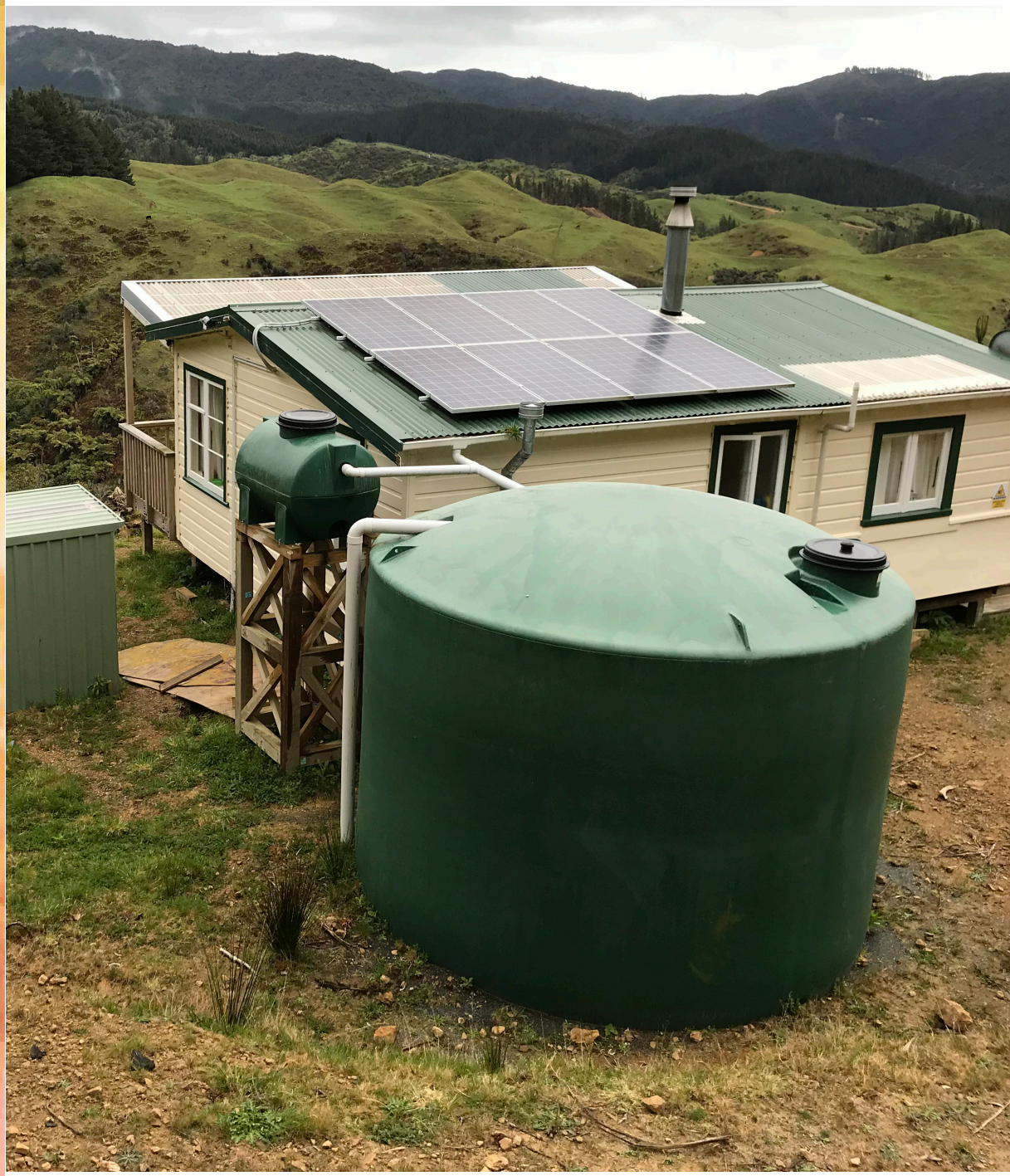
FLASHPOINT

NZ INSTITUTE OF HAZARDOUS SUBSTANCES MANAGEMENT

Solar energy:

New Zealand's almost anywhere power



Also includes:

Benefit of HS regulations?

Plan for environmental chemicals

Power from the Sun

USEFUL ORGANISATIONAL CONTACTS

NZ Institute of Hazardous Substances Management

www.nzihsm.org.nz

The official home of professionals committed to the safe management of hazardous substances and dangerous goods. The NZIHSM is a 'not for profit' industry association specialising in improving safety, health and (site) environmental performance, particularly the safe management of hazardous substances in the community.

Responsible Care NZ

Box 5557 Wellington 6145

Responsible Care NZ works with industry partners to implement the hazardous substances legislation.

WorkSafe (MBIE)

www.worksafe.govt.nz

Government agency formed to provide compliance and enforcement of hazardous substances. Responsible for hazardous substances certificates.

EPA

www.epa.govt.nz

The EPA administers the HSNO Act and supplies extensive information on working with hazardous substances.

Ministry for the Environment

www.mfe.govt.nz

The Ministry administers the HSNO Act, and provides policy, publications, technical reports and consultation documents.

HAZANZ

www.hazanz.org.nz

An association of the safety organisations in New Zealand.

Institution of Chemical Engineers

Since 1922 the multi-national IChemE has advanced chemical engineering's contribution for the benefit of society. Its offices include UK, Australia and New Zealand.

Local Government NZ

www.lgnz.co.nz/lg-sector/maps/

Local Authorities have responsibility for policing building controls. Some local authorities are contracted to Department of Labour to provide enforcement of the Hazardous Substances legislation.

Maman has passed on

Our Maman has passed on!
There have not been many times in humanity when we humans can say that a sovereign king has quietly guided us through 'caring rights for all'.

But we in the West have been lucky over most of our recent lifetimes to have felt the soft and guiding hand of a monarch shaping not a dictatorship, but a democracy towards the 'common-wealth' of her nations.

Our queen has been a 'mother' gently showing us all the meaning of 'service before self.'

In this Spring edition of our *Flashpoint* our NZIHSM team too continue in our goal of "protecting, people, communities and the environment" as we too strive for 'selfless service' commenting on our society and planet in articles as follows:

(i) The benefits of the hazardous substance regulations to date?
(ii) What it means to be Kiwi
(iii) Wild weather and renewables – the Sun
(iv) Ammonia as a fuel
(v) No smoke just mirrors - Kerosene from the Sun
(vi) A rational plan for environmental chemicals?
(vii) Archies ramblings
(viii) Agricultural chemicals updates
(ix) The Massey & Hazsub training updates

For 96 years this remarkable woman with reference to her God, reconfigured what had traditionally been an over-bearing monarchical role into an almost 'nursing duty' towards a more caring society where we should treat 'the least of these in a way which we would wish to be treated ourselves'!

As her son Charles said in his opening remarks on his succession:
"Queen Elizabeth's was a life well-lived; a promise with destiny kept"and later, "Thank you for your love and devotion to our family and to the family of nations you have served so diligently all these years."

We too thank her for her service to us all and in our simple Kiwi idiom say: "Kia ora Mum, thank you, thank you, ka pai !"

John Hickey
Institute president

CONTENTS

Pass mark for HSNO Act?	2
Finally, a rational plan for environmental chemicals	4
More scrutiny wanted for agricultural chemicals	5
Methyl bromide alternative approved	6
No smoke, just mirrors	7
Solar answer to several problems	8
IWD being demolished	9
What makes a Kiwi	10
Uncle Archie	12

Flashpoint

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Pass mark for HSNO Act ?

It has been 25 years since the first Hazardous Substance and New Organisms Act combined most of NZ's chemical regulations into one piece of legislation (the HSNO Act 1996) as a direct result of number of incidents, in particular the ICI fire of 1984.

As part of this it has been 16 years since the 'annual site visits' by HS compliance certifiers were introduced in 2006 to try and "Protect people, communities and the environment against the adverse effects of hazardous substances".

So how well has the introduction of this single piece of safety legislation against the hazardous effects of the misuse of chemicals where these can become indeed 'hazardous substances'?

Fortunately up until 2017 there has been some monitoring of the overall safety effects of the hazardous substance legislation by the EPA which summarised the first 10-year effects in its report from 2017 with key findings as follows:

There is less harm to people attributed to hazardous substances than past years

- There has been a 25% decrease in the total number of hospitalisations attributed to hazardous substances over ten years: 433 in 2015, compared with 578 in 2006. During this time, the population of New Zealand increased by 11%. The current rate equates to three people among every 10,000 hospital admissions.
- Seventy-six percent of all hospitalisations attributed to hazardous substances were less than 24 hours duration. For children under five years old, 92% of hospitalisations attributed to hazardous substances were less than 24 hours duration.
- Hospitalisation of children under five years old related to hazardous substances has decreased by 34% over 10 years: 21 per 100,000 in 2015, compared with 32 in 2006.
- Hospitalisation of young people (5 to 24 years old) related to hazardous substances has decreased by 49% over 10 years: 18 per 100,000 in 2015, compared with 35 in 2006.
- Male hospitalisations attributed to hazardous substances remain considerably higher than female hospitalisations. Since 2006, the ratio of male to female hospitalisations is steady at 7:3.
- Over the last 10 years, about 40% of all hospitalisations attributed to hazardous substances result from incidents in the home.
- Hospitalisations related to the discharge of fireworks have decreased by 32% over 10 years: 17 in 2015, compared with 25 in 2006.
- Legacy chemicals (for example, DDT), also known as persistent organic pollutants, are banned in NZ. These are bioaccumulative chemicals, meaning that they persist in the environment for a long time. In order to monitor that their impact on people is decreasing, the Ministry of Health, undertakes blood sample monitoring studies.

This monitoring shows that adult New Zealanders' detection rates are generally low compared to Australia, US, and Canada and NZ detection levels continue to decrease over time.

- Lead detection in blood is at the lowest level since 2008, when the minimum notification rate was significantly reduced. Also, since 2008, there has been enhanced occupational screening.

People's awareness about the safe use of hazardous substances in the home

- A 2017 consumer awareness survey of 500 respondents found 74% of respondents read the labelling on products to identify if they are hazardous. A similar survey in 2015 found over half of the 496 respondents read labelling on hazardous substances before use.
- More than two thirds of respondents in the 2017 survey said they keep themselves and others safe by following the label instructions, using protective equipment, and/or keeping hazardous substances out of reach.

- In 2015 (latest data), there was a 23% decrease in the number of calls to the National Poison Centre related to hazardous substances, compared with 2014.

Environmental pollution – air, water and soil – attributed to hazardous substances

Water quality

Seventeen percent of groundwater wells contained detectable pesticides in the last national survey undertaken in 2014. All but one of the detections, were at levels below 17% of the maximum acceptable value for drinking water.

(Note: (i) One hundred and one wells in the survey had been sampled for 12 years or more. They show no evidence of an increased level of pesticides: 55% have not had any pesticides detected. The next national survey was due to be undertaken in 2018.

(ii) Monitoring data from 2015/16 shows aquatic herbicides, used by Territorial Authorities to control particularly invasive stream plant pests, were effective in reducing target pest weeds, with limited damage to other plants within treatment areas. EPA controls were followed appropriately, including adhering *to environmental exposure limits, resulting in minimal impact to the environment.*

Soil quality

- The NZ fertiliser industry has a voluntary standard that phosphate fertilisers do not contain more than 280mg of cadmium per kg of phosphorus.
- It is best practice for farmers to be aware of their cadmium soil levels with five-yearly soil tests.
- Non-agricultural land has very low cadmium concentrations. Waikato and Taranaki regions have the highest cadmium concentrations. Several samples from Waikato, and one each from Taranaki, Bay of Plenty, and Tasman exceeded acceptable cadmium concentrations.

Air quality

Air quality monitoring has found that atmospheric concentrations of lead and arsenic peak during winter in NZ urban centres, due to the burning in domestic fires of old timber painted with lead-based paint.

NZ is meeting its obligations under the Montreal Protocol designed to reduce the use of ozone-depleting substances.

Although it is an ozone-depleting substance, the Montreal Protocol allows approved use of methyl bromide for quarantined imports and treatment of some products prior to export. A challenge for NZ is that methyl bromide use has risen from 74.8 ODP tonnes to 355 ODP tonnes in the last 16 years. (Note: it has recently been banned).

Bee health

Winter hive loss in NZ in 2016 was 9.8%, compared with 17% in the northern hemisphere. Normal winter hive loss in NZ ranges from 10 to 13%. A main cause of winter hive loss internationally is toxic exposure. In NZ, there is a range of causes, with only 14% total winter hive losses due to toxic exposure.

Hazardous substances and new organisms contributing to the reduction of pests and weeds

EPA-approved pesticides, particularly flumethrin and amitraz, have been crucial to the growth of our apiculture industry following the deadly infestation of varroa mite in the early 2000s.

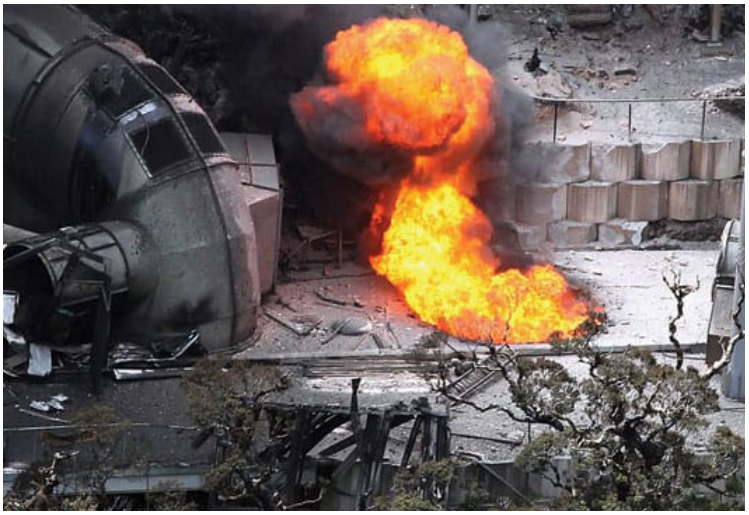
- The Department of Conservation uses pest control in its work to protect NZ's flora and fauna. It estimates that 85% of endangered rock wren (tuke) nests have been successfully protected from pest control work, including the aerial application of 1080. Since 2008 over four million hectares of conservation land have been treated by aerial application of 1080.
- The EPA has approved biological control agents to reduce NZ most harmful weeds including tutsan, Japanese honeysuckle, and Darwin's barberry.

Overall the above would indicate that the implementation of the hazardous site regulations and certifier site visits have had a very beneficial effect on the safe use of hazardous substances in NZ since 2006 to 2017.

As a result of the miner's deaths caused by the Pike River mine explosion in 19 November, 2010, the chemical regulations were again revised under the Health Safety and Employment Regulations 2015 and the Hazardous Substance Regulations 2017 (HS Regs) with 'non-environmental' and the compliance certifiers reporting shifting from the EPA through to worksafe for workplace environments.

With regards to updated performance, it is not very easy to find the safety effects of the new 2017 hazardous substance regulations as these do not now appear to be openly reported as part of the government department activities. This lack of easily available data does make it difficult to judge performance of the updated Hazardous Substance Regulations 2017.

However, given that most of the hazardous substance regulations 2017 were 'lifted and shifted' from the HSNO Act, we hopefully can assume that the Hazardous Substance Regulations 2017 should at least maintain the reported benefits from the first 15 years of the single hazardous substance regulations.



Post-explosion fire at Pike River.

Although, in order for us all to allow for continued public confidence, perhaps a continued maintenance of the government monitoring and reporting may be useful.

Finally, a rational plan for environmental chemicals

For the first time in New Zealand's history, a rational way forward has presented on dealing with the environmental effects of chemicals, according to Massey University environmental chemist Dr Nick Kim.

"To properly manage the environmental risks posed by chemical use, we need to think more widely," he said, commenting on Parliamentary Commissioner for the Environment Simon Upton's latest report.

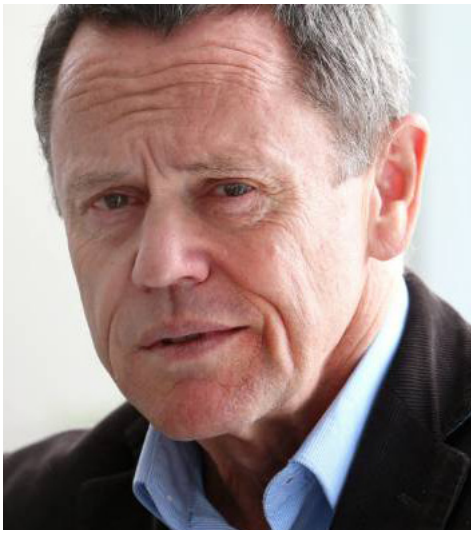
New Zealand's environment watchdog has found glaring gaps in the way we manage the tens of thousands of chemicals in use across the country - with just a fraction being routinely monitored. Simon Upton has called for all government agencies dealing with chemicals to adopt a common plan to manage them. He has found glaring gaps in the way NZ manages the tens of thousands of chemicals in use across the country, with just a fraction being routinely monitored.

Upton also wants to see better data and monitoring, after finding some clear gaps in oversight. While roughly 30,000 have been approved for use in the country, fewer than 200 are routinely tracked as part of environment reporting or through resource consent monitoring. Only about 3500 substances have ever been the subject of individual approvals requiring specific environmental risk assessments, with most approved as a group.

There remains no formal risk assessment for weighing up the risks, costs, benefits and effectiveness of individual substances, simply because of the sheer size of the task.

Currently, evidence relating to individual substances isn't evaluated by the EPA unless the chemicals has to be formally reassessed – something that happens in only a handful of cases each year. "On paper, there is a robust system in place to assess risks when a chemical is introduced to the country," Upton said.

Although there have been a few studies aimed at establishing baseline levels of emerging contaminants, these haven't been conducted for each ecosystem - or with sufficient regularity. "Finding out after chemicals have caused irrevocable impacts on the environment is too late."



Simon Upton

A common framework for all agencies involved with chemicals – developed with Māori, and focused on those presenting the biggest risk - could help manage their impact. To gauge the scale of a chemical's use here, he recommends collecting and sharing data throughout its lifecycle – something that would require importers, manufacturers and sellers to up their reporting.

NZ also needs to do a better job of setting limits for acceptable concentrations of chemicals in the environment - and monitoring whether these levels were being exceeded, he said.

"In a perfect world, if chemicals are used in the way they are approved to be used – taking into account their likely environmental fate – then what we see and find in the environment should be at acceptable levels," he said.

"But theory rarely matches reality." Associate Environment Minister Phil Twyford said Upton's report raised some important issues which need to be addressed, and the Government will give it serious consideration.

EPA chief executive Dr Allan Freeth said the agency has for some time been signalling a growing concern about the need to better understand the lasting impact of chemicals and their pathways into the environment," he said.

Upton highlighted NZ's reporting and understanding shortfalls in four chemical types: tetracycline antibiotics; neonicotinoid insecticides; terbuthylazine herbicides; and zinc for facial eczema treatment. In his latet report he says at least 80% of neonicotinoids can be lost to the environment from the likes of treated seeds. Some studies found that after a year soils that have had treated maize seed can still have levels exceeding EPA exposure limits.

The report highlights continuing

build-ups of neonicotinoids at 'chronic concentrations', and raises concerns over their impact on non-target pollinators, like bees. Amid growing global concern over neonic levels in surface water, Upton found NZ only surveys ground water once in four years for pesticides, but not neonicotinoids.

He noted seed coated with neonicotinoids is not currently regulated under the HSNO Act, as it was not a "manufactured article."

More zinc than industry figures

Zinc used for FE management is estimated to be used in quantities of 5000-8000 tonnes a year in Waikato, significantly higher than industry use figures. As a soluble chemical it can be spread through water, soils and plants, and the commissioner cites a NZ study that identified an accumulation of zinc in a wide area of Waikato over the past 30 years, with 12% of soils exceeding safe levels to microorganisms function.

Reporting issues also exist with the herbicide terbuthylazine, used in forestry, agriculture and horticulture for general vegetation control. Similarly, tetracycline antibiotics often used in animal treatments and concentrations found overseas in the environment have been high enough to trigger antimicrobial resistance in parts of Europe, Asia, and the US.

Overall, he summarises NZ's approval system for chemicals as complex, with a disjointed and patchy system for asking and answering questions about the environmental fate of chemicals. The commissioner's overarching recommendation is that all agencies dealing with chemicals need to develop a common framework to prioritise their efforts in considering and managing those chemicals' environmental impacts.

(thanks to The Country*)*

New fungicide approved

A new fungicide has recently been approved for use in NZ, subject to conditions. Xivana is intended to combat late blight in tomatoes and potatoes, as well as downy mildew in onions. The fungicide contains an active ingredient, new to NZ, called fluoxapiprolin. Alongside the EU and Australia, NZ's Environmental Protection Authority is among the first regulators in the world to consider an approval for this substance.

An Australian public release summary found that fluoxapiprolin has little flammability or explosive concerns, little water solubility and no health objections when used as directed. Xivana's applicant, Bayer NZ Ltd, intends to import the product as a concentrate to be applied using ground-based or aerial methods. In granting approval for Xivana, strict rules have been set for its use. These include a maximum of three uses [1000 ml/ha per use] a year per crop, at a restricted amount. Use of new fungicide is also restricted to professional users in commercial settings.

Tiwai doubles clean-up budget

New Zealand Aluminium Smelter has increased the remediation and closure provision in its 2021 financial results to $687 million. This is nearly double the amount allocated for clean-up in the previous accounts. General manager Chris Blenkiron said this represents identified costs relating to site remediation activities such as the removal of waste, including spent cathode lining, demolition of site infrastructure and relocating the landfill following an eventual closure of the smelter. What seemed like imminent closure a couple of years ago has been delayed by improving aluminium prices. There is currently no date for closure.

More scrutiny wanted for agricultural chemicals

Agricultural chemicals should face more regulatory scrutiny, according to the Parliamentary Commissioner for the Environment.

Simon Upton's latest report shows that the environmental fate of some agriculture and other chemicals is completely unknown and there is a disjointed system for asking, and answering, questions about their environmental impact.

There are roughly 150,000 substances approved for use in NZ, made up of an estimated 30,000 chemicals. Fewer than 200 chemicals are regularly the subject of monitoring in receiving environments, the report said. "We have developed a very complex system for approving and managing chemicals spanning multiple government agencies," the report said.

"For all that, only about 3500 substances have ever been the subject of individual approvals, and only a few hundred have been fully reassessed."

A previous report showed rural Kiwi kids are more exposed to certain chemical than their urban counterparts and those in other countries. The report said there were many holes in how agriculture chemicals are monitored.

The lack of scrutiny also resulted as the Hazardous Substances and New Organisms Act, under which chemicals are approved for use, their risks are assessed, and controls imposed, and the Resource Management Act, under which conditions are placed on discharges to the environment, created a labyrinth of rules, the report said.

Methyl bromide alternative approved

The EPA's approval of EDN for use and import in NZ offers the first direct replacement to existing log fumigation treatments, most commonly methyl bromide.

The much-criticisd Methyl bromide is a prolific ozone depletor and extremely harmful to the health of fumigators and local communities. Used to control invasive quarantine pests found in timber and logs, EDN is already approved for use in Australia, South Korea, Malaysia, and Russia but no longer in New Zealand.

After a five-year review process the Environmental Protection Authority found that "EDN is the most viable replacement for methyl bromide as a fumigant of logs and timber, and that this would confer significant benefits to New Zealand's economy, society, and environment." That decision came into effect on 22 July after guidelines for safe use of EDN had been finalised.

Net zero impact

In contrast to methyl bromide and other control options such as phosphine and debarking, the use of EDN has a net-zero environmental impact and is significantly more effective than these currently approved options, said the EPA. It is not an ozone depleting substance, is not a greenhouse gas, and does not bio-accumulate. Most importantly, EDN is better for the health and safety of fumigation workers and the surrounding communities.

In 1987 New Zealand made a commitment to end the use of methyl bromide by 2005 but until now hasn't been able to deliver on the commitment due to a lack of viable alternatives.

According to the most recent figures available New Zealand had been using around 600 tonnes of methyl bromide, the sixth-highest user globally.

Director of Draslovka Agricultural Solutions Kade McConville said replacing methyl bromide with EDN will bring New Zealand's quarantine treatment options into the 21st century.

"Today is a good day for the environment, port communities and the economy because it means New Zealand's timber industry and ports can finally transition away from the use of a dangerous and environmentally unsustainable fumigant that has been increasingly banned across the rest of the world.

"As noted by the NZ Forest Owners Association it is also a positive step for the resumption of New Zealand's valuable log trade with India which has largely been suspended in recent years due the lack of an effective alternative".

Glyphosate debate continues

The debate on glyphosate safety has intensified following a US court ordering its EPA to re-examine the spray's risk to human health.

The US circuit court supported environmental groups, farm worker and safety advocacy bodies that maintained the EPA did not consider Bayer's Roundup glyphosate product's impact on cancer risk and endangered species. The decision came only a week after a jury in Kansas City ruled in favour of Bayer over glyphosate litigation, the sixth litigation ruling on the crop treatment and the third consecutive ruling that has fallen in Bayer's favour. The three against it have cost the company many millions.

Meantime, globally the agricultural industry is closely watching whether the US Supreme Court takes up Bayer's appeal against a $25 million damages claim awarded to a California man who claimed his cancer was the result of the company's weed killer.

Agcarm's Mark Ross said the US EPA will continue to conclude as it has for the past 40 years that glyphosate-based products can be used safely and are not carcinogenic. This was echoed last month after the European Chemicals Agency committee for risk assessment found that classifying glyphosate as a carcinogen was not justified.

Ross said due to the lack of alternatives it was important the current product registrations remain in place in the US and growers and other users can continue to use the product, based on label instructions.

No smoke, just mirrors!

Sunlight is the ultimate energy source. In a single hour on a clear day, the amount of energy from the Sun that strikes the Earth is more than the entire world consumes in a year. However our ability to capture and store solar energy is low.

Solar panels are only about 15% efficient in converting the energy they capture into electricity; and we lack batteries good enough to store the vast amount of solar energy available on sunny days, to provide reliable power at other times.

The ultimate breakthrough would be if a cost-effective way was found to use solar energy to create liquid fuels directly, thereby eliminating the solar energy capture and storage problem.

In a move almost out alchemy, in a refinery in Spain, an array of mirrors called a heliostat tracks the sun, boosting the sunlight's intensity by a factor of 2500. This dazzling beam of light energy is focused onto and heats a reactor with a core made of cerium oxide, an inexpensive compound often used to polish glass. At 1500C, oxygen is liberated from the cerium and removed, after which water and carbon dioxide captured from the air are injected into the reactor.

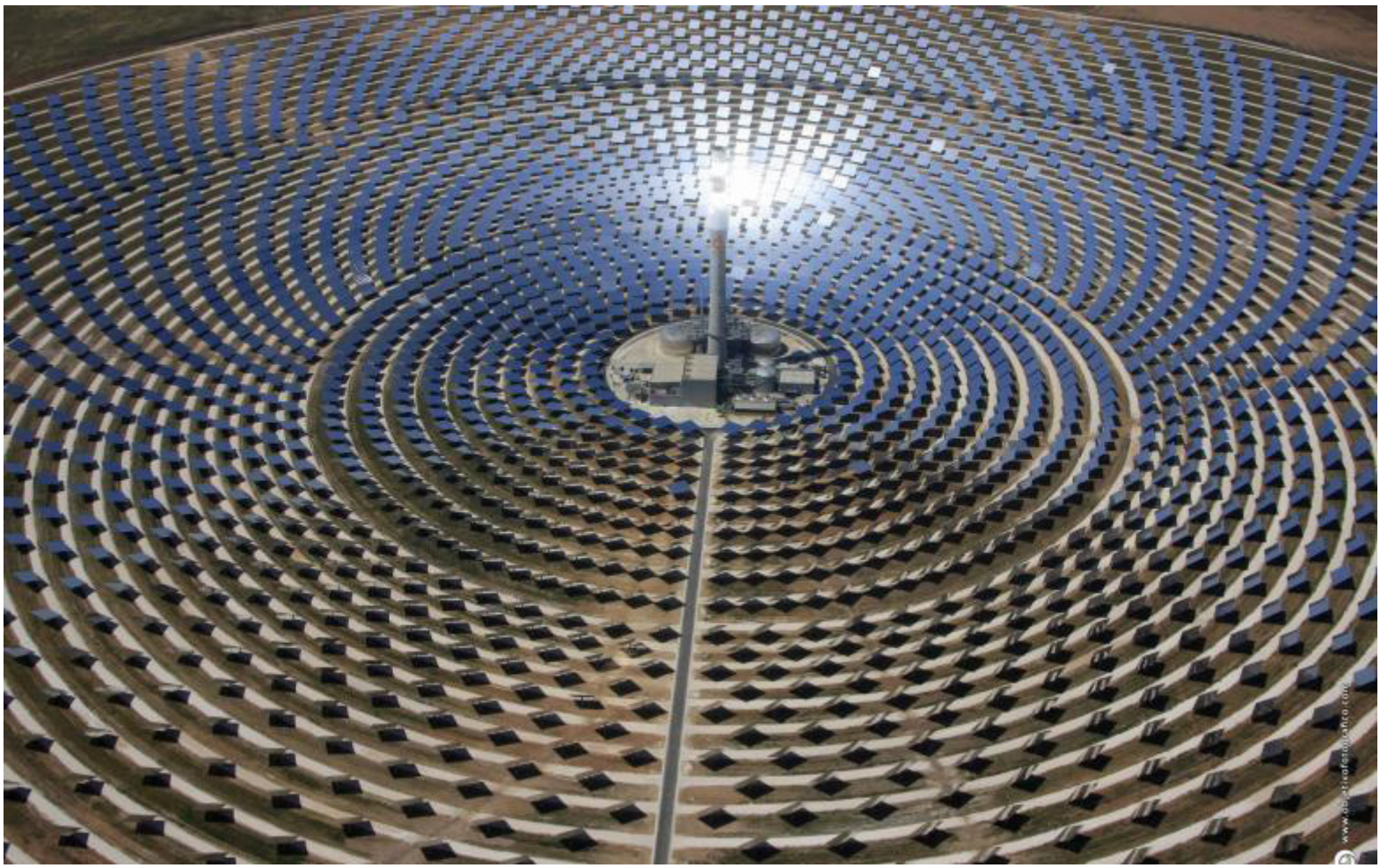
As the reactor cools, the reduced cerium claws back oxygen molecules from the added material, leaving a mixture of hydrogen and carbon monoxide. This 'syngas' is funnelled into a second reactor, where it is converted into kerosene.

Presumably the reactor runs hot in daylight hours on sunny days; and cools to produce the syngas on cloudy days and at night, which is then stored for conversion into the end product.

And they do it all with mirrors, just as in the Agatha Christie novel! But she does not go on to tell us whether solar kerosene can be cost-competitive with conventional jet fuel. And it's all a circular argument, because the kerosene will still form carbon dioxide when burnt.

– Dave Lascelles

The heliostat facility in Spain.



Solar answer to several problems

There seems to have been a lot of wild and wet weather on both sides of the Tasman this year !

The balance seems to be out, with the summers full of droughts but when winter arrives so does the water return in record rainfalls causing slips and flooding in many normally tepid areas and causing our land to slide out beneath us. Where is the balance ?

Some have said that this is the start of global warming and it could get worse from here. They have attributed much of this to the 'greenhouse effect" caused by the overuse of hydrocarbon fuels upsetting the natural CO_2 balance and causing more heat energy and action in our World's atmosphere.

The methods suggested to balance this are less hydrocarbon usage and more renewable energy usage. So for many places the main suggestion being the use of our sun and harnessing solar power. In New Zealand our use of solar is still in its infancy but how is the use of Solar progressing with our neighbours on the big land across the ditch?

Australia best

Australia has the highest uptake of solar globally, with around 30% of homes with rooftop solar PV. As of 31 January 2022, more than 3 million rooftop solar PV systems have been installed across Australia. The process of converting sunlight into electricity using PV systems produces zero greenhouse gas emissions.

Excess electricity can be directed into the grid (delivering a feed-in payment), or it can be stored in a rechargeable battery for later use. Batteries can also provide back-up power in the event of blackouts.
A solar PV and battery system offers the potential of off-grid energy self-sufficiency. It's also a major step in the transition away from fossil fuels.
Payback time

The cost of a home solar PV system starts at around $A3500 for a basic installation. Prices are steadily coming down, as demand and mass-production increase.
Solar PV is intended to be an investment that, once paid for, will save its owner money by generating free electricity during daylight hours.
A system without batteries typically has a payback period of three to five years. Adding batteries extends the payback period.

Plan before buying

A solar PV system is a major long-term investment. The market and technology are rapidly evolving. A range of components and options need to be considered.

A solar PV system powers electrical appliances only, so where gas is used for heating, hot water or cooking, consider replacing them with electrical alternatives. For hot water, an electric heat pump system is the most energy efficient type to run. For the same reason, a reverse-cycle heating/cooling system is ideal.
Find out if the system can be upgraded as technology improves, you may be able to add batteries or more panels over time. Be aware that there are low-quality solar panels around, as well as 'deals' that may not be what they seem.

Feed-in tariff

Feed-in tariff is the rate you are paid by your energy retailer for electricity that you export to the grid. Tariffs differ among retailers as well as the states and territories, and are subject to change.

Choosing the right panel

Solar panels capture the energy of sunlight which is converted into electricity. This is known as a photovoltaic system, usually called solar PV. Panels come in a range of different wattages and power levels. Numerous brands are available, with new technologies and efficiencies frequently emerging. Although solar panels look similar, levels of power,

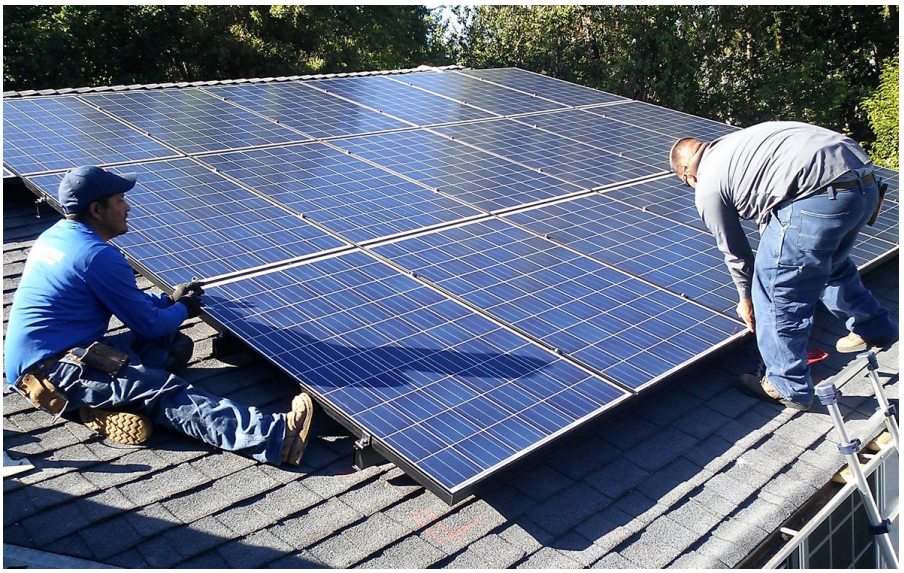


Photo:
Mr Roofing

quality and reliability vary greatly.

A fully exposed rooftop is ideal for solar. Where that's not available, make sure the panels are installed in the sunniest location.

There is a standard 10-year product warranty for solar panels in Australia, as well as a 25-year performance warranty. Be aware that some manufacturers may no longer be in business in 10 or 20 years should you need to make a claim. Although we can be sure that our Australian cousins would not do this to us!

Inverters

Solar inverters are an essential component of a solar PV system. They convert the direct current (DC) output of solar panels into alternating current (AC) electricity for use in the home. Inverters can be monitored via a computer program or device app to check energy generation, consumption and correct operation of the system. Several types of inverter are suitable for home systems.

Batteries

Rechargeable solar batteries store the 'excess' electricity generated from a panel array, boosting energy capacity and making power available for use at night time or on cloudy days. Recent design improvements and price drops in lithium-ion batteries have made solar storage more viable than ever before.

Assess your energy needs before investing in a battery or batteries. There's no point buying more capacity than you can use – surplus electricity should instead be fed into the grid for a profit.

If all the appliances in your home are electrical, they can be powered by solar.

Battery storage systems are a serious safety risk if incorrectly installed and may have implications for insurance coverage.

To maintain efficiency, panels will need to be cleaned from time to time.

Overall it would appear that our Australian cousins are slightly ahead of us in the uptake of renewables and perhaps it is time for us too to lift our solar game!

IWD being demolished

New Plymouth mayor Neil Holdom is hoping for a comprehensive soil testing programme, once the former Ivon Watkins-Dow site at Paritutu has been demolished. Work began on the site recently, but there is no projected completion date yet.

While he has been given no indication about what would be happening with the site after the demolition, Holdom said Corteva is clearly acting in good faith. However, he still had a degree of concern that the multinational company, which had made considerable profit from its manufacturing plant in New Plymouth, could walk away from the site without it being left safe.

He also has concerns given the site's proximity to residential areas and the marine reserve.

The work, which is being carried out by specialists, is expected to take six months. Corteva's Dave Clarke has said the company was not yet in a position to reveal what would happen with the site, and it would not give a timeframe as to when that would be revealed due to commercial sensitivity.

From the 1960s through to 1987, Ivon Watkins (later Ivon Watkins-Dow) made the herbicide 2,4, 5-T, which contained the toxic dioxin TCDD, at Paritutu. A key component of the United States military defoliant Agent Orange used in the Vietnam War, 2,4, 5-T has been linked to cancers and birth defects. In the mid-1980s, elevated levels of TCDD were found in the soil on the site's boundaries with reserve land and a residential street.

Agent Orange being sprayed on Vietnam jungle.

What makes a Kiwi?

Edging out of the Covid abyss it was wonderful to see us able to get together recently with our Commonwealth cousins to celebrate sport through the Commonwealth Games.

What is more, little New Zealand was able to finish fifth on the medals table ahead of larger neighbours like South Africa, Scotland and Pakistan.

But what does it really mean to be Kiwi and are we really any different to those other nations around us?

For many New Zealanders it's those nostalgic Kiwiana images that spring to mind when we think of our country: a Kiwi, cows, sheep, pohutukawa trees and the All Blacks doing the haka.

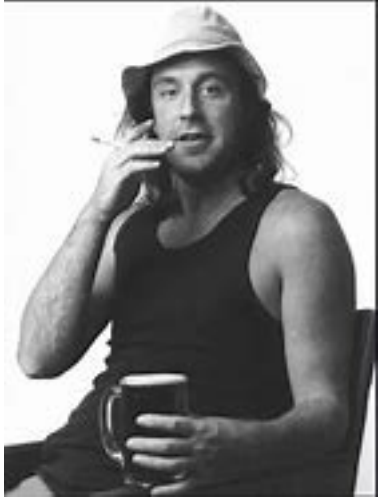
Is it being a great sportsman or woman, laid-back with a she'll-be-right-mate attitude, or taking that No.8 wire ingenuity to turn your hand to anything?

In 2017 Colmar Brunton conducted a questionnaire of >1000 people from around New Zealand to see if there was some consistency of opinion with general results as follows: attributes that Kiwis most identified with included a can-do attitude, proud, easygoing and outdoorsy. Low-scoring attributes included artistic, sophisticated, risk-takers, and worldly.

Broken down further, people of Maori descent (81%), full-time homemakers (71%), and older people (69%) identified most with being a Kiwi.

Some felt that national identities became very important for Kiwis in the 1970s when New Zealand began to break away from Britain. These days many New Zealanders have multiple identities and no longer felt the national boundary is defining.

According to the Colmar Brunton poll, the top attribute that New Zealanders agree reflects their identity is friendliness (78%).



The following items came from a survey called What it is to be a Kiwi, a Colmar Brunton questionnaire of 1009 people from around the country.

What we are

• *Stereotype*
The Kiwi bloke who can turn their hand into anything. Number 8. wire
• *Reality*
Innovative 57% of New Zealanders clearly agreed that this trait strongly reflected their identity.

Commonwealth Games

Rank	Country	Gold	Silver	Bronze	Total
1	Australia	67	57	54	178
2	England	57	66	53	176
3	Canada	26	32	34	92
4	India	22	16	23	61
5	New Zealand	20	12	17	49
6	Scotland	13	11	27	51
7	Nigeria	12	9	14	35
8	Wales	8	6	14	28
9	South Africa	7	9	11	27
10	Malaysia	7	8	8	23
11	Northern Ireland	7	7	4	18
12	Jamaica	6	6	3	15
13	Kenya	6	5	10	21
14	Singapore	4	4	4	12
15	Trinidad and Tobago	3	2	1	6
16	Uganda	3	0	2	5
17	Cyprus	2	3	6	11
18	Pakistan	2	3	3	8

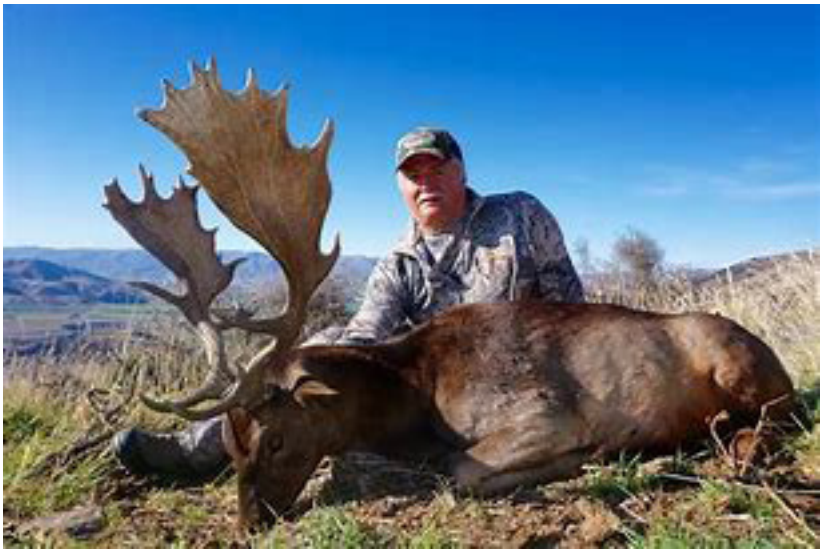
Entrepreneurial Kiwis ranked themselves low comparatively on this measure with 56% not strongly agreeing that this reflects their identity.

• *Stereotype*
Kiwis are sports-mad.
• *Reality.*
Sporty – while 52% strongly identified with this, some people strongly disagreed that this reflected their identity [14%].
Competitive – fewer people disagreed this reflected their identity.

• *Stereotype*
Kiwis are laid back.
• *Reality*
She'll be right.
Easy going – 69% of Kiwis considered themselves to be very easy going, particularly among 18-29 year olds, of whom one-third strongly agreed that this reflected their identity.

What were the Top 10 attributes that New Zalanders thought reflects their identity…?
78% friendly
72% can-do attitude
70% proud
69% easy-going/laid back
65% outdoorsy
62% versatile
62% determined
60% care about the environment
58% open-minded
57% innovative

… and the Top10 attributes that New Zealanders thought do not reflect them:
• *Stereotype*
Not necessarily the most sophisticated bunch.
• *Reality*
Cultured – Half of Kiwis were undecided as to whether they agreed this reflected their identity.
•Sophisticated – With the lowest score 19% of Kiwis disagree



• Stereotype
Too busy on the farm, no time for deep and meaningful thought.
• Reality
Intellectual 43% of Kiwis don't consider the term 'intellectual to be particularly
relevant to them, with a further 7% disagreeing that this reflects their identitv.

Top10 attributes New Zealanders disagree reflects their identity
21% artistic
21% perfectionist
19% sophisticated
17% defensive
15% risk taker
14% sporty
13% entrepreneurial
12% worldly
9% culturally accepting
8% cultured

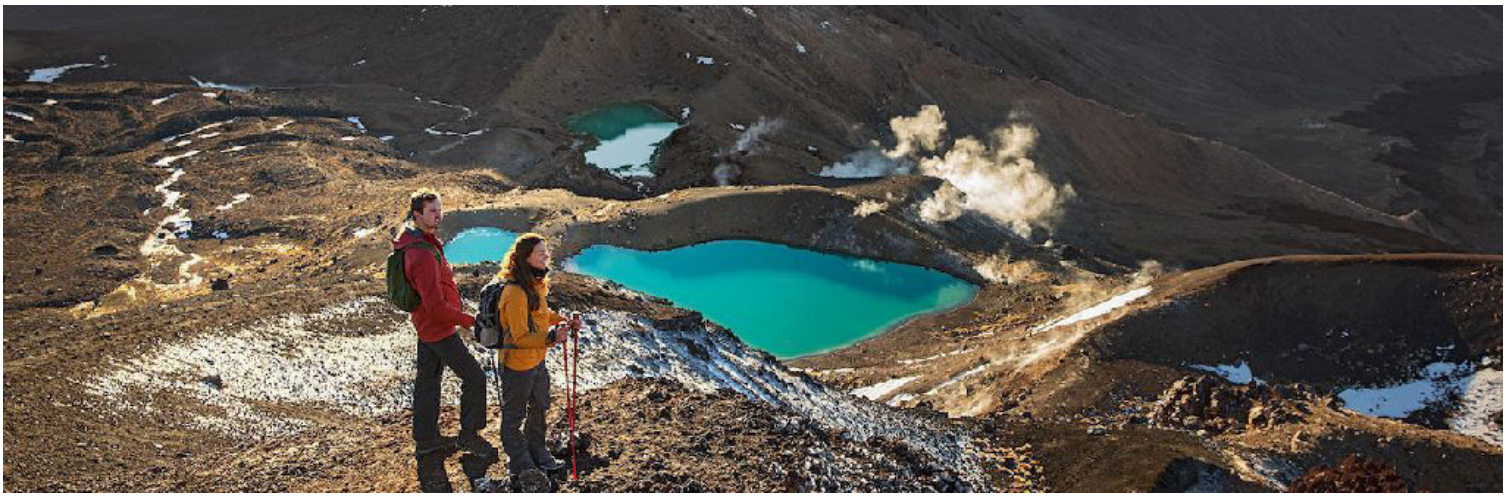
But perhaps some recent quotes from some of our Kiwi Commonwealth athletes may provide some Kiwi insight as follows:

Ethan Dick (gymnast) - What the heck, nothing to lose!
Hamish Kerr (high jump) – Gotta get your feet out!
Aaron Gates (cyclist). – Legs cramping but got to keep going!

Yes. We may not be the best at everything but we certainly 'Give it a go' in a friendly manner and occasionally get the results !

But perhaps the most Kiwi of comments can be attributed to Dame Susan Devoy in her *Radio NZ* interview of 9 August 2022– "Bloody awesome champs!"

Yes we would like to believe that THAT is a Kiwi !!



Uncle Archie

Kia ora HS professionals!
Spring 2022 is now with us but so has been the rain in recent months with those with summer having record heat waves and the opposing world hemisphere having record rain storms causing the land to be drenched and subside. In New Zealand it is almost as if the tropics have moved to meet us with the year having two seasons.

Just when the Dry season has set record temperatures and droughts and water is craved, the Wet season arrives to over-deliver with record high rainfall, and flooding of low land areas till one just wishes for a bit of sunshine!

Is this the new normal, a sign that our world, or possibly the weather, is changing?

Is Boris Back ??

One of media's more 'high-profile' journalists has just finished his latest assignment on being 'Prime Minister of Britain' in between his holiday excursions to the Ukraine. He even passed gracefully, by Boris terms, with comments to being a 'spent booster rocket' falling into the Pacific (look out!).

However his final statement "Like Cincinnatus I am returning to my plough" in a similar meaning, but far more dignified term, than that US politician Arnold Schwarzenegger who merely stated "I'LL BE BACK!"

Changing fuels

The closure of New Zealand's only oil refining capability at Marsden Point has now happened and we now rely on all of our transport oil imports from offshore Asian markets. This has indeed proven a successful strategy for western Europe as Russia has closed the gas pipeline and super-high energy costs have arrived just in time for their winter !!

Renewable energy transport

Closing refinery capacity should mean a reduction in carbon-based transport and a possible adoption of renewable energy or electric transport. This could be a good idea provided that we can quickly develop significant new renewable energy sources and infrastructure.

Energy storage

One of the major issues with all power forms is the storage of that energy so that energy can be rapidly re-created and used at future times when it is most needed.

This is where hydrocarbon fuels have been so useful to humans in that they can be stored in gas, liquid or solid forms and when required the collected energy can be rapidly re-released as heat and energy through the combustion process.

This storage advantage for hydrocarbons however, is offset by the combustion products which have contributed to 'global-warming'.

Renewable energy storage

Sources of renewable energy include the production of electricity through wind, waves, water or the sun.

Renewable energy is very useful when the energy creator is working (eg: wind blowing) but a major issue is how to store the created energy for later use when the energy creator may not be available.

This energy can be stored as battery storage, where suitable batteries are available. Or energy can be stored as potential energy such as water in hydro-dams which can be released through generators when required.

One idea is to use excess energy when the energy creator is available (eg: sunshine) to power pump water to a high level dam which can be released for future energy at times when the instant energy creators are not available.

One issue is where to put such dams and its electrical wires and be acceptable to our human environment, one idea is 'Lake Oswald' which is a suggested hydro-lake in the high country of the South island mountains.

Perhaps, however, the most efficient renewable energy sources in the future will be local photovoltaic solar panels and batteries, on each house, to take full advantage of our local sun.

Hazsub certificates anniversary

It has been over 15 years since the advent of hazardous substance compliance certificates to ensure an annual safety check of sites where hazardous substances may be stored. A big change over the past five years has also been the checking of subtly-dangerous toxic chemical storage as well as the more spectacular flammables.

It would appear from overall statistics that this consideration of site safety at least once per year has lead to a corresponding reduction in chemical safety incidents.

If you want to send your comment, you can send it to archie@NZIHSM.org.nz.

The ideas expressed in this column are not necessarily the views of the NZIHSM or Flashpoint and in some cases the NZIHSM frankly does not approve!

NZ Institute of Hazardous Substances Management (Inc)

MEMBERSHIP APPLICATION FORM

1. **Name**: ……..
   First Name Surname

2. **Employment:**
   Business/Employer's Name: …….

   Position and Contact Details:

   Position Held: ……..

   Qualifications: ……..

   Experience in HS:
   ……

   ……

   ……

3. **Preferred mailing address: ……**

   Telephone Contacts: (Bus)…….

   Residential: …….

   Mobile: …….

   Email: ……. Web: …….

4. I have previously been a member of the Institute: Yes…… No ……..
   If No, I am applying to be a

   Member: ☐ Associate member: ☐

5. Return to: PO Box 10-385, The Terrace, Wellington
   Email: office@nzihsm.org.nz

How did you find out about us? ……

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