked to such things as nervous and neurological disorders, kidney damage and cancers. If the Province has tested for these and found they aren’t present, then at least let us know. Why aren’t we testing for radioactive elements like Cesium-137, Iodine-131, Lead-210 and Strontium-90? Some of these come from nuclear weapons testing and catastrophic nuclear power accidents. Some come directly from the natural radioactive decay series. Saskatchewan is known for having high levels of natural uranium and uranium mining throughout the north has greatly increased the bioavailability of radioactive elements.

At present there isn’t full transparency about water quality data. And there should be. We don’t want unnecessary fears and anxiety, nor do we want risks to be hidden or downplayed.

Having only water quality standards, with provincial discretion about testing, will not guarantee environmental or human health. Guidelines will never be an incentive to seriously address the unfolding water crisis. This is even more the case after the Harper government’s deregulation of waterways, including the Qu’Appelle Valley Watershed. If we wish to see watershed protection and restoration of water quality there simply must be national, enforceable water quality standards. Regina’s ongoing water crisis exposes the inadequacy of the national and provincial status quo. This matter should be a major issue in the 2015 federal election.

2015: WE NEED A COMPLETE BAN ON DUMPING SEWAGE

While it was releasing 900,000 cubic metres of untreated sewage into the Qu’Appelle Watershed, Regina issued a press release saying it was “*committed to environmental protection.*” Then, as though dumping contaminants downstream wasn’t that serious, city officials reassured residents “*The issue is with waste water only. The City’s drinking water supply is completely safe.*”

Downstream residents were told that the contamination would be so diluted that the impacts would be “*negligible*”. However, in the aftermath of the dumping and flooding, downstream beaches were closed and fish kills multiplied. I witnessed hundreds of dead fish on the shores of Echo Lake a few weeks after Regina’s sewage releases. There was a huge local outcry, including a large meeting at the Fort Qu’Appelle Treaty Four Governance Centre. A few however argued that we shouldn’t point any fingers, as though lakeside septic tanks were as big a problem as Regina’s huge sewage releases. And while it is true that agricultural drainage and chemical runoff contributes to the contamination, Regina remains the major known point-source of watershed pollution.

Predictably the spin didn’t make the systemic problems go away. This past April the city and its P3 wastewater treatment partner EPCOR, were issued a *Water Security Agency (WSA)* letter of non-compliance for elevated levels of *E. coli* in the Qu’Appelle Watershed. A WSA spokesperson however downplayed the impact, saying “*there is no recreation use right now*”. This mindset is about short-term risks to humans rather than long-term implications for watershed health.

The higher E. coli was from melting ice churning up solids in Regina's lagoons which reduced the effectiveness of UV treatment. EPCOR's spokesperson admitted it was systemic: "*the existing process is unable to fully remove E. coli at this time of year.*" So much for all the past reassurances from Mayor Fougere.

WATER SHORTAGES

Regina shouldn't have been so quick to reassure its residents that their drinking water was secure, for on May 25, 2015 residents were asked to reduce water use by 25%. The early spring had created severe algae blooms at its Buffalo Pound treatment plant. The blooms so interfered with water filtration that water supply was reduced by 50%. Without its backup wells, which can supply some of its needs, Regina might have been in big trouble.

This wasn't that unpredictable when you consider the impacts of global warming and extreme weather on this highly contaminated watershed. However, the city was again ill-prepared, its Director of Water commenting "*It isn't a circumstance that we had a plan in place for because it isn't a circumstance that we've experienced in all the time that the plant has been running.*" Global warming is continually going to create new circumstances.

Dilution was again promoted as the solution. On May 29th the WSA announced it would flush the algae out of Buffalo Pound Lake by increasing the flow from Lake Diefenbaker. The outflow of contaminated water into the Qu'Appelle watershed was increased more than tenfold, from 1.2 to 11.2 cubic metres per second. All going downstream.

Regina residents may be more vulnerable than they think, for according to a CBC report on water shortage, the city's reservoirs only have supply "*for about one day*". And it isn't the first or last time Buffalo Pound plant failure has led to water shortages. In January 2011 the 60-year old plant shut down due to electrical failure; in early December 2018 there were three power outages in three days.²⁴ Other places besides Regina and Moose Jaw depend upon Buffalo Pound: Pense, Grand Coulee and Belle Plaine are all on the distribution system.

Thankfully city reservoirs were again full by June 11th. But it was only a few weeks before the watershed crisis took another turn. On July 27th some areas of Regina received 100 mm of rain and the same systemic problems that led to the massive sewage pollution in summer 2014 were back in play. The city first reported that as a "*last resort*" it released 1 million litres of untreated (screened) sewage into the Qu'Appelle Watershed. It turned out to be 15 million litres.

Regina officials again made lame excuses. Their Director of Water claimed it was a "*one-in-25-year event*", as if there was no memory of what happened the previous summer, when there was 150 mm of rain. The Director however seemed to admit the problem was systemic saying "*another big downfall could spell another similar problem.*"

It's easy for the City to issue platitudes about the environment. Words are cheap, while understanding, commitment and preparedness is quite another thing. And was the city really as caught off guard as it claimed? In an April 27th posting City Councillor Shawn Fraser wrote that a city study found that Regina's sewer system "*is only capable of managing a 1:5-year storm event, well below the city's target...of 1:25 year storm event.*"

Systemic problems need systemic solutions. Will Regina citizens and the province start insisting upon such solutions?

2015: LOVE IS NOT ENOUGH:

DOWNSTREAM RESPONSES TO REGINA'S SEWAGE RELEASES

Downstream officials responded quickly after Regina released untreated sewage into the Qu'Appelle Watershed for a second summer in a row. On July 30, 2015, as Fort San's Mayor, I told the *Regina Leader Post* that I "*wasn't surprised*", while explaining "*It's becoming a habit for Regina and, clearly, there's something systemically wrong. We can't go on and on, just dumping and pretending dilution solves it, when we know this is not a sustainable way to deal with sewage.*" Hopefully, the systemic nature of the contamination is becoming clearer to more people.

There have been some strong words from the valley. Ken Hutchison of the Calling Lakes District Planning Commission (CLDPC), in the August 3rd *Fort Times*, noted that local officials had been "*arguing with the City and Government for years*

to stop the practice of dumping raw sewage”, adding “it’s just unbelievable that they would do that”. But, like last summer, Water Security Agency (WSA) spokesperson Patrick Boyle came to Regina’s defense, noting that had they not dumped the city “ran the risk of permanently damaging the system or losing it all together”. Boyle continued “...that combined with the human health impact from sewage backing up into houses also adds to the urgency.” How did we ever get into a situation where the health of the province’s major recreational watershed gets played off against the health of Regina citizens?

On August 10th we found that the City couldn’t count and that it had actually released 15 times the sewage that it had reported on July 28th. The next day Fort Qu’Appelle Mayor Ron Osika finally complained about Regina’s continual dumping, noting that the Town had its own treatment plant and doesn’t have to make releases into the adjoining lakes. This was the first word from Osika who seemed more concerned about getting a marina built in a vulnerable marsh.

It was noteworthy that Regina’s Mayor Michael Fougere stated “if I lived there, I’d say the same thing”. However, in view of years of sewage infrastructure neglect and the predictable nature of the contamination, it was hard to take seriously his comment that “no one wants this to happen.” For decades the Qu’Appelle Watershed has been Regina’s Plan B for sewage disposal.

FORT WATER FESTIVAL

There was some irony in this all, for two days before Regina’s sewage releases, avowed water champion, Aura Lee MacPherson, had organized a Water Festival in the Fort. This was to show “love for the lakes”. But, as in real life, love was not going to be enough.

This event was politically partisan, featuring local Conservative MP Andrew Scheer and Sask Party Deputy Premier Don McMorris, who was highlighted on the promotional poster. To build community such events should be inclusive, and non-partisan, but no NDP, Liberal or Green participants were allowed, even though Regina-Qu’Appelle NDP and Green candidates were in Fort Qu’Appelle during the event.

There was no chance to openly discuss the major threats to the lakes or examine an Action Plan that could protect and restore them. Remember it was Andrew Scheer’s Conservatives that deregulated the Qu’Appelle lake chain through Harper’s 2012 Omnibus Bill C-51 and then sold off PFRA land that lay the groundwork for the privatization of lakeshore Crown land and the debacle over land sales to Abaco. It was McMorris’ Sask Party that issued the permit that allows Regina to dump sewage without consequence. So, what was this Water Festival trying to say? It certainly looked like raising one’s personal profile and cozying up to powerful political men was more important than protecting the water.

The exclusive water love-in allowed those governmentally responsible for these failed policies to seem concerned and get off the hook. In the August 14th *Fort Times*, McMorris indicated that his government prefers to ignore the scientific research showing that Regina sewage has steadily degraded lake water quality. McMorris even alleged that water quality has “improved” since the years when “people didn’t have septic tanks.” This ignored the gravity of the present situation and the evidence about continual lake degradation. University of Regina water biologist Peter Leavitt is quoted saying the Calling Lakes are now “among the highest toxin lakes in Canada.”

BUILDING SOLIDARITY

Sask Party’s spokesman McMorris reiterated a phrase often used by water festival organizer MacPherson, that “it’s not about pointing fingers at one jurisdiction...it’s about all of us.” Certainly, we’re all affected and should become more involved. And yes, the Ken Hutchinson-chaired regional planning commission could do something direct under its District Plan to protect the watershed, but this has not occurred. As could Fort Qu’Appelle, which, like Regina, shows disregard for wetlands and marshes, which it sees as impediments to “development”. **Its 2013-15 giveaways of vulnerable marshland to the North Dakota energy company, Abaco, while one director, Brian Janz, was on Town council, shows its disregard for the lakes.**²⁵ It’s certainly not good practice to point fingers at others if this is done to displace your own responsibilities.

Watershed protection can’t advance without objective analysis of the history and impact of ongoing contamination. Without this, the talk of us all “loving” the lakes will just become another excuse for displacing responsibility, which is what has already happened with the Town. While a *Calling Lakes Eco-Museum’s* (CLEM’s) “Save Our Lakes” sign was

posted on the Town door, Fort Qu'Appelle was allowing dumping of toxic soil in the marsh area by the old lagoon.²⁶ The hypocrisy is stunning. This appeal to "love our lakes" may make us feel good in the short term and, understandably, those of us living along the watershed want to feel some solidarity about protecting the lakes. But a partisan, non-finger pointing, we're all in this together, approach will reinforce a sense of powerlessness, as though there is not much that affected individuals and communities can do to change the course of events. When you consider the local impacts of global warming, this leaves the watershed at serious risk.

The challenge is to find ways to organize so that people become more fundamentally informed and energized. Enough of the mindless, partisan and self-centered approaches. Perhaps there will be some important lessons from grassroots mobilizing against China's Yancoal Potash solution mine and the petition against the WSA's arbitrary plan to divert water, that naturally goes into the Quill lakes, into Last Mountain Lake. This will show whether people are more willing to go beyond the limited and parochial "Not in My Back Yard" or NIMBY approach to see the bigger picture.

Collective organizing to challenge and change threatening government policies and practices can be an expression of our deep awareness that "water is life". It is in this sense that our love of the beauty and integrity of the natural systems that create and sustain us all, can help us to move to a more sustainable path.

2016

WILL SOLUTION MINING THREATEN OUR WATER SECURITY?

On January 28, 2016 nearly 250 people filled Earl Grey's community hall to hear about Yancoal's "Southey Project". Because of the scale of the potash solution mine, people came from the surrounding farming area and also from upstream and downstream, travelling from Regina, Lumsden and Fort Qu'Appelle.

Yancoal is a Chinese state corporation with a global reach; part of China's attempt to lock down control over strategic resources. Yancoal now has direct control over Australian coal, and with nearly 50% of the global supply of potash, Saskatchewan is on its short list.

The Sask Party government is very supportive of China's resource-control plan. Short-term potash revenue, which is usually exaggerated, is trumping long-term water security. This is poor judgment, for to move towards sustainability, water must become our new bottom line.

Yancoal claims it can't extract potash in the Southey area using underground mining; the potash is too deep; below 1200 metres. But underground mining is very expensive. So Yancoal wants to do much cheaper solution mining, using millions of cubic metres (Mm³) of cheap, clean water to flush the potash above ground.

This would consume and contaminate massive amounts of groundwater. It would also leave a huge waste stream of toxic salts which will further contaminate our already vulnerable prairie land. The mine would also bring huge amounts of traffic-related pollution, both road and rail, to the area. The co-existence of healthy agriculture, land conservation and solution mining are unrealistic.

The plan is to pump toxic waste water below the Hatfield Aquifer, taking it permanently out of the renewable water cycle, which would reduce the flow in the Qu'Appelle Watershed. Leaching into the aquifer through some of the inevitably faulty well pads would remain a great risk, and land above the underground drilling would ultimately sink.

Yancoal's proposed mine is upstream from the already vulnerable Qu'Appelle Valley. The mining will occur just a few miles from Loon Creek, which drains into Pasqua Lake, already degraded from decades of Regina's sewage and agricultural runoff. High saline water can permanently destroy fish habitat.

WATER SUPPLY THREATENED

Yancoal wants the province to provide huge amounts of water from Buffalo Pound lake, which also supplies Regina and Moose Jaw. Sask Water is proposing three possible pipeline routes.

Using Yancoal's figure of 1,450 cubic metres an hour, water consumption could be 13 million cubic metres (Mm³) a year. Using estimates from the previously proposed Vale mine, it could be 21 Mm³. Either way the amount is huge: from one-half to nearly 100% of what Regina presently uses annually (23 Mm³).

This would supposedly come from increasing the flow from Lake Diefenbaker. However, the flow into Lake Diefenbaker has been steadily declining for a hundred years. And this decline will likely accelerate with continual melting of the mountain glaciers and reduced summer rainfall from global warming.

Prairie temperature increases, perhaps by as much as 4 degrees Celsius, will greatly increase evaporation and further degrade water quality.²⁷ Buffalo Pound is already showing this trend.

Even without the added burden of climate change or increased industrial demand for water, there have been reoccurring, long periods of drought and critical shortages of water within the Qu'Appelle Watershed. This will most certainly continue to happen. You can't have long periods of reduced flow and compromised water quality, compounded by global warming, and expect to have a secure supply for ever-greater demands in the future. Something will have to give.

On its website Yancoal asks "*what will happen in a water crisis?*" and answers "*Priority will be given to residents and farms over industry.*" Meanwhile, Sask Party policy, expressed by the Minister of Environment to the Calling Lakes Planning Commission in 2013, is that "*licensed users will be accorded first priority to water*". With the impacts of climate change we will see more conflicts over water scarcity around the globe.

We don't even need to imagine such water shortages. Last May, Regina lost 50% of its water supply from Buffalo Pound due to unprecedented massive spring algae blooms (called diatoms). More water had to be released from Lake Diefenbaker to flush the algae downstream. What would have happened if huge water pipelines to Yancoal and other solution mines were also pumping? And what if there was no flow into Lake Diefenbaker at the time?

Yancoal and other proposed solution mines would put gargantuan demands on our vulnerable watershed. Though the government probably doesn't want to say it, the back-up strategy is probably to take water from the Hatfield Aquifer. They've thankfully rejected taking water to the Yancoal mine from the overflowing Quill Lakes, which would be expensive and only a temporary solution. It seems contradictory for some water groups to both oppose the Yancoal mine while proposing that it use water from the overflowing Quill Lakes.

A similar scenario is already happening in China where industry not only pollutes scarce farmland and vulnerable habitat, but has reduced many waterways to a trickle and is drawing down aquifers in some regions.

China's Yancoal isn't here just for the potash; it's also here for the water. This helps to reduce potash extraction costs. Meanwhile, water is already a world-wide "strategic resource" and it shouldn't be squandered for short-term gain.

If Premier Wall can stop Australia's BHP Billiton from buying out U.S.-based Potash Corp because potash is deemed a strategic resource, then why aren't we protecting water? Water needs to be treated as a human right, not an industrial commodity. It's clearly time to stand up for water and for the future.

2016: FORT McMURRAY'S MEGA-FIRE: WE ARE WAY PAST WAKE-UP CALLS

Nearly 90,000 environmental refugees in once oil-rich Alberta; who would have imagined. A seemingly endless cavalcade of frightened people in vehicles spewing more carbon as they escape the inferno. And the outpouring of support from always charitable Canadians, who might have once believed that Alberta was going to be the engine of Canada's economic future!

By Mother's Day there were already 200,000 hectares of forest turned into more carbon going into the quickly warming atmosphere. And the fire zone was doubling daily. There were huge oil-storage tanks at the tar sands which some worried were at risk of exploding. Memories of Kuwait!

No science-fiction here.

The mass media typically focuses on the human drama and largely ignores the underlying climate crisis, comparing the devastation, with more than half of Fort McMurray gone up in flames, to a “war zone”. The only war here is on nature with humans everywhere being caught up in the blowback from the human-induced, evolutionary-scale changes now occurring on the planet.

Fly-in journalists look for compelling stories of courage and compassion. One oil-worker who had barely escaped the flames simply said, “we’ve got some good clean air to breathe today, that’s all you need”. This was his animal-self talking. Another woman calmly said it’s “the scariest thing in my life” and described the “mad panic, the panic on everyone’s faces” as people drove ferociously to get through the fire unscathed. There will be much trauma along with damaged lungs.

Meanwhile satellite images show the smoke rising from the 200-foot flames making it to Florida. No wall will stop this. I’m checking to ensure I have some good masks here, in the Qu’Appelle Valley, to be able to walk our dog and work in the garden if we get a smoke inversion, as we did for nearly a week last summer from the huge forest fires in Northern Saskatchewan. Who would have thought?

POLITICAL BUBBLES BURSTING

Is this going to be our new normal? There is nothing normal about not being able to take clean air and water for granted. What have we done? And why is it taking so many people so long to catch on?

The bubbles of many Albertans were already bursting when the price of oil collapsed. Some political bubbles have also burst, most importantly around Harper’s centralized control of the Canadian state. No one saw Rachel Notley’s NDP government in Alberta. No one saw the *Leap Document* moving to the political mainstream as social democrats, easily mesmerized by their own version of “jobs at any cost”, started to see the bigger picture. No one, no one at all, saw the federal Liberal government later buying the Trans-Mountain Pipeline after it was stalled by hearings, a falling market and a crescendo of Indigenous and environmental opposition.

Environment Canada’s senior climatologist didn’t respond with naïve shock when asked if he was surprised by the scale of the wildfire. He simply said “not really” and reminded us that in the prairie provinces it’s been an all-time record dry winter, an earliest ever and record dry spring and that the winter was the 2nd warmest on record. He referred to the conditions as “desert like”.

Meanwhile politicians from Edmonton to Ottawa will continue to express solidarity and promise support. There will be much praise for the volunteerism; already \$50 million has been raised by the Red Cross, to be matched by both levels of government. And there will be some heart-felt identity politics: “It’s a tough day for Albertans but we will persevere”, said interim Conservative Party leader Rona Ambrose.

But our special identities aren’t going to matter much or save us from the path we have placed ourselves on. It’s going to take something much more than reactive concern or talk of “returning and rebuilding”. **Alberta’s mega-fire now surpasses Quebec’s 1998 ice storm as Canada’s all-time record insurance bill.** The flooding that devastated Calgary in 2013 is also on the short list. Alberta is clearly getting more than its share of the blowback from the extreme weather that comes with fossil-fuels and global warming.

One NDP MLA got in trouble for tweeting that the firestorm was karmic blowback for the tar sands. Not really; global warming doesn’t punish high-carbon areas, as it devastates and traumatizes humans and other creatures on the planet. Most of the environmental repercussions have been occurring in low-carbon, impoverished regions of the world – the droughts presently ravaging east Africa and the interior of India are creating millions, not thousands, of environmental refugees.

Hopefully the compassion for Fort McMurray refugees may yet grow into global compassion and understanding, such as occurred for a while over Syria’s refugees, many of whom were environmental as well as war refugees.

We continue to see new, high global average temperatures and recently, even monthly, the rise has been edging upward. We now see carbon levels over 400 ppm, the highest recorded on earth for many million years, and long before homo sapiens evolved. Once climate changes become non-linear and the “feed-back loops” kick in, like mega forest fires releasing even more carbon and warming Arctic tundra releasing massive amounts of methane, we are going to be in

great trouble. Reactive crisis management, even with great waves of compassion, will not be enough; our resilience needs to be shored up with awareness and commitment to make the big changes. Unfortunately, there are still a lot of people in denial, still making ill-conceived incremental decisions that contribute to the crisis.

Simply put, we do not have a lot of time to face up to what greed-oriented industrial growth is doing to undermine the conditions of life on a planetary scale. These effects are starting to show in the Qu'Appelle Valley Watershed. We are well past the time of wake-up calls.²⁸

Outgrowing our parochialism and waking up as a species is what is now required. And it must happen quickly.

¹ ENDNOTES

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³ See Eric Davidson, *You Can't Eat GNP: Economics as If Ecology Mattered* (Perseus, 2000).

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⁵ *Enviro-nics Fracking Poll*, taken between Jan. 5-15, 2012, released Feb. 2, 2012.

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⁷ See "Hydraulic fracturing and radionuclides", *Wikipedia*.

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⁹ See *A Fractivist's Toolkit*, Council of Canadians, 2012.

¹⁰ My thanks to Regina's Making Peace Vigil for some of the information in this piece.

¹¹ Peter Leavitt, *Limnology and Oceanography*, Vol. 51, No. 5 (Sept. 2006, pp. 2262-2277).

¹² See [Climatesignals.org](http://climatesignals.org), Dec. 4, 2018

¹³ See "Save My Lake" online at CBC's *The Nature of Things*.

¹⁴ The vote on September 25th was 57% in favour of the City P3 proposal.

¹⁵ See reports at usask.ca/centreforhydrology.

¹⁶ I've researched and published on asbestos in Lake Superior, mercury in Northern Ontario, and uranium in Northern Saskatchewan.

¹⁷ The letter is available at: www.4callinglakes.ca

¹⁸ Organizer Aura Lee MacPherson arbitrarily told Kairos that they could not bring their resources on water protection to the meeting. There was no plan to gather names of potential volunteers.

¹⁹ See detailed report by Natascia Lypny, *The Future of Regina's Water*, *Regina Leader Post*, Sept. 3, 2015.

²⁰ *Regina Metro*, June 3, 2012.

²¹ J. Sass, *Neonic Pesticides May Become More Toxic in Tap Water*, *Expert Blog*, Feb. 4, 2019.

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- ²² This historic resolution 64/292 was passed on July 28, 2010.
- ²³ *Drinking water in Canadian cities not always tested for contaminants*, CBC, June 16, 2015.
- ²⁴ Bryan Eneas, *Regina, Moose Jaw residents asked to limit water use after outages at water treatment plant*, CBC News, Dec. 5, 2018
- ²⁵ See *The Marsh Papers* at: QVEA.CA
- ²⁶ In March 2018, after the QVEA again filed a complaint, the Town was issued an *Environmental Protection Order* (EPO) requiring it to remove 42 truckloads of contaminated soil.
- ²⁷ See the work of Dave Sauchyn at Prairie Adaption Research Collaboration (PARC) at University of Regina.
- ²⁸ On Nov. 19, 2018 the *Regina Leader Post* published my piece "*In the climate crisis, time is not on our side.*"

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who is putting their backs into protecting
the Qu'Appelle Watershed.

Global warming is happening and it is happening right here in the Qu'Appelle Valley. The prairies are warming faster than elsewhere, which we ignore at our peril. Saskatchewan not only has Canada's highest per capita carbon footprint, but we have a government of climate slackers. If Canada doesn't meet its Paris Agreement targets, the extremely high emissions in Saskatchewan and Alberta will be a major reason.

The chemistry of the oceans and atmosphere is undergoing unprecedented change while biodiversity is collapsing in all eco-systems, and especially in prairie grasslands. Meanwhile, the Sask Party Government supports cost-ineffective carbon capture and toxic nuclear power. It should be moving quickly to renewable energy and overall policies and practices that immediately reduce carbon. It protects water for industry while playing politics with the continual contamination of our waterways. It has irresponsibly politicized carbon pricing, which simply has to be one measure to reduce greenhouse gases (GHGs) throughout society.

While the Sask Party Government claims to accept climate science, it encourages agricultural wetland drainage that makes us all more vulnerable to flooding, drought and toxic runoff into our vulnerable watershed. This accelerates the degradation of the very biodiversity that we must protect to better withstand the impacts of global warming.

This publication chronicles the gathering storm of extreme weather events already affecting the Qu'Appelle Valley Watershed. It explores the systemic disregard for the well-being of the watershed - its rivers, lakes, marshes and landscape, whether by political decision-makers from Regina, the Province, or the Town of Fort Qu'Appelle. It shows the limits and confusion brought on by any form of parochial, not-in-my-backyard, NIMBYism.

From Regina's sewage dumping, to the serious floods of 2011 and 2014, and near miss of 2013; to disastrous agri-business drainage practices in the face of global warming; to ecologically-destructive land use practices in the valley, this is a must-read for concerned citizens and activists alike. We no longer have time to ignore the climate crisis; it is already on our doorsteps. Protecting and restoring our watershed, while working to reduce the high

carbon emissions and chemical pollutants from our economy, is now an urgent personal and collective responsibility. It is time to stand up and protect the future.



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