

CLIMATE CHANGE



Newsletter on Global Warming for ANZ Friends

January 2015

Let us examine the dimensions of the challenge, that our responses might be adequate.

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Introduction

The focus of this issue seems to have developed into, “What can we do about it?” questions, focused on the NZ government’s inadequate response to the challenge of climate change. What are NZ Quakers obliged by our beliefs and concerns for justice and peace and guided by our Testimonies, obliged to do about it?

We start this issue with the government's excessively feeble, and widely criticised here and overseas, proposed GHG emissions reductions. A paltry 5 % below a time when our emissions were high anyway. And a 10% to 20% reduction conditional on a comprehensive global agreement.

There are comments on some of the actions we can take, individually and corporately. To act with integrity we will first have to have put our own personal and corporate houses in order. Plus have some sort of vision of what Quakerism might look like in a zero emissions and dangerously warming world a few years hence.

"Have you ever found it difficult to talk to others about climate change issues?" The Futures Committee has sent in an article, "Breaking the Silence" - what can we do? How do we go about it? How do we promote open discussion on climate change?

Then comes a short piece from Professor Joseph Resser on the way that being engaged and informed, and taking some responsibility, results in people feeling they are part of the solution, and not just bits in the huge collective problem.

"Issue engagement at an individual level brings the biosphere home, and makes this otherwise complex and distant and seemingly insurmountable phenomenon, personal, local, known, and a collective problem and responsibility about which much can and critically needs to be done."

It's good thinking, and something to remember when seeking the way forward. It's something to put into practise when trying to engage people in the struggle. For struggle it is as anyone who has tried to spread awareness and concern for the climate change disaster will have experienced.

As I write, the sound of yet another aircraft taking off from Wellington airport, distributing yet more lethal greenhouse gasses high in the air emphasises the point. A time when one has to take care not to let frustration take control!

Talking with John Gleisner a few weeks ago about what it will take to start NZ on a path to a zero emissions economy, he said, "Leadership." But, how does leadership relate to public opinion? And where does it come from? I asked a few Friends for their thoughts on an aspect of leadership of their choice. Their replies (there are more to come) are printed here. Anyone else is welcome to add their pennyworth. Email sjplusam@gmail.com.

The article headed, "Climate Change: Positive messages on the International Scene" explores the contentious issues around who is responsible for the present mess and therefore should make most effort to clean it up. Not a question many politicians are competent to handle I expect. Better left to NGOs and people working on the ground? It ties in with the Quaker thought on leadership.

The story about melting methane clathrates in the Pacific northwest is genuinely disturbing. If we don't find it so then we're not listening to the climate change scientists. We certainly can't stop it, but we can use the knowledge to spur us on to greater efforts to reach zero emissions.

In similar vein is the article from the Climate News Network about expected flooding of streets in New York and other U.S. coastal cities as sea levels rise and storm surges take more toll by mid century. Mid century? But that's a long time away? It is, but our day to day actions are the drivers of what to expect then, and worse, such is the inertia in the system, for centuries following. The situation applies to coastal and deltaic cities world wide, and spells disaster for millions of people. Where will they escape to? Here?

We are all aware of the damage that aviation does. The comments by Alice Bows-Larkina of the Tyndall Centre for Climate Change Studies on how this might be brought under control are apposite, and of interest to us who have up till now both relied on flying and taken its use for granted.

Water related crises are an obvious component of climate change, but the story from Nature throws light on many less obvious aspects of the subject. The author opens up the concept of hydro-diplomacy, and points out some of the possible benefits, as well as some very nasty figures from poverty situations. Some of the international agreements over water sharing were news to me, and encouraging. But again, we can't escape some share of the responsibility.

Bear in mind when you read the article on the aviation industry, that the essential goal is zero emissions, not merely reductions. The industry is extremely busy justifying its existence and promoting even more growth. Extolling (slightly) more climate friendly aircraft and fuels, none of which can be effective on the path to zero emissions. You will see what we're up against as you read the article.

We end this issue with a rather fanciful bit of wishfully thinking with a deadly serious meaning. NZ in 2030 having achieved a zero emissions economy.

The Government has three national targets

for reducing New Zealand's greenhouse gas emissions that cover both the medium and long term.

An unconditional target of five per cent below our 1990 greenhouse gas emissions levels by 2020.

A conditional target range of 10 to 20 per cent below our 1990 greenhouse gas emissions levels by 2020, if there is a comprehensive global agreement.

A long-term target of 50 per cent below our 1990 greenhouse gas emissions levels by 2050.

New Zealand aims to meet these targets through a mix of domestic emission reductions, the storage of carbon in forests and the purchase of emission reduction units from other countries (Ministry for the Environment).

Now consider

The world goal has to be **zero emissions**.

The UN's Intergovernmental Panel on Climate Change (IPCC) said that fossil fuels must be entirely phased out by the end of the century to keep temperatures from rising as high as 5C above pre-industrial levels, a level that would have catastrophic impacts worldwide.

James Hansen of the U.S. National Aeronautical Space Administration (NASA) was one of the first to say that the widely accepted limit of 2° above pre-industrial revolution levels is too high. He suggested 1° or possibly 1.5° as a safer level to aim for. Congress told him not to be silly, the U.S. economy would collapse.

The U.K. Tyndall Centre for Climate Change Research says that we rich countries (and the rich in poorer countries) must cut our emissions to zero by 2030 to give a 50/50 chance of avoiding dangerous climate change. And to give developing countries time to catch up on development and poverty reduction.

The Leader of the World Bank groups, Dr. Jim Yong, endorses the above as do many people and organisations working in the area.

There are as yet no adequate means of offsetting, no ETS (Emissions Trading Scheme) has been devised that does much more than juggle with figures. Certainly no scheme that guarantees zero emissions.

Yet we have only until 2050, though many respected climate change scientists are saying by 2030, to rectify all of this.

Consider again

The scale of mayhem and suffering world wide resulting from even 2° of warming runs counter to all our Testimonies – so, what are we going to do about the excessively feeble and widely criticized NZ government goals, which can only contribute to an early 4° of warming?

I don't remember who it was who said, "If you want to change the world, begin with yourself." It's good advice. So we begin by calculating our own carbon footprints.

To calculate home electricity, waste, road and domestic air travel carboNZero is good and easy to use

For international air travel the German Atmosfair is considered the benchmark; www.atmosfair.de/en/kompensieren/

For the all important diet and lifestyle we need the Resurgence Carbon Calculator; www.resurgence.org/education/carbon-calculator.html It's UK based, but it's well worked out, and given that these things are informed best guesses anyway, fits the NZ scene neatly enough.

Then resurrect the old pencil and paper technology and add up the three totals. All much easier than it might sound.

There is enough information in this and previous climate change newsletters on which to base a letter to a government minister, newspaper, radio/tv programme etc. I'm sure you'll think of more if you Google around a bit.

If you need help with wording, ask someone in the Futures Committee, futurescommittee@quaker.org.nz or Gray Southon gray@southon.net or sjplusam@gmail.com

Now consider again

Farming produces nearly half NZ's emissions, and methane from ruminant livestock (sheep and cows) makes up almost a third of NZ's greenhouse gases emissions (NZ LandCare Research}. Yet we all live by the results.

Tourism. In 2005, the CO₂-equivalent emissions from the 2.4 million international visitors' return air flights was nearly 7.9 million tonnes, about the same as the emissions from all the country's coal, gas and oil-fired power generation (NZ Herald).

Obviously those aviation emissions have increased by now, yet the government, far from trying to reduce them is encouraging tourism on the grounds of economic growth.

The problems are huge, but we need to consider them carefully if we're to be effective.

And somebody has to be effective very soon.

Talking about Climate Change

From the NZ Quakers Futures Committee

Have you ever found it difficult to talk to others about climate change issues? Perhaps people change the subject in a hurry, or respond with reasons that it is not happening, or that it is not their concern, or that they can't do anything about it. Perhaps you just get the vibes that climate change is not the sort of thing that one talks about – like religion – even in Quakers.

But does that make sense? We are all faced with this upcoming threat; if not in our lifetime, then in the lifetimes of our children. Yes, it is a devilishly difficult issue, but avoiding it won't fix it. If we don't do anything, then we will be entirely in the hands of others who may not have our interests at heart.

So what CAN we do? There are many options, but the most valuable way for you to use your skills and interests in your situation can only be decided by you, working with others around you. While there are many valuable things that you can do within your own lives, it is likely that you can also make contributions to the broader community and political arenas.

We will not move forward unless we find an approach and a vocabulary that brings the scope of the broader issues into everyday thinking. We need a form of expression, perhaps a narrative, that enables people to engage effectively with the issues in their personal, social and political dimensions. Thinking must include personal, local, national and international levels. It needs to be done in such a way that people are not petrified by fear, but invigorated by the challenge to move us together beyond our individual actions to collective action.

Is this a challenge that Quakers can rise to? Can we work to bring it on board as a part of our everyday life in ways that are life affirming? Can we make the discussion accessible to our Quaker community, even to the extent of changing our priorities and world view? Can Friends develop ways of taking the message outside the Quaker community in such a way that it enables us as a nation to address the challenges more effectively?

This is why the Futures Committee has developed a program called “Breaking the Silence” to promote open discussion of Climate Change and its ramifications. We need to share our experiences about what is preventing us to discuss the topic, and to sort out ways to overcome those inhibitions.

Interested? Email: futurescommittee@quaker.org.nz

Summer Gathering Climate Change Activities:

At summer gathering we did start talking about Climate Change, and a number of projects were suggested - a number that has now grown to 9. Two are currently underway and we need people to participate to make more of them go. Interested? Email: futurescommittee@quaker.org.nz

Professor Joseph Reser

from the School of Applied Psychology at Griffith University, Queensland comments:

“These comprehensive reports covering the past five years of intensive research bring into sharp relief the increasingly critical urgency for adequate global response. Yet many crucial considerations relating to the human dimensions and impacts of climate change have not been on the radar of climate change science.

Climate change adaptation and mitigation, for example, are closely inter-related processes and responses from a psychological and individual experience and behaviour perspective. Personal engagement with the issue and ‘taking action’ in the context of one’s own life style and circumstances can play crucial roles and provide multiple benefits in addition to reducing one’s carbon footprint.

Being engaged and doing something helps people to come to terms with the reality and implications of climate change, and feel that they are making a difference, being informed and responsible, and part of the solution and not just the collective problem.

These psychological adaptation processes and outcomes reflect powerful and interactive synergies between coping and doing.

It is important to not lose sight of these more psychological ‘human dimensions’ of climate change, as this is where ‘public engagement’, and adaptation and mitigation policies and initiatives, either work or fail in influencing crucial individual and collective lifestyle adjustments and changes.

“Climate change is a quintessentially human as well as ecological issue and challenge in terms of causes and consequences, and the psychological and social environmental impacts on human communities of global climate change in terms of quality of life and environment, health and well-being – and the life support systems of all species – are likely to be profound, and with us for many generations if not millennia.

“Issue engagement at an individual level brings the biosphere home, and makes this otherwise complex and distant and seemingly insurmountable phenomenon, personal, local, known, and a collective problem and responsibility about which much can and critically needs to be done.”

NZ Quaker thoughts on Leadership

Talking with John Gleisner a few days ago about what is needed to start NZ

on a track to a zero emissions economy, he said , “Leadership”. But I wonder what kind of leadership? Leaders’ styles range from, “Hey, you lot, follow me,” to a more subtle influencing of ideas.

Evolving to a zero emissions economy by mid century as the climate change science now insists is the only chance we have of avoiding catastrophic climate change, will be an immense job. Our whole lives for generations have been fossil fuel dependent. In NZ perhaps more than most.

Our farming is almost totally oil dependent, and we rely on methane producing ruminant animals. All has to change. Transport systems have to convert to all electric, once all our electricity is sustainably generated; international tourism, along with all flying will be phased out. On top of that we’ll probably have a population of 20 million or more as climate change bites our neighbours harder.

I have asked several Friends to, in that context, write for the climate change newsletter, a few paragraphs exploring around the concept of leadership. It might help us move our thinking into the next era, and inspire action [Ed].

Sue Stover

I don't have enough insight to write on the topic of leadership and climate change, but I do have some thought directions - such as that we as Friends are used to being able to look back in confidence that we did the right thing (think Slavery; think Nobel Peace Prize).

And that while we can lighten our individual carbon footprints, establish a worm farm, eat vegetarian and vote Green, the big changes needed are at global economic levels. While we can act in faith on the local level whilst thinking globally, that may be self delusional.

I don't see how Friends can act decisively co-operatively without also coercing Friends - eldering people out of Friends who have a heavy carbon footprint? Or do we drive the 'Bentley' (think Ben Pink Dandelion's Swarthmore lecture) 'as long as we can'? Or do we consider that only he/she who is without sin (ie carbon neutral) throw the first stone? (think St Paul).

So my thoughts are careering off course and away from the topic of leadership - but for what they're worth, those are my current ruminations.

Gray Southon

The issue of leadership is very important, unfortunately I find many who are so disillusioned in current leadership that they have given up on the concept themselves.

Many volumes have been written on leadership, usually focussing on the characteristics of the person themselves. Really, leadership is a relationship

between the leader and the people.

Leadership can happen in many different ways. While we expect leadership from the top of organisations, it can occur in many different ways throughout organisations and societies.

It seems to me that leaders have some sort of concept of what is valuable for the community that they are part of, and are able to express those ideas in convincing ways. It is usually in limited contexts, but can be more comprehensive.

They also have considerable knowledge of the community, and a sense of what is likely to motivate them. They listen to the community, but interpret what they hear in terms of their broader understanding, so they link everyone into that 'common interests', rather than simply agreeing with everyone. The archetype of the person 'agreeing with the last person they talked to' is not a leader.

In a way the leader provides a focus for common interest, freeing others to pursue their individual interests within that context.

John Gleisner

Whilst it would be wonderful to have your scenario played out, I am sceptical still. Just as it is so difficult for an individual in New Zealand or Britain to cut their carbon footprint to 2 tons, so I think there are equally difficult though different problems facing a city. I think leadership is important at two levels.

In local communities.

And this is happening. An analogy would be the growth of anti-Semitism over the fifty years prior to the rise of Nazism and without it there would never have been the acquiescence of ordinary Germans to the treatment by the Nazis of Jews. This leadership is happening everywhere and the level of awareness of the problems of Global Warming is growing all the time. Hopefully it will reach a tipping point before 2020.

At some point there will need to be one or several world leaders. They will have to have the charisma of a Gandhi, Mandela, or a Hitler. And they will need to know the opposition. Like say William Walkley or a CEO of Shell. Perhaps they will start to show their leadership in a particular country first, and maybe it will be a Chinese person. And given the huge growth in communication it may not need the traditional kind of leadership.

Perhaps it can all happen from the street. The lead-up to Paris will give some indication as to where the two sides stand.

Climate Change: positive messages on the international scene

January 13, 2015

by Alexandra Cheung
Imperial College, London.

(Slightly abridged)

An agreement produced by the 20th Conference of the Parties in Lima, Peru, noted 'with grave concern' that countries' current pledges on emissions reductions are insufficient to keep global temperature rise within either 2°C or 1.5°C of pre-industrial levels.



Smog in Guangzhou, China
By Dr Flora Whitmarsh, Grantham Institute

... The Parties to the United Nations Framework Convention on Climate Change (UNFCCC) have until March 2015 to provide updated emissions pledges. The 1994 UNFCCC protocol aims to achieve the 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'.

The protocol made it clear that countries have 'common but differentiated responsibilities and respective capabilities', implying that developed nations who are responsible for historical emissions should make the deepest cuts. An agreement drafted during COP 20 added the phrase 'in light of different national circumstances'. The new deal to some extent blurs the distinction that has existed between developed and developing nations. However, it remains to be seen exactly how the responsibility to reduce emissions will be spread between different countries.

China's per capita emissions are now at EU levels, but when total cumulative emissions of greenhouse gases are taken into account – carbon dioxide is long lived in the atmosphere so the total emissions over time are what matter – the five countries most responsible for global warming on a per capita basis are the United Kingdom, the United States, Canada, Russia and Germany. When countries are ranked by their absolute contribution to global warming so far, the top five are the United States, China, Russia, Brazil and India, and the United Kingdom is number seven on the list.

Of course, the reason for the United Kingdom's high ranking on both these lists because it industrialised early. Different studies disagree on the exact

ranking, but on a per capita basis the developed nations bear most of the responsibility for the temperature increases we have already seen. Nevertheless, there is increasingly a need for the richer developing nations to take some action as well.

The coming months are a critical time for the global climate change negotiations. There have already been encouraging signs: the United Kingdom and the EU have led the way with ambitious pledges, and China and the United States have taken a positive step forward with their recent bilateral agreement. However, more needs to be done.

It is right that the United Kingdom and the EU are leading the way on this, but it is also vital that the political will remains to tackle climate change as we move into a crucial stage of the negotiations. Action is urgently needed – in order to avoid temperatures rising more than 2°C above pre-industrial levels, global emissions should peak by 2020. Delaying the peak in emissions until 2030 will increase the costs of taking action and make it very difficult to keep to this target. Meeting the 2°C target will require the leaders of the developed world to continue to increase the level of ambition over the coming months.

Trapped methane escapes as Pacific depths warm up

January 11, 2015 by Tim Radford (Climate News Network).

Oceanographers in the US warn that volumes of methane equivalent to a major oil spill are rising to the surface each year as warmer waters heat the frozen ocean bed.

LONDON, 11 January, 2015 – Researchers studying methane trapped in frozen layers below the Pacific Ocean seafloor predict that more and more of the potent greenhouse gas could bubble towards the surface as the deep water begins to warm.

“We calculate that methane equivalent in volume to the Deepwater Horizon oil spill [in 2010] is released every year off the Washington coast,” says Evan Solomon, assistant professor at the University of Washington School of Oceanography in the US.

Methane hydrates are the natural gas methane in solid form. Volume for volume, methane is at least 20 times more potent a greenhouse gas than carbon dioxide, although it is released in smaller quantities and has a much shorter lifespan in the atmosphere.

Vast quantities of the stuff are known to be trapped in sedimentary rocks and in the sea bed, in “frozen” form – held by a combination of temperature and pressure.

Fastest warming

Until now, most of the focus has been on the methane hydrates in the Arctic, the fastest warming region on the planet.

But Dr. Solomon, oceanographer and lead author Susan Hautala and colleagues report in *Geophysical Research Letters* their calculations that between 1970 and 2013, some 4 million tonnes of methane have been released from the sea floor off the coast of Washington state.

This is about the equivalent of the natural gas released in 2010 when the Deepwater Horizon oil well blew out off the coast of Louisiana, and 500 times the rate of natural release from the sea floor.



*Coring machine used to gather sediment samples from the Pacific.
Image: Robert Cannata/University of Washington*

The Pacific Northwest has high rates of biological activity, and methane is a natural biological product. At high ocean pressures and low sea temperatures, it “freezes” or crystallises in a solid state. And because the waters of the Pacific Northwest have been so rich in life, the seabed below is rich in methane hydrates.

But ocean waters have started to warm, at depth, and currents have carried the warming water across the ocean to the North American shelf.

Atmospheric warming

As water warms, the submarine methane “ice line” retreats further offshore – rather in the way that a snowline moves up hill, or a glacier retreats, in response to atmospheric warming.

The Washington scientists calculate that, since 1970, the boundary at which methane stays frozen has retreated by about a kilometre. By 2100, it will have moved perhaps another three kilometres off shore.

Their calculations suggest that, by the century’s end, 400,000 metric tonnes a year will escape. And the puzzle now is where the released methane will end up.

Some could be consumed by methane-eating bacteria in the seafloor ooze. But fishermen have also observed the stuff bubbling to the surface, to add to the burden of atmospheric greenhouse gases.

The finding, the researchers say, has “worldwide implications” for other oceanic reservoirs of the stuff, close to continental shelves and therefore vulnerable to large-scale melting. – Climate News Network

US coastal cities warned of daily high tide floods

By Tim Radford, Climate News Network

LONDON, 5 January, 2015



Scientists report that many cities near the coasts of the US should prepare for daily flooding at high tide by mid-century because of rising sea levels.

New York City is unlikely to remain immune to the coastal flooding now in prospect for many US cities.

Image: By DannyQuack at en.wikipedia via Wikimedia Commons

– Oceanographers have just identified the US coastal regions likely to experience 30 days or more of “nuisance” flooding every year. And the answer is that most of the American coast will experience high waters that are 30-60 cms above local high tides, at least 30 times a year.

Nuisance flooding means just that – somewhere between an inconvenience and modest damage. But climate change, and its attendant sea-level rise, will make them much more frequent, and possibly more damaging.

William Sweet and Joseph Park, scientists at the National Oceanic and Atmospheric Administration (NOAA), report in the journal *Earth’s Future* that sea level rise has accelerated from 1.7mm a year in the last century to 3.2mm a year in the last two decades, and flooding events that were once extreme could become the mean.

The oceanographers wanted to establish what they call “regional tipping points” – places where extra high waters would wash across streets and promenades normally above water and start to do so frequently.

New York was inundated when Superstorm Sandy hit the city in 2012, and studies have repeatedly warned that coastal inundations will cost communities colossal sums each year by 2050, and even more by 2100. Nor is the US alone in this respect. There have been ominous calculations for the UK as well.

Detailed picture

The NOAA scientists add detail to the big picture. They started with the projections for global sea level rise delivered by the Intergovernmental Panel on Climate Change and then included the more local factors such as land subsidence or settlement, and cyclic weather patterns that exacerbate the tidal highs. Such floods have already increased, and are now five to 10 times more likely than 50 years ago.

They looked at all those tidal stations with a continuous 50-year record of measurement. This does not include the city of Miami, where the tide stations were destroyed in 1992 by Hurricane Andrew.

Coastal changes

And they warn that Boston, New York City, Philadelphia, Baltimore and many other places along the Atlantic Coast, Galveston and Port Isabel in the Gulf of Mexico, and San Francisco Bay and San Diego along the Pacific Coast will all see a lot more seawater in city streets.

“Coastal communities are beginning to experience sunny-day nuisance flooding, much more so than in decades past,” said Dr Sweet. “This is due to sea level rise.

“Unfortunately, once impacts are noticed, they will become commonplace rather quickly. We find that in 30 to 40 years, even modest projections of global sea level rise – 1.5 feet by the year 2100 – will increase instances of daily high tide flooding to a point requiring an active and potentially costly response.

“And by the end of the century, our projections show that there will be near-daily nuisance flooding in most of the locations that we reviewed.” – Climate News Network

From a very long and detailed article, email sjplusam@gmail.com for the URL if you want the whole thing.

All adrift: aviation, shipping, and climate change policy

Alice Bows-Larkina
a Tyndall Centre for Climate Change Research & School of Mechanical
Aerospace and Civil Engineering, University of Manchester, Oxford Road,
Manchester M13 9PL, UK
Published online: 06 Dec 2014.

Constraining demand for flying

is unpopular, with little reference to it as a viable policy option in industry and government literature. Nevertheless, it can be argued that a gradual reduction from the typical 3% p.a. growth seen since 1990, to zero by 2020 to 2025, is no more challenging to achieve than a large-scale and rapid fleet-wide roll-out of new technologies, or emissions trading implemented globally and commensurate with 2 °C.

A personal carbon quota scheme for CO₂ that includes international flights is one mechanism that could lead to such a radical change in levels of per capita flying (Fawcett, 2010). Administratively, this type of policy could build upon existing credit-card-type technology (Starkey & Anderson, 2005). It is difficult to imagine how a policy could physically drive a rapid technological overhaul of the global aircraft fleet in a similar timeframe.

It is highly desirable therefore that there is more research analysing where absolute cuts in passenger-km through the provision of alternatives such as virtual communications or long-distance, low-carbon rail travel, to add to existing literature (e.g. Coroama, Hilty, & Birtel, 2012; Guldbrandsson & Malmödin, 2010).

The world is experiencing a surge of water-related crises

“Nature.” Volume: 517, 01 January 2015

The eastern basin of the Aral Sea dried up completely in August, for the first time in 600 years. California has experienced an unprecedented three-year drought. Demographic changes and unsustainable economic practices are affecting the quantity and quality of the water at our disposal. Rapid urbanization is creating huge pressure on water use and infrastructure, with lasting consequences on human health and urban environments. These changes make water an increasingly scarce and expensive resource — especially for the poor, the marginalized and the vulnerable.

Demand for water is projected to grow by more than 40% by 2050. By 2025, an estimated 1.8 billion people will live in countries or regions in which water is scarce, and two-thirds of the world’s population could be living in conditions in which the supply of clean water does not meet the demand.

The picture is not entirely dark. Thanks to global mobilization behind the Millennium Development Goals, 2 billion people have benefited from access to improved water sources.

Still, let us remember that 750 million people do not have access to safe drinking water. Roughly 80% of wastewater is discharged untreated into oceans, rivers and lakes. Nearly 2 million children under the age of 5 die every year for want of clean water and decent sanitation. One billion people in 22 countries still defecate in the open. Two and a half billion people do not have adequate sewage disposal.

That is why I launched the 2013 Call to Action on Sanitation on behalf of the United Nations Secretary-General. We want to break the silence and taboo surrounding toilets and open defecation. These words must be natural elements of the diplomatic discourse on development.

In today's world, we see how the lack of access to water can fuel conflict and even threaten peace and stability. That is why in the coming year I would like to see more attention on what I call hydro-diplomacy.

Degraded access to water increases the risk of social tensions, political instability and intensified refugee flows. Even more disturbing is when we see this resource used as a weapon of war.

I witnessed this first-hand during the Darfur conflict in Sudan. On one trip in 2007 to a village in north Darfur, we were met by a group of women chanting: "Water, water, water." The enemy militia had poisoned their well, they said, forcing them to move to the overcrowded camps for internally displaced people.

"Lack of access to water can fuel conflict and even threaten peace and stability."

In Iraq, ISIL has exploited access to water to expand its control over territory and to subjugate the population. This extremist group has cut off water to villages that resist its advance. It has deliberately flooded substantial areas of land, displacing thousands of civilians. In recent months, it has directed its operations to Iraqi hydroelectric dams — in particular, the Mosul dam. All of Mosul and 500,000 people in Baghdad would be in grave peril if the dam were to burst — a chilling prospect.

We have also seen tensions related to large hydroelectric projects, such as the Rogun Dam in Tajikistan and the Grand Ethiopian Renaissance Dam. Neighbouring countries have expressed deep concerns, and energy and agricultural interests are clashing.

Still, it would be a mistake to get caught up in 'water-war' rhetoric. Certainly, as freshwater shortages become increasingly acute, the threat of violence over water is a real one. But we must not lose sight of the opportunities that water offers as a source of cooperation. Tensions over water resources have historically led to more collaboration than conflict. Shared water has brought states together; the 1960 Indus Water Treaty between India and Pakistan survived three wars and remains in force today.

In other words, water can and should drive cooperation and conflict resolution.

More than 90% of the world's population lives in countries that share river and lake basins, and 148 countries share at least one transboundary river basin. Almost 450 agreements on international waters were signed between 1820 and 2007. The Water Convention that was forged under the auspices of the

United Nations Economic Commission for Europe in 1992 is one such notable agreement.

Moreover, shared water access can create space for inter-state dialogue on points of contention that, if left unattended, may threaten regional or international peace and security. One recent example of such cooperation is among countries of the Lake Chad Basin. Chad, Cameroon, Niger and Nigeria established the Basin Commission in 1964 to manage the declining waters of Lake Chad equitably. They were later joined by other concerned states, including Libya and the Central African Republic. This year, the mandate of the commission was expanded to cover regional security challenges such as terrorism, the arms trade and cross-border insurgencies.

All this to say that hydro-diplomacy is a reality.

The potential for shared management of water as a means to achieve regional co-operation and conflict prevention is vital. In 2015 and beyond, through efforts in diplomacy, economics and scientific research, we need to focus on water as a source of cooperation, rather than as a source of conflict.

Aviation industry faces pressure to stop GHG threat

From: Climate News Network <info@climatenetwork.net>
Date: 2 January 2015 2:27:34 am NZDT

By Valerie Brown

Emissions from planes are a major cause of climate change, yet they remain unregulated. Can they be curbed in time to protect the planet?

OREGON, 1 January, 2015 – If commercial aviation were a country, it would rank seventh in global greenhouse gas emissions according to a recent report by the International Council on Clean Transportation (ICCT).

The aviation industry is growing so quickly that its greenhouse gas (GHG) emissions are expected on present trends to triple globally by 2050. The industry itself is committed to reducing its emissions, but technological and political constraints are hindering rapid progress.

Technologically, the fate of aviation GHGs depends on how much more fuel-efficient airplanes can become, and how soon lower-carbon fuels can be made available at a palatable cost.

Politically, it depends on whether the United Nations International Civil Aviation Organisation (ICAO) can establish agreement among member states on a regulatory mechanism, which in turn may depend largely on whether –

and when – the US Environmental Protection Agency (EPA) chooses to regulate aviation emissions.

A final unknown is whether the sector's efforts can produce results in time to avoid climate catastrophe.

By 2050, the aviation industry aims to halve its CO₂ emissions compared with 2005 levels, says Steve Csonka, executive director of the Commercial Aviation Alternative Fuels Initiative, a US public-private partnership.

Falling behind

The group is exploring “biomass-derived synthetic jet fuel”, which includes oils from plants and algae, crop and forest product residues, fermented sugars and municipal solid waste.

While this type of fuel can, in principle, be used in jet engines today, Csonka says the most important goal in the near term is to develop alternatives to petroleum-based fuel “at a reasonable price point”. A few airlines are buying alternative fuels at a higher price to encourage the market, Csonka adds, but widespread adoption awaits competitive pricing.

Aviation fuel efficiency has been increasing, but it is not keeping pace with the sector's growth. The ICCT report finds there was no improvement between 2012 and 2013, and that the gap between the most and least efficient airlines widened – with American Airlines burning 27% more fuel than Alaska Airlines for the same level of service.

This gap suggests the industry could reduce GHG emissions significantly if the least efficient airlines would emulate the most efficient, says Daniel Rutherford, the ICCT's programme director for aviation and a co-author of its report. Most of the reductions so far have come from carrying more passengers per flight, replacing old engines and buying new, more efficient planes.

Like most businesses, airlines don't want to replace equipment until it makes economic sense. Nor does the industry want to be pinned to standards like those in the US auto industry, which would force “airplanes to improve to a certain degree every year or x number of years”, Csonka says.

Limited reductions

Such standards “completely overlook the capital ramifications” for the airlines, he adds, and companies' profitability is a major factor in the pace at which they can replace old equipment. But the ICCT report suggests that airlines that have spent the most on new, efficient planes are also the most profitable.

Airplanes are at a disadvantage compared with vehicles and power stations. At present there are no low-carbon or no-carbon technologies – such as solar, fuel cells, nuclear reactors, electricity, or hydrogen combustion – that will work

for aviation. Nor are there market-ready radically different airframe or engine designs.

Fuels derived from plants such as switchgrass, corn and algae can be used in existing engines, but to provide the same energy they need to be “essentially identical” to petroleum-derived kerosene, Csonka says. And if their hydrocarbon structure is the same, burning them will emit the same GHGs.

The advantage of synthetics, Csonka adds, is that “we are pulling recycled carbon out of the biosphere and not out of the ground”, which reduces the net carbon footprint – provided the fuels’ production does not generate too many GHGs itself.

For the foreseeable future, this is the best that can be expected from alternative fuels. This means there is a limit on how much aviation’s net GHG emissions can be reduced, even with alternative fuels, as long as the commercial airline fleet changes only incrementally and no major technological breakthroughs reach the market.

However, there are new engines, materials and aircraft designs now available that can make a big difference, Rutherford says: “We project that the fuel burn for new aircraft can be reduced by as much as 45% in 2030 through pretty aggressive technology and development, better engines, improved aerodynamics and lighter materials.”

Campaigners would like to see regulation obliging the industry to increase efficiency by improving faster.

Aviation needs a global policy and enforcement structure; all major airlines’ aircraft emit GHGs globally. This problem brought the European Union’s Emissions Trading Scheme (ETS) to its knees in 2014.

The ETS, which came into effect in 2012, charges airlines for their emissions in European Economic Area airspace. When non-EU airlines protested, the European Commission temporarily exempted flights to or from non-EU airports but still charged for emissions within EU airspace.

Washington, one of the most energetic lobbyists against the charges, forbade its airlines by law from paying the EU fees. The US also threatened trade sanctions, and China suspended its orders from European airplane manufacturer Airbus. There is now a moratorium on extra-EU carbon charges, pending the results of the next ICAO meeting in 2016.

But despite the EU's surrender to foreign pressure, many observers think the dispute has increased pressure on the ICAO to devise a meaningful emissions reduction programme.

The ICAO’s actions are expected to be closely co-ordinated with those of the US Environmental Protection Agency. Within the US, GHGs are regulated by the EPA under the Clean Air Act, which requires action if an air pollutant is

found to endanger the public. The US Supreme Court ruled in 2007 that GHGs are pollutants.

Several US environmental NGOs say the EPA is dragging its feet on deciding "whether emissions cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare".

It has refused repeated requests for an interview with an expert source and says it does not see the need for an interview. The agency expects to issue any regulations in 2016 – presumably in time for the ICAO meeting.

But there is no doubt that the EPA will have to produce an endangerment finding and eventually issue a regulation, says Vera Pardee, an attorney for the Center for Biological Diversity who worked on the NGOs' notice to the EPA.

Politics versus science?

In 2013 the ICAO committed to what the Center for Climate and Energy Solutions calls "an aspirational mid-term goal of zero carbon emissions growth for the aviation industry beginning in 2020". In addition, Csonka says, the aviation industry has accepted the notion of "a market-based mechanism to offset if we miss that goal in an international environment. Our industry will have carbon monetised from 2020 onward to some degree."

Yet time is vital, and there is a risk that action taken by governments and industry may be politically feasible but scientifically ineffectual. There is no guarantee that the 2016 ICAO meeting will result in binding obligations.

In the meantime, the Intergovernmental Panel on Climate Change currently aims at a 40%-70% drop in total global GHG emissions by 2050 to avoid a greater than 2°C rise in global temperature. In January 2013, climate scientist Thomas Stocker warned in the journal *Science* that delayed action results in the "fast and irreversible shrinking, and eventual disappearance, of the mitigation options with every year of increasing greenhouse gas emissions".

But the next two years are likely to see a firming up of the aviation industry's commitment to GHG reductions and some sort of international mechanism to charge for emissions.

There are signs that industry experts and green advocates are cautiously optimistic. "I see the EPA's domestic regulation of the airlines as a real catalyst for global action," says Pardee. "If the EPA acts, the rest of the world will have to follow". And Csonka adds: "The future is somewhat bright." – Climate News Network

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“The way we have been doing things in the past is no longer going to be possible in the future” (Christina Figueres, director of the UNFCCC).

New Zealand 2030 – a story

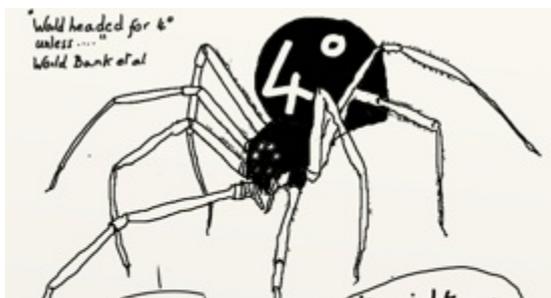
We're now in 2030. When, back in 2013 Kevin Anderson, then Director of the Tyndall Centre for Climate Change Research told us that, "An outside chance of not exceeding 2° requires emissions cuts of at least 10% per annum, basically about a 40% reduction in energy consumption in the next three years, 70% by 2020 and complete decarbonisation by 2030, at least for the wealthier nations," many of us said, "That's not possible." Most people in NZ ignored Kevin Anderson and other similarly qualified climate scientists saying similar things. A few, more optimistic and determined, said, "Let's give it a go."

And we learned as we went. One of our most valuable lessons was that we could look with cool heads at the threat of the awfulness of the 4° world towards which we were galloping, and be energised and spurred on by the spectre of failure. An uncomfortable, but valuable (some might say, essential) process.

And here we are, 17 years later, one of the few countries to have achieved a totally non fossil fuel-powered society. That doesn't mean that the world's climate hasn't changed in those 17 years, or that the number of climate change refugees is not still growing, or that the threat of invasion by people desperate for survival has disappeared, but we can say, with some sense of national pride that at least we did our bit, that even the most intractable countries, like the United States and Poland have been inspired by us to follow suite. So that now, fingers crossed, the world at least has a chance of coming in under that fatal 2° of warming. And we have earned the right to pressure the laggards.

But it was a close call. And, given the attitudes of most of the politicians of the day, the situation did look pretty hopeless. Then, miraculously, a sense of responsibility emerged - in the media; from deep down in the political parties; in town and country, until, fortunately for our grandchildren, an ethic of, "We can do it." took hold. Let's glance back and take a closer look at what happened.

The pivotal point came with the election in which understanding of, and commitment to seriously tackling climate change was the main issue, and those who didn't measure up were simply side-stepped, and party politics died.



We knew that 30% of our electricity came from burning coal, and, folly of follies, even coal imported from Indonesia. So

we quite quickly developed our power generation from renewable sources. Which made possible the development of the present all electric transport system. That was one of the keys to our success, because that's also what enabled the transformation of an outdated fossil fuel-based farming system to the more productive and carbon neutral one we have now.

The move towards the now familiar organic horticultural techniques and small holdings followed the shift in public perception of climate change concepts. It was a hugely complex issue because tendrils of the farming scene reached into nearly every sector of NZ society. Nearly everybody's income and lifestyle, when traced to its source depended on farming produce.

Only the older sections of our population still bemoan the shift away from eating ruminant animals.

TEQs - Tradable Energy Quotas - being called for by cross-party politicians in the UK before 2010, and CRAGS - Carbon Rationing Groups proliferating around the world were some of the influences which finally persuaded us to design the fair carbon rationing system we have now. Though we are still fine tuning it.

We dumped the ETS years ago. It never worked. Wasn't designed to produce zero emissions. At base it was designed to allow the big polluters who could pay, to continue polluting. It had always been obvious that the only way to reduce emissions was to stop emitting. It used to be widely thought that planting trees for carbon sequestration was the answer, but the math's didn't add up, and there wasn't enough land to spare anyway. Not that tree planting isn't a good thing, it is, just doesn't pass muster as an adequate offset.

Methane emissions from dairying and meat production were initially seen as an almost insuperable problem, mostly because of the income from exports, partly on account of our then traditional diets, partly because of a deep seated reluctance to change. The change in use of some our best land from farming ruminants to more concentrated food production was both a response to the need to cut greenhouse gasses, and to feed the growing population.

At first, in spite of the lessons of history, and numerous examples around the world, hand cultivation of crops was seen by some as demeaning work and a kind of forced answer to unemployment. But necessity, plus the innate human pride in good workmanship (no gender connotations intended) sparked an escalating ethic of self sufficiency and the realisation that knowledge of our dependence on, and connection with the soil has its own rewards. Of course lately those working the land have had electric engined tractors.

The effects of our diminished national income were mitigated as we reduced the need for oil and became increasingly self-sufficient. Local currencies had been around for some time, so the transition to the present system, although it took a few years, went smoothly enough. The adoption of our international currency system, based on the thinking of people like Bernard Lietaer took more setting up, and as we know, has some snags still. But it has made

possible the survival of small nations like ourselves, which have few sustainable resources to trade, and also made possible, for example, the building of our modern so called, ecocities.

We ended deep sea drilling, at first for the wrong reasons, namely on account of the dangers of pollution from spillages, then as the political climate changed we were able to maintain the ban on account of the CO₂e emissions which would result from burning that oil. There was never any mention in those days of the benefits of saving the oil for making the plastics on which our hospitals and emergency services depend. Pretty stupid really, but then as a species, we hadn't been particularly bright in our response to the dangers of climate change.

Of course we can't take all the credit for our actions - there were some inspiring examples to follow, like Sweden, who, back in 2012 aimed to build a fossil fuel free-powered transport system which they achieved by 2020. About then too, Vancouver challenged cities world wide to a race to be the first entirely carbon neutral city in the world.

The Transition Towns movement got away to a slow start here, then the move towards urban agriculture spread quickly and successfully, as did the idea that localised economies and social technologies can contribute to a better life for all, as well as tackling global problems. We realise now that as the Earth continues to warm towards the 4° mark, New Zealand, being less effected by the desertification of lands nearer the equator, might well come to be the lifeboat of the southern hemisphere, facing a population so dense that all available land will be needed for growing food, and we'll be looking at some of the floating city designs that are being proposed.

The thought spurs us on to keep up the development of communities strong enough to deal with crime and injustices and maintain a fully participatory democracy capable of both formulating humane immigration policies in the face of growing pressure from climate change refugees, and possible pressure from overseas militaries to "defend" us. The cost of failure is unimaginable.

Travel, both personal and tourist, was a big issue back in the twenty-teens. Air travel being the contentious issue. Hard to realise these days when so many obsolete aircraft bodies have been converted to housing. But even twenty years ago people cried, "Ignore the carbon emissions, we need the tourism income, and the personal inconvenience of giving up flying is unacceptable." It took carbon rationing to put that right. It was tough going though, people didn't want to give up those long-held privileges. But the more relaxed and stronger communities we have now, we owe in large part to the ending of the flying era.

The big international sporting events of the twenty-teens of course relied on high carbon cost air travel, so they have morphed into the familiar more condensed competitions, watched by smaller crowds. But our modern

communications media have, in general, more than made up for any lost fans' enjoyment.

We've managed to build an acceptable sail and/or solar powered trans Cook Strait service and to maintain contact with our Australian neighbours. Enough for the continuance of trading in the essentials, though thankfully the senseless shipping of similar goods back and forth between us has stopped, and luxury, but unsustainable overseas items like tinned sardines from Canada, Italian tinned tomatoes etc. have disappeared from supermarket shelves.

The race to develop fossil fuel-free aviation fuel still goes on, and the new fuels, if any are found, could be useful in carefully chosen circumstances. But never again we hope, for military use, with its inhuman air strikes which killed and maimed so many thousands of innocent civilians. And possibly never again I suppose for solely recreational purposes.

The dreaded climate tipping points, when the tundras and the deep ocean clathrates would give up sufficient methane to cause global warming to bolt out of control have not yet occurred as far as we know, and there is hope that danger is past. Although the huge Arctic, Antarctic and Greenland ice sheets are continuing to melt, making possible future sea level rises great enough to inundate some of the world's major population centres.

What have been some of the main elements of our changed attitudes? Primarily of course, the climate scientists, the IPCC, the leading study centres, Tyndall, UK Met Office, Potsdam, NASA and hundreds of others all around the world. Including our own NIWA and Victoria University. Then the people who listened to the scientists, like 350.org, Generation Zero, 100% Possible, Phase2 etc.. Oxfam, WWF and other NGOs, Quakers and various religious groups too many to list here who passed on the scientists' message. Five and a half million people have reduced their carbon footprints almost to zero. We did have to resort to legislation to ensure fairness, and there are plenty of loose ends to tidy up - but we made it.

Of course that's all pie in the sky from the perspective of our present approach and our grandchildren will probably have to face a very difficult, and possibly dangerous life along with 20 million other "New Zealanders".

The next step is to look in some detail at how we might achieve our goals. If we can promote an ethic of examining the parameters of the challenge instead of telling (or at least implying to) each other that it won't be too difficult, and be quite fun, chance of when hope will



might even all we have a success. That's arise.

