FLASHPOINT

NZ INSTITUTE OF HAZARDOUS SUBSTANCES MANAGEMENT

Autumn 2014

H & S reform bill:

Dealing with the good, the bad and the ugly

USEFUL ORGANISATIONAL CONTACTS

NZ Institute of Hazardous Substances Management
(formerly the Dangerous Goods Inspectors Institute)
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 povide compliance advice and enforcement of hazardous substances. Responsible for hazardous substances certiicates.

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
The Ministry provides policy, publications, technical reports and consultation documents on HSNO legislation.

Department of Building and Housing
www.dbh.govt.nz
The Government agency that maintains the Building Act and the Building Code.

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 hazardous substances legislation.

Government legislation
www.legislation.govt.nz

If you know of other agencies which could be useful to members, please let us know at office@nzihsm.org.nz.

President's column

Still a time of change!

A wise man once said, "The only constant is change" and perhaps a less wise man said, "Have you got any change?"

However, all people are important as our New Zealand law again changes to try and further protect the tangata or people of this wonderful land, in a response to the Pike River disaster, among others.

We too at NZIHSM welcome and expect change in as far as where it helps the tangata, we are in total agreement! While we do not go as far as 'embracing change, just for its own sake', and would like to see the toxics and environment included, change is useful where it improves a deserving area and learns from the positive experiences that have gone before it.

So in this edition we too are broadening our NZIHSM scope to embrace more of the change in the proposed Health & Safety Reform Bill, which is intended to include the care of "industrial and workplace hazards" alongside "hazardous substances" in the workplace. We have included a section on 'industrial and operations practice' to allow for more interest to industry as well as just hazardous substances.

Our part in this broadening will include updates from "Glyde On" column which initially appeared in the **NZ Manufacturer** magazine for over four years on issues that concern 'good industry practice' so as to avoid the hazards therein.

Also under our 'hazardous substance' sections we ...

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President John Hickey

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Flashpoint

Flashpoint is the official journal of the NZ Institute of Hazardous Substances Management.

Editorial material does not necessarily reflect the views and opinions of the Institute.

Managing editor:
Anthony Lealand anthony@firework.co.nz

President NZIHSM:
John Hickey john@abstel.com
0800 854 444

Editorial managers:
Ross and Sue Miller kotuku.media@xtra.co.nz
Phone: 04 233 1842

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Spectro Print admin@spectro.co.nz
0800 500 744

Institute national administration:

President: john@abstel.com
0800 854 444

Secretary: linda@accreditation.co.nz

office@nzihsm.org.nz

Plenty of gaps in waste management

by Rex Alexander

A matter that has generated considerable discussion since the HSNO legislation was enacted and commenced, relates to hazardous wastes, i.e. wastes generated from the use of hazardous substances, contaminated or waste hazardous substances themselves, and in a different category; unwanted hazardous substances.

From involvement in auditing the waste industry over a number of years, there appears to be a definite lack of any appreciation of fire safety, emergency management and the health and safety risk to staff in the event of incident or fire. Should a loss of containment occur, or on use of firefighting water or foam, there is an almost universal issue of potential discharge of contaminants into the environment.

The differences between companies inspected related more to the material received into their care and their choice of disposal method (water-based vs. solvent-based), rather than any appreciation or mitigation of the risks.

One of the issues identified was that the management of wastes generated from the use of hazardous substances and contaminated or waste hazardous substances themselves, largely does not fall within the ambit of HSNO, but more under the RMA and from a district or regional council's perspective, RMA s.31(1)(b)(ii) and s.30(1)(d)(v) respectively. Actually, it rather falls through the gaps.

The spectrum

At one end of the spectrum is the Hazardous Substances (Disposal) Regulations 2001: Regulation 5 for class 1, Regulation 6 covering classes 2,3,& 4, Regulation 7 for class 5, Regulation 8 for classes 6 & 8 and Regulation 9 for class 9. The Regulations call for "treating the substance using a method that changes the characteristics or composition of the substance so that the substance is no longer a hazardous substance."

But, for classes 1,2,3,4,5 there is a restriction that says "treating the substance does not include depositing the substance in a landfill or a sewage facility", although for classes 6 & 8 it does "include depositing the substance in a landfill, incinerator, or a sewage facility if the landfill, incinerator, or sewage facility will treat the substance by changing the characteristics or composition of the substance so that the substance is no longer a hazardous substance."

There are additional controls that speak to bioaccumulation or degradability, separation from incompatibles etc, and generally that dilution alone is not a permissible disposal method.

Other than those few

What's waste and what's not ?

hazardous substances that have been assessed for Environmental Exposure Limits, treating the substances so that they are no longer a 'hazardous substance' does not necessarily mean that the resulting outcome is environmentally safe, not a pollutant and/or not subject to a discharge consent.

The problem here is the activity covered by 'treating the substance' and that is subject to a wide variety of interpretation; so …

At the other end of the spectrum is the RMA as administered by regional councils and takes effect from the point of discharge into the environment through discharge consents – point of discharge, not the treatment process.

District councils are somewhat in the middle in that they are often called on to accept the substance(s) – whether adequately or inadequately treated – into council controlled systems such as landfills or sewage treatment plants, and the concern then that the discharge consent conditions at the point of discharge as controlled by the regional authority will be exceeded.

Obviously a regional council will be concerned about the susceptibility of receiving environments, whether that is directly or from a district council system, and the statement above requiring that the treatment need only be treated to the extent that "the substance is no longer a hazardous substance." By inference that means the substance now fails to meet the threshold under HSNO; it doesn't mean to say it is safe.

Mischief in the middle

The gap (actually only one of the gaps) mentioned above relates to the activities and processes of the disposal companies. They need to ensure they meet the requirements of the Hazardous Substances (Disposal) Regulations 2001, and at the other end, that they meet their discharge consent limits under the RMA.

What has been observed is that there is a lot of mischief in the middle, and really only controlled by the DoL administered HSE legislation and that is not necessarily a good fit with the environment; maybe so for the protection of staff, but even there considering what they are dealing with, it is questionable.

Other gaps

As to the other gaps; once a substance is considered a waste then the container controls under HSNO no longer apply. That means no requirement for approved plastic jerrycans, tins, drums, IBC's, or tanks (of whatever size).

That's the way the legislation is written and this has led to some nonsensical scenarios. The classic is untreated waste oil where test certifiers are precluded from certifying the tanks because the oil is waste. To all intents and purposes, the fire risks are the same and from an environmental perspective the risk is greater than fuel oils. Once treated to remove the contaminants (low flashpoint flammable fractions, water, sludge including heavy metals) it becomes a fuel oil again and covered by HSNO.

Another example – hospital testing laboratories store and use considerable quantities of xylene in 20 litre cans. Once used and (marginally) contaminated, the controls that apply to the new substance under HSNO no longer apply to the waste. It is illogical that the fire, toxicity and ecotoxicity risk is not so controlled.

The other category mentioned at the outset is unwanted hazardous substances. They tend to get caught up in the waste stream but they are subject to the HSNO controls, so we have a mixture of substances that are and are not covered in one facility.

There was considerable discussion – working parties and consultation etc – prior to the last election, with MfE regarding the gaps identified here. One possible solution identified was the use of the group standard process to control waste streams.

The thinking being explored was that if a waste hazardous substance presented the same or similar hazards and risks to a hazardous substance or a group of hazardous substances otherwise covered by HSNO, then a group standard might apply.

Rex Alexander, M.I. Fire E, is Technical Director of Envirocom (NZ) Limited. HSNO Test Certifier 000009
www.envirocom.co.nz

The way to go:

How to handle a regulatory system

by Anthony Lealand

At the 2013 conference in Wellington where the proposed structure for MBIE and Worksafe was announced, the Hon. Amy Adams' speech struck home to the crux of the matter.

Her three key points were:

- a survey of 400 businesses showed that only 25% were fully compliant in eight key areas;
- HSNO can be complex and incredibly confusing to determine which rules apply in the given situation, and particularly so for small businesses who may not have the resources to understand the legislation as well as larger companies;
- if we want to have people comply with their obligations, we have to find ways to make it easier for them so that everyone in the workplace, from the manager to the employees, knows what they need to do to keep themselves safe.

Other speakers commented in various ways that the HSNO Act and Regulations were complex, with many layers of controls making them most difficult to understand. While it may be easy for a large organisation to deal to this, small organisations find it difficult to understand and implement.

In February 2010 the Small Business Advisory Group of the Ministry of Economic Development noted New Zealand had 457,374 small businesses.

Definition

The definition of a small business is: "SMEs are enterprises of 19 employees or less. They are commonly owned and managed by a working-proprietor who makes most of the management decisions.The owner does not have specialist staff at the management level, and nor are they part of a larger business or group of companies with access to managerial expertise. Given this, it can be argued that owners of SMEs have a much greater need for support in building their business capabilities than owners of larger businesses."

So how are we going to implement both what business needs to comply and what the Minister wants to happen?

Let us not mince matters – the present regulatory structure was dragged into place before it was ready. Highly-placed former ERMA NZ staff commented that they wished they could throw the whole thing out and start all over again.

It took my industry a huge effort and years of work to change just one small part of the regulation involving the use of indoor pyrotechnics outdoors. We were delighted and relieved that the change had finally come through, but we realised the way this was implemented was by adding yet another layer of complexity to a regulatory maze.

The following section, just one of the eight sections of regulations 43A and 43B illustrates this complexity, with its complicated referencing.

"However, regulation 40 applies under subclause (2) as if—

- (a)regulation 40(b) also referred to the boundary of an exclusion zone as specified in regulation 45(2)(d); and
- (b)regulation 40 included a paragraph that refers to the requirements of regulation 45(4)(b)."

Outstandingly clumsy

The ponderous structure involving drafting regulations and getting these through the government pathways legislation, ends up with a document that needs a code of practice to interpret it. This is an outstandingly clumsy way of regulating industry.

Let us not forget that there are 500,000 small and medium enterprises in New Zealand, which the Minister has said need clarity, simplicity and expeditious

ways to assist them in complying.

How can we do this?

We already have a great example in New Zealand, the Civil Aviation Authority of New Zealand. Look on its website, www.caa.govt.nz and see how it operates, remembering that its rules are designed to ensure the safety of tens of thousands of people every day flying around New Zealand. This is a very serious responsibility, and I think you will agree they do remarkably well.

A few phrases from their website:

We proactively monitor emerging safety and security issues that may affect the New Zealand aviation environment, including new technologies, domestic and international regulatory changes, and changes in the business environment.

We support the Aviation Community Advisory Group, which provides advice and feedback on policy issues and projects from an aviation community perspective.

We lead policy projects to review and improve the aviation regulatory environment.

When issues with the aviation regulatory system arise, we analyse the problem and develop options to resolve the issue. Anyone can raise an issue for assessment.

Without doubt the whole of their rulemaking is evidence-based. If a case can be made that a rule needs to be changed, they will change it, and sooner rather than later.

Speaking to CAA the other day, we discussed the qualifications of the staff involved in rule-making. As I expected, many of the staff were former pilots, aircraft mechanics and instrument technicians, as well as airport operational staff. As well there is a group of professional policy analysts. This, to my mind is a great way to create evidence-based rules with people who have direct experience of these situations.

Some of you may recall the involved and complex discussion as to how the rules should be interpreted when there were many LPG cylinders in moderately close proximity at fairground and food market sites. I followed this discussion, centred around how one would interpret this unforeseen situation in light of the regulations which did not fit.

How much better it would have been to have been able to address this immediately – by directly viewing sites, asking the specialists in this area of compliance inspection, asking the users of their needs, analysing the risks, creating a rule to suit and finally notifying the compliance inspectorate of the new rule? This would be a process of weeks not years.

The present revolution moving EPA responsibilities to Worksafe is a wonderful opportunity to revisit the regulatory structure, and ensure that a flexible, responsive system is created to assist those half million businesses in New Zealand in need of an understandable and actively helpful system for ensuring economic controls are balanced with safety. I wish them well in this venture.

Anthony Lealand is CEO of Firework Professionals Ltd, Test Certifier Class I, Nxburst New Zealand.

President's column from page 1

... have some very interesting articles concerning wastes, explosives, toxics, forestry and transport issues and even an article on the Economic Balancing Act and things that go boom! We again review some of the 'overseas reports on incidents' that have occurred offshore, and Archie is still complaining (some things never change).

In line with our purpose we agree that it does make sense to include suppliers, certifiers, users and all parties in the development of standards and practices that enhance and not inhibit a safe and workable future for us all!

Who replaces test certifiers?

It is not clear in the proposed Health and Safety Reform Bill who will replace current test certifiers, according to Fireworks Professionals' Anthony Lealand, as it revokes 82A to 86 of the Hazardous Substances and New Organisms Act.

Considerable talent was lost when the original explosives inspectors and dangerous goods inspectors had their certification work transferred to the ERMA New Zealand, now EPA, which had approved test certifiers throughout New Zealand on a commercial basis.

"Now, after 10 years, we have a talented pool of experienced test certifiers totally familiar with the procedures to implement adequate controls. If this work is to be taken over by Worksafe, where are they going to locate the necessary talented people with experience in the industry? Will these present test certifiers want to work under Worksafe?"

Looking at the history of this, Anthony says the Department of Labour had an inspectorate which was disestablished. Some of these inspectors moved to being private test certifiers, carrying with them the knowledge base that they had learned in many years with the Department of Labour.

"Other people with particular skills in industries were invited by ERMA to be test certifiers such as I was in my field of class 1 pyrotechnics.

"Over 10 years the certifiers became skilled in interpreting the regulations to produce what is a workable system which has proved itself to be delivering detailed safe outcomes." To his knowledge there were no significant industrial accidents where requirements for the test certificates that were issued for the location were complied with.

"This is not to say there were no industrial accidents, but there were no industrial accidents as an outcome of failures of the test certification procedure."

Back referencing

The only unfortunate aspects of this, says Anthony, were the very complex and badly written sets of regulations, which referenced back and forth within the regulations, and from one set of regulations to another, in a manner that was extremely difficult to follow.

"This was extremely frustrating for people such as myself who had 30 years of experience in the industry, to see such badly written regulations and, in some cases, downright unsafe regulatory requirements being treated as a gold standard to adhere to."

Section 221 of the act gives extensive powers to Worksafe to create a new regulatory structure, he said. "I can say that reading through these, it takes my breath away to see the huge range of powers Worksafe has been given. This section gives no direction to Worksafe to implement the new structure in a logical and co-ordinated and, most importantly, a consultative manner with industry who are the people they need to engage and get on board.

Many tasks for Worksafe

"On casting an eye over section 221, it is very clear that all of this adjures Worksafe to undertake many tasks." Anthony says it would require very little to insert, under the duties and obligations, the following:
(d) to consult extensively and widely with industry to develop safe, economic controls;
(e) to continue this consultation as significant evidence, new procedures and new technology arise;
(f) to ensure that these controls are written in plain English, referenced by graphs, diagrams, tables, and are readily available as web versions;
(g) to ensure that industry specific controls are referenced in one document;
(h) to make available to industry statistics of incidents so that industry can learn and profit from this information.

"If this is not done, I fear history will repeat itself and we will end up again

with the mishmash of regulations, transferred from the old structure to the new structure."

Egregious example

One egregious example is when the ERMA, now EPA, structure was created, some particularly difficult regulations were introduced, such as the Hazardous Substances (Fireworks, Safety Ammunition, and Other Explosives Transfer) Regulations 2003 (SR 2003/176), he said.

"This created great difficulties as there was a failure to transfer some explosives materiel to the new regulations, due to oversight and loss of records.

"Furthermore, the complexity of the language and the internal referencing of this and to other regulations made understanding of it extremely difficult."

20 sets of regualtions

Anthony points out that right now under HSNO there are 20 separate sets of regulations. Some industries have to reference to as many 12 different sets of regulations.

"If this new act to empower Worksafe is to succeed, like I hope it will succeed, then it must engage with industry so that industry knows its voice will be heard and understands what is required to be done.

"I believe that this can only be done if Worksafe has a clear mandate to ensure a crystal clear and easy controlled system is established, " he said.

Uncle Archie

Hello HS practitioners!

Incident Reports

It has been quiet on the incident front so far this year, which we are sure that test certifiers and other officials would like to claim as a record of the great work that they have all done! Yeah right!
It is also noticeable that the EPA website has stopped publishing incident reports since Dec 2011. Perhaps the 'incidents' know there is an election looming and to keep their respective toxic heads down?

Worksafe progress?

On that note, following the Watercare and Pike River reports and the 2004 NOHSA report which estimated the death toll from exposure to hazardous substances at between 700 to 1000, the new Worksafe department has now been established!

H&S reform bill

A new bill is proposed as the panacea to all our problems, and to fix the faults identified in the Pike River report. However, it is surprising that 'hazardous substances' do not appear to be mentioned in the goal of the proposed H&S Reform Act either. Let us hope that this is not 'déjà vu'.

Environmental ecotoxics do not get a mention. Archie believes all toxic properties should be controlled as, inevitably, these affect all people.

Worker participation

Archie is pleased to see that in line with recommendations 7, 8 and 11 of the Pike River enquiry, directors, managers and workers are to be trained and to all participate in safety management. While a positive move, supplier responsibility should also be included along with an approved handler-type training scheme which did ensure that at least a member per HS site had suitable knowledge of the hazards present.

High hazard sites

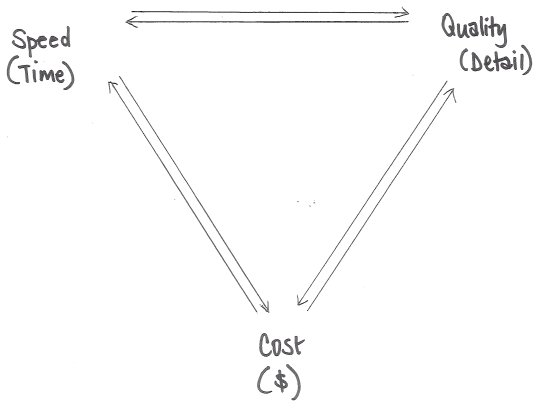
It also appears that the highest hazard facilities may be considered for self-regulation. Archie would urge caution with this, as it did not always work too well for the mining industry and many other similar major incidents.

Who audits the auditors?

Some test certifiers are still moaning about their audit process, but Archie still believes that this is necessary to ensure minimum standards are upheld!
However one of the largest groans by test certifiers, that the accounting auditors employed often lack the scientific knowledge to audit hazardous substance certifiers, does have some merit,

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 appr,ove!

Transporting 1,2,3,4,5



The control regulations for classes 1 to 5 specify very stringent conditions for the length of time dangerous goods may be present at a transit depot or designated transfer zone. These vary from two to 24 hours, depending on the class of substance.

Recently we were reminded yet again of how vulnerable these kind constraints are to being breached. New Zealand's has a water-linked transport infrastructure and a very extensive transport route along geographic areas subject to slips and flooding.

Yes, I'm speaking about the Interisland ferries, one of which is again out of action. How many times has this happened in the last year? I can think of six occasions – from the weather, accidents, a propeller falling off and operational issues. On one occasion there were delays of four days, which compounded the matter because perishable freight had to go first of all.

I'm also thinking of the traffic problems of Auckland, Christchurch and even places like Nelson where the very linear layout of the city along the water's edge can lead to freight hold-ups due to accidents.

We also have the ports, where, at busy times, delays of hours are common with long lines of trucks queuing. And remember the extensive flooding we have had over the last year in several areas of New Zealand!

There is a great little diagram (at right) that illustrates the dilemma companies face here. I originally saw this on the wall at Saatchi and Saatchi in Wellington. What it means is if you pick any two of these, there has to be compromises made on the third one.

So you want low cost (read economic cost) and high quality, you better not be in a hurry time-wise.

If you don't have the luxury of time and you want high quality, then the cost will be high.

if there were sufficient hazardous substance locations, transit depots and designated transfer zones to meet all the possible exigencies of transport time constraints, the costs would be extremely high, in fact, unworkable.

We must also look at the fact that there are other Acts and legislation aimed at industrial safety, such as restrictions on driver hours, that compound the matter.

While everyone does their best to comply, there is no doubt that somewhere along the line, all the best-laid plans fall over due to matters over which no-one has control.

It will be welcome and refreshing to cast some rational light on this with the review of legislation.

– Anthony Lealand, CEO Firework Professionals Ltd. Test Certifier Class I. Nxburst New Zealand.

Hardball over US regulations

When politics and regulations of the USA conflicts with the interests of the insurance industry. the result is an extraordinary situation.

In the United States, the National Fire Prevention Association writes the standards most state governments enrol into safety code and law. The insurance industry has decided to play hardball politics with public safety by abandoning standards for the largest part of the USA's fireworks business.

This doesn't actually mean that suddenly there are no laws regulating sales or safety requirements of consumer fireworks – the 50 different state's legal codes all specify which year's revision of NFPA code is enrolled into their system. What it does mean is that the NFPA refuses to acknowledge any of its former standards for consumer fireworks and will not develop any new ones.

The insurance industry has always wanted to eliminate, not regulate this particular risk. Where this is headed is they are leaving the playground and taking their ball home with them.

In an unprecedented action, the NFPA issued a formal decision in March to temporarily withdraw the entire 2013 edition of NFPA 1124, along with NFPA 1128 & 1129, the test method standards supporting the retail sale and storage of consumer fireworks.

Moreover, the decision states that NFPA will no longer develop standards in connection with the storage or retail sales of consumer fireworks, and the scope of the Technical Committee on Pyrotechnics has been stripped of any authority to develop requirements regarding consumer fireworks retail sales and storage.

This NFPA action appears to be retaliatory and the American Pyrotechnics Association (APA) has filed a Notice of Intent to File a Petition with the NFPA Board to challenge the decision. In addition, through its legal counsel, the APA has submitted a letter with the American National Standards Institute urging it not to accept the NFPA withdrawing of 1124.

– Anthony Lealand, from correspondence with Hollywood Pyrotechnics.

New HSNO application forms

New application forms for hazardous substances and new organisms applications have been available on the EPA website since December 2013.

In the hazardous substances area, the new forms cover pesticides, veterinary medicines, other hazardous substances and transhipments. The new organisms forms concern applications to hold new organisms in a containment facility or release them into the environment.

All old application forms were phased out on 7 March, 2014.

Feedback sought on COP

Feedback is being sought on the proposed Code of Practice HSNOCOP 57 Location of Class 3.1 Hazardous Substances.

The purpose of the proposed code of practice is to provide a means of compliance with the HSNO Act for the storage of flammable liquids in stores and workrooms.

Submissions on this Code of Practice close on 5 May 2014.

A modern phenomenon?

World recession and things that go boom!

As industrial engineers with business training, it intrigues us how often we are asked to design operations that defy science and even the laws of gravity.

It is with some trepidation that we admit we have had no success to date. But we can assure the market that with any impending success, a share issue will shortly follow.

What has this got to do with manufacturing, market forces or for that matter hazardous substances and things that go BOOM!'?

We have the laws of science that have an effect on industry, but what about the other dominant factor in industry – 'the laws' or more correctly the theories of business? Can history provide any insight in understanding the modern free market and the world recession?

Say said ...

In 1803, French philosopher J.B Say assured economists that if markets were left free, there could only be temporary and minor problems of unemployment.

This was because production always created its own demand, and demand created production. The business community was convinced that the self-adjusting qualities of the economy free from government controls were the best system for generating profits and growth. This was Adam Smith's concept of an 'invisible hand' – 'laissez-faire' meaning 'leave it be'.

Business people wished to run their own affairs without government interference. If the market was permitted to function on its own it would be most efficient and advantageous to society.

People demand the products that they want as they spend their income, and this determines the products that should be produced.

It is to a business's advantage to produce the products for which there is demand in the marketplace and the market will regulate itself.

A wonderful modern philosophy, and in 1776 as laissez-faire policies were adopted in England, the Industrial Revolution and the emergence of capitalist institutions proceeded.

However, all was not well in the machine shop, as was typified in the 1770s when riots swept Lancashire as the poor attacked the spinning machines and other machinery they thought were depriving them of jobs. This was not an isolated incident. Despite some conditions, laissez-faire capitalism flourished in the 19th century throughout Europe. Manufacturing and technology such as the railway and telegraph opened new frontiers and the pace of life hastened. Electricity, cars and modern inventions created growth in 'new' areas and production increased.

Unfortunately in England a reality of poor housing, unemployment, low wages and urban squalor was still the norm, and in the United States the notions of economic crisis, panics, unemployment and poverty had not been fully eliminated and these contrasted with an economic boom in certain sectors.

It was found that if markets are not fully competitive and do not have all the characteristics of even competition (or level playing fields) across the whole market, then the benefits of a laissez-faire approach may not be realised.

Many explanations

In the United States between the 1860s and 1929, the economy was growing rapidly. However, it was noted that the phases of growth tended to be cyclical with upswings in economic activity followed by downswings.

Many explanations were offered for these 'business waves'. When economic

conditions were in the downswing, 'laissez-faire' explained the resulting levels of unemployment by insisting that those out of work were voluntarily unemployed.
In 1929, in contrast to the widespread prosperity of the 1920s, the US market crashed, 85,000 businesses failed, stock values changed from $87 billion to $19 billion, unemployment increased to 25% of the labour force, and manufacturing output decreased by 50%.

Not a pleasant experience, in fact, rather a 'depression' for most involved at this time.

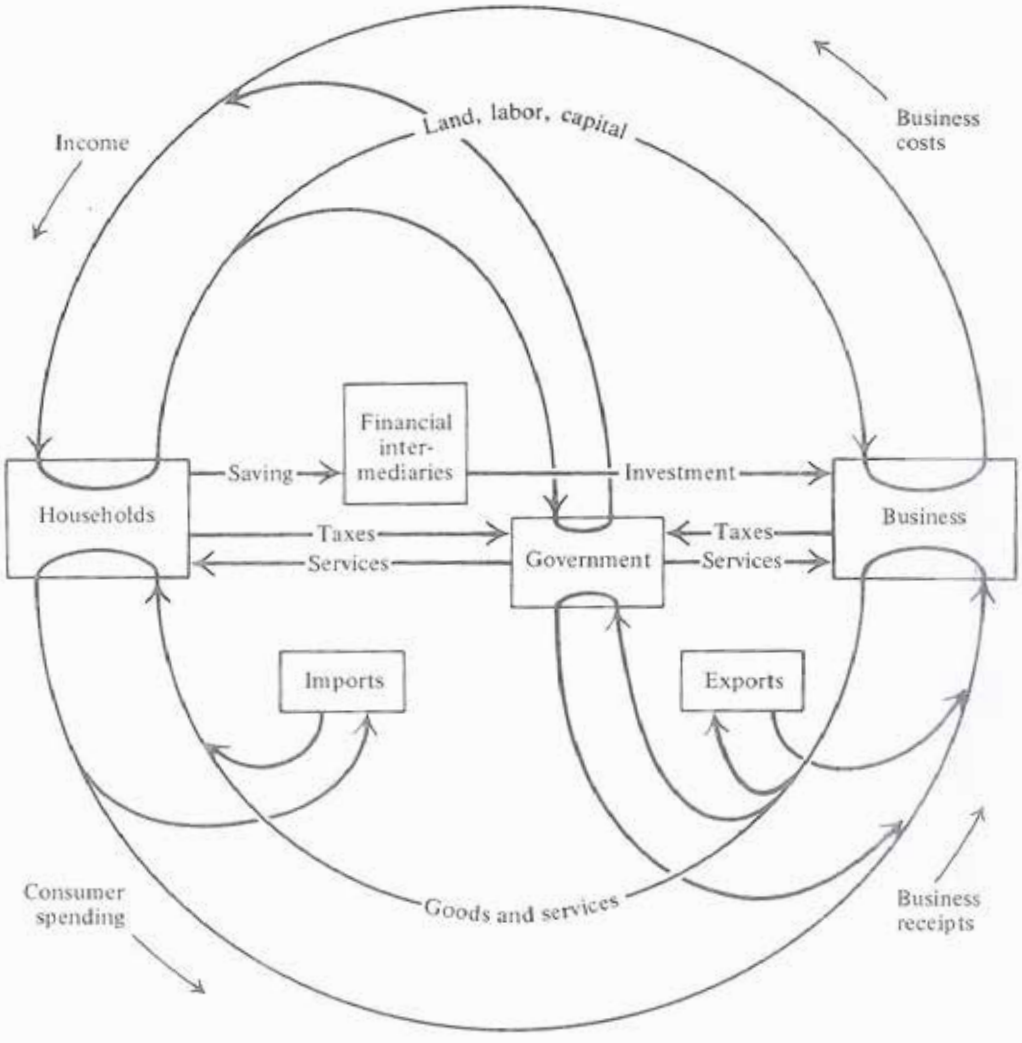
'Says law' was being violated and supply was not creating its own demand; there were leakages from the income as well as injections to them. Leakages included savings, taxes and the purchases of goods and services from foreign nations (imports).

Injections include government spending, investment and the purchase of goods by foreign nations (exports) added to the flow. The use of increased Government spending to add funding to the economy was a useful tool in stabilising the 1929 recession.

For an economy to be in equilibrium, the injections had to be equal to the leakages. As a result, aggregate demand for goods and services would be equal to aggregate supply.
This process model known as Keynesian theory and future adaptations including monetary and fiscal policy had a variety of successes and failures as various adaptations have been tried.

So what is the relevance to the present industrial, manufacturing and 'boom' environment and the current New Zealand vision of the global level playing field – possibly ignoring unlevel contrasts such as controlled low labour costs in parts of Asia?

The economic balancing act



The circular flow with leakages and injections.

Similar to a manufacturing operation in an ever changing market, on occasion the market cannot always decide the best solution for the localised economy and government intervention or a similar control of the process is required.

Perhaps one of the main points of the Pike River report, lest we forget, is that the Pike model, as well as most other 'systems', may have benefitted from a wee bit of inspection or control!

- John Hickey, Abstel-Glyde
MBA, BE, CEng, MIChemE, NZIHSM.

www.abstel.com

Five issues with H&S Reform Bill

While the NZIHSM agrees with the main purpose of the propsed Health & Safety Reform Bill, to provide a balanced framework to secure the health and safety of workers, it has five key issues to achieve this balance.

1. The 'Purpose' of the Bill should include 'substances' if it is to manage these.

The main purpose of this Act is to provide for a balanced framework to secure the health and safety of workers andworkplaces by—
(a) protecting workers and other persons against harm to their health, safety, and welfare through the elimination or minimisation of risks arising from work or from specified types of plant; (and substances) and …

While the proposed Bill defines 'hazardous substances' under 'Substances', the bill should INCLUDE 'SUBSTANCES' in the Object if it is to handle these seriously. (eg: in the Pike River case, the incident was the explosion of a hazardous substance, yet the Hazardous substance controls were not actively enforced or checked at the mine. Arguably the Tamahere coolstore fire and ICI fire were similar).

2. Pre-incident 'compliance certification' and advice is critical for success as separate and in addition to post-incident enforcement in a viable health, safety and hazardous substance system.

Compliance inspections and certificates by independent test certifiers must be retained.

The necessity for regularly inspected 'compliance' through the training and issuing inspected compliance certificates is vital to a well-functioning 'Proactive Accident Preventative System', as opposed to a reactive 'blame' system after incidents have occurred.

While the Person Conducting Business or Undertaking is a good concept, NZIHSM believes that for a practical 'preventative system', the training, information transfer and inspection roles of independent test certifiers (as per HSNO Act) are critical for a successful system.

This is in addition to salary dependant workplace representatives (cf Pike River).

The main reason for this is that NZIHSM members have found over 30 years' experience that while PCBUs do not usually deliberately endanger their workplace, they often lack compliance knowledge and inadvertently create dangerous situations unless corrected.

Unfortunately, while safety is a much vaunted concept, in the general accounting system it is an intangible with no obvious return on investment or payback period when it comes to the common objective of 'maximising returns to shareholders'. For this reason self-regulation often does not work!

Minimum standard compliance and enforcement actually protects local New Zealand manufacturers against an influx of unregulated (dumped) substances into New Zealand from low cost, unregulated offshore suppliers, with the accompanying danger risks to persons and the environment.

3. Toxic and ecotoxic substances must be included in compliance certification, in addition to flammable substances.

If toxic substances are a major cause of workplace incidents (eg: Raetihi oil, Gloves on campaign, etc), then the supply, storage, use and disposal of these should be included in a 'proactive incident prevention' inspection and certification system.

As part of this, while individuals are very important, the regulation should not solely concentrate on this; communities and the

environment should also be included, especially for ecotoxic substances.

Location and stationary containment (storage tank) compliance is critical for this.

4. Strict liability and shared responsibility should be maintained by all involved parties including suppliers, workers, independent compliance inspectors (certifiers), users and enforcement.

The necessity for regularly inspected 'compliance' through the training and issuing inspected compliance certificates is vital to a well functioning 'Proactive Accident Preventative System' as opposed to a reactive 'blame' system after incidents have occurred.

The ability of 'compliance authorities' (independent test certifiers) to liaise with PCBUs without the implied threat of immediate enforcement, is important for proactive engagement between users, suppliers and compliance advice.

However, in difficult circumstances where users adopt potentially dangerous arrangements with no care for compliance, enforcement tools become necessary.

Strict liability should be maintained to keep onus of proof on PCBUs and supplier's and not victims.

It is important that compliance and enforcement officials collaborate with each other, and enforcement also occurs in a proactive rather than just reactive basis. While justifiably difficult to enforce, non-insurable enforcement tools (eg: jail terms) for particularly non-compliant cases should be retained as a deterrent.

5. Worker involvement needs to be supported by independent external expertise and knowledge (such as approved handler training and HS test certification system under the HSNO Act) to be continually effective.

In some cases, workers' immediate employment concerns and company profit requirements can override potential longer-term safety considerations (eg: Pike River), unless independent input by outside experts is required. Often during site visits, HS test certifiers have been asked by employees to raise potentially dangerous situations and supply these to persons in charge.

This exchange of information has also been found to be a cost effective solution.

Other feedback

Other feedback itemsbeing submitted by NZIHSM is (by clause number in draft H&S reform bill):

3. Object: Hazardous substances should be mentioned in 'Purpose'.

18. Notifiable injury or illness:
Exposure to long-term toxics in addition to just less than 48-hour fast acting toxics should be included.

22 Duty to manage risk (Must define Minimum level of risk) A duty imposed on a person under this Act to ensure health and safety requires the person—(a) to eliminate risks to health and safety, so far as is reasonably practicable; etc. …
While NZHISM agrees that it is difficult to define actual risk in all cases, in ALL cases for non-acceptable risk to be avoided a MINIMUM LEVEL OF RISK must be defined such as compliant with a New Zealand recognised standard (eg: WES, TLVppm, %LEL, etc)

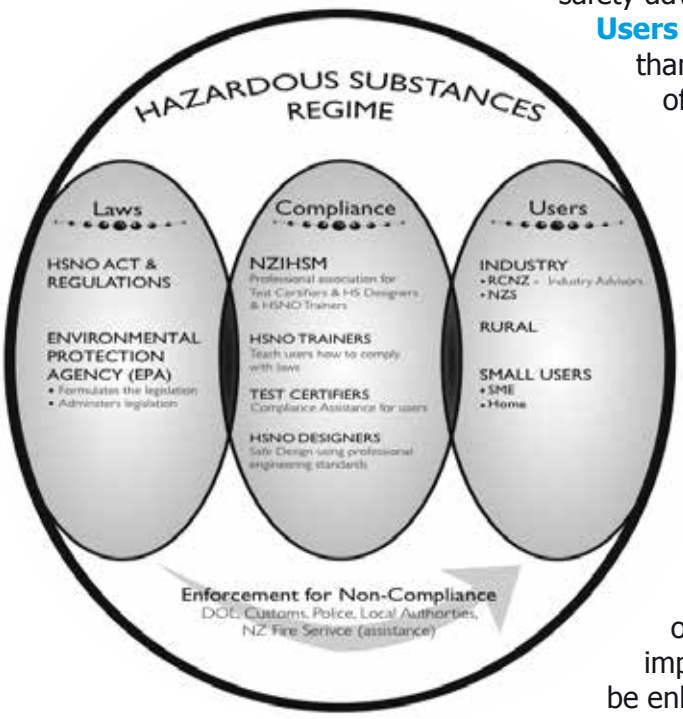
24. Duties not transferable:
NZHISM agrees that while more than one party may have duty, this should not be easily transferrable.

30-38
NZHISM believes that PCBUs should include 'shared responsibility' among all parties including importers, suppliers, designers, manufacturers, workers and users.

56. Requirements for authorisation of plant or substance
(1) A person must not use plant or a substance at a workplace if—
(a) the regulations require the plant or substance or its design to be authorised; and
(b) the plant or substance or its design is not authorised in accordance with the regulations.
(2) A PCBU must not direct or allow a worker to use the plant or
substance at a workplace if—
(a) the regulations require the plant or substance or its

design to be authorised; and (b) the plant or substance or its design is not authorised in accordance with the regulations.
The regulations (when developed) should include for the plant or hazardous substance to be authorised AND certified via retaining the existing approved handler, HS location and HS stationary container certification system. Where properly trained and experienced, test certifiers could include BOTH health and safety operational and hazardous substance compliance roles.

(3) A person who contravenes subsection (1) or (2) commits an offence and is liable on conviction, —
(a) for an individual, to a fine not exceeding $20,000:
(b) for a body corporate, to a fine not exceeding $100,000;
(c) a jail term should be included as a non-insurable deterrent for particularly dangerous non-compliances.



Overview of critical items

An NZIHSM overview on critical items for successful hazardous substance or worksafe control regime ...

The system for the advice on hazardous substances following the HSNO Act 1996 had established a public/ private partnership system for the management of hazardous substances, which can be demonstrated in the diagram below.

Operations

At present New Zealand has:
Law makers – Environment, EPA, MBIE.
Compliance – HSNO Test certifier regime, allows for general public advice, liaison and checking (public private partnership) includes approved handler trainers, design engineers and general safety advisors.
Users – Users of more than 'minor quantities' of hazardous substances need to comply with HSNO controls. Suppliers should also have responsibilities.
Enforcement – MBIE, Dept. of Labour, OSH, Police, Customs, local authorities etc.

While ALL parts of these are important, they could be enhanced by increased co-operation between Private (users and certifiers) and public enforcement. The private co-operation between users, suppliers and test certifiers has in many cases acted as a 'safety fence at the clifftop' rather than an 'enforcement' ambulance below.

Critical items in a hazardous substance from the HSNO Act regime:

Classes of Hazardous Substances – 9 Classes of hazardous substances. Two major categories of hazardous incidents, Flammable (Class 1-5 regulations) and Poison/Toxic (Class 6,8,9 regulations).

Three types of Hazardous Substance Inspection/ Certificate:

Approved handlers (Cls 1-9), Location Certificates (Class1-5 only, >100 l), Stationary Containers (Class 1-9, >1000 l).

Hazardous Substance ontrols

- Class 1-5 controls (Flammables)
control fuel, oxygen, ignition or monitoring of %LEL (lower explosive level)
- Class 6,8,9 controls (toxics)
Personal Protective Equipment, safe storage.
- General controls for protection of people and the environment (all class 1-9)

Hazardous substance register and The Seven Ss: Security,

Segregation, Separation, Signage, Secondary Containment, Suits (Personal Protective equipment), Safety Systems – ERPs, MSDS, etc.

The HSNO Act system of controls could easily be also applied to other safety systems such as the Health, Safety and Employment Act and Pressure Equipment, Cranes and Passenger Ropeways regulations.

Costs and benefits

Costs are always an issue and since 1996 the cost items have been arranged in the form of a public-private partnership with the previous conflicts between compliance and enforcement being separated by private test certifiers assuming the compliance roles and the government retaining the enforcement role.

Pros

- This, in essence, means that the Government incurs less cost from the employment and support while Industry engages the compliance functions on a 'user pays' basis.
- Certificate costs are similar to the previous DG licence cost, but with closer liaison between 'the user' and 'the certifier' to allow for a transfer of safety information as part of the certification process.

Cons

- A perceived problem could be the closer relationship between test certifiers and their 'user' clients rather than enforcement agencies. However, if the inspection process is carried out properly, then this is positive and adequate enforcement audits can hopefully identify potential problems before events occur.
- Responsibility without matching authority for test certifiers may allow potential HS sites to 'duck' the system although supplier responsibility can assist here.
- Knowledge-sharing between private certifiers and government enforcement could be improved for a mutually beneficial system.
- The non-inclusion of toxics from the location certification system has lead to a significant gap in the compliance system.

Exemptions and exceptions can cause problems?

- inspection exception? (Pike river);
- natural gas exemption (Watercare explosion?);
- refrigeration exemption (Tamahere ?);
- secondary containment exception (Raetihi oil spill);
- toxic location certificate exemption (many incidents).

Conclusions and key points

- The 1996 HSNO Act (compliance and enforcement) regime as a public/private partnership is a significant improvement on the pre-1984 dangerous goods enforcement regime with the following items being the most beneficial.
- The private co-operation between users, suppliers and test certifiers has in many cases acted as a 'safety fence at the clifftop' rather than an 'enforcement' ambulance below.
- Hazardous substance registers and published HS controls are useful.
- Approved handler training has lead to increased safety knowledge on HS sites.
- Test certifiers have proved beneficial to the transfer of compliance information to sites with 'users trust' gained which is not always possible in an 'enforcement only' regime.
- Stationary container certification has lead to checks and tests on high volume HS tanks on a more regular and beneficial basis to prevent tank failure and leaks into the environment prior to catastrophic events in most cases.
- Supplier's having responsibility as well as 'users' and 'certifiers' has lead to more responsibility throughout the whole HS process.
- The HSNO Act system of controls could easily be also applied to other safety systems such as the Health, Safety and Employment Act and Pressure Equipment, Cranes and Passenger Ropeways regulations.
- Overall, since the 1996 HSNO Act, the supplier, user, compliance, enforcement system has lead to a much-improved and cost-effective system over the previous pre-1996 DG regulation user and enforcement system only.

Explosions, leaks and spills

Eleven people were killed in a gas tank explosion in a Doha restaurant. The building, next to a petrol station, collapsed under the impact.

U.S. railroads that haul volatile crude shipments have reached agreement with officials for wide-ranging safety measures after a string of explosions and fatal accidents. The new measures include speed restrictions, more frequent track inspections and better emergency response planning along the routes for trains hauling up to three millions gallons of crude. The agreement does not resolve concerns over the transportation of ethanol despite several accidents, nor an estimated 78,000 flawed tank cars, known to crack open in derailments.

A botched blast at the Mount Arthur mine near Muswellbrook, NSW, turned the sky bright orange due to the release of poisonous nitrogen dioxide fumes. According to mine workers, the ammonium nitrate and fuel oil explosives were left in the ground for 21 days, a week longer than recommended due to risk of water contamination.

Russia's Stavrolen polyolefins plant has suffered another explosion and fire, this one injuring 15 workers. This is the third similar incident in six years.

Several explosions and an intense fire ripped through the JNS Biofuels plant in Tennessee. Firefighters were hampered by the presence of some chemicals that explode on contact with water.

A truck carrying blasting explosives caught fire and exploded in South Africa when a grocery truck ran into the back of it. Five were killed and six injured. The driver of the explosives truck was unharmed.

About 600 litre of sulphuric acid spilled at a Uzbekistan chemical plant. Most of it seeped into the ground, possibly polluting groundwater. It is thought a tanker overturned.

An Indian oil tanker being repaired in China caught fire and exploded after an open flame ignited an unidentified substance.

Individual states hamstrung on HSNO transport regulations

Each day, trucks and railcars hauling hazardous materials share roadways with Iowa drivers and pass through Iowa. But unless there is an accident, officials often don't know what materials are transiting through the state.

The Investigative News Network has analysed more than half a million records from the U.S. Department of Transportation as part of a national look at the impacts of hazardous materials spills during the last 40 years. The INN says Iowa's Department of Transportation does not track or permit vehicles carrying hazardous materials in Iowa.

The Office of Rail Transportation has some data, but it is limited to broad categories, some of which encompass both hazardous and non-hazardous materials, making it hard to determine what is traveling through. The hazardous materials include explosive, flammable, poisonous, radioactive and corrosive materials as well as oxidising agents that can cause the combustion of another material.

Major Lance Evans, who oversees Iowa's hazardous materials inspections team, says there isn't, at present, a mechanism to track the materials available to individual states. Most of the safety regulations have to be done at the federal level because the materials are involved in interstate trade. States working to improve safety often are limited to educational outreach.

Since the 1970s, more than 6000 hazardous materials incidents in Iowa have been documented by the U.S. Department of Transportation. But Iowa is in fairly good standing – the state is ranked 31st among the 50 states and is home to far fewer incidents than top-ranked Ohio, which had 40,000.

Concerns about the effects of leaked chemicals were back in the limelight in January when hundreds of thousands of West Virginians found their water supply contaminated by an industrial chemical that leaked into the Elk River. Residents went nearly a week without water, igniting discussion about increasing regulations on hazardous materials and increased awareness of the vulnerability of the water supply.

There hasn't been a strong push from industry for action, and there is apparently not a lot of concern from the public, except when major incidents like Elk River occur.

Although most hazardous materials travel through Iowa on highways, the incidents with the largest releases of materials frequently involve railroad shipments. Data shows 27,251 rail wagons of crude oil shipped through Iowa in 2012. This is just a fraction of the nearly seven million wagons that chugged through during the year, but represents roughly 2.5 million tonnes of crude oil.

The explosion near Casselton, North Dakota last year (pictured), forced hundreds of residents to evacuate. It happened just weeks after the Association of American Railroads urged the U.S. Department of Transportation to improve federal regulations for tank cars used to transport flammable liquids, like crude oil and ethanol.

The association estimates roughly 92,000 tank cars are currently carrying flammable liquids across the country. Approximately 78,000 of those would need to be retrofitted or phased out. Estimates from the Railway Supply Institute suggest a programme to retro-fit existing cars could cost more than $1 billion.

Many of the proposed regulations had already been adopted as industry standards by the association in October 2011, but not been mandated by the Pipeline and Hazardous Materials Safety Administration, which can set regulations.

Writing new law:

Be careful out there !

by John Hickey

There has been much discussion and beavering away of young graduates in various government departments in connection with the Health & Safety Reform Bill, as a response to the Pike River mine catastrophe.

It is easy to be critical, and many of us have also been asked to submit our thoughts and comments on the almost 300 pages of draft laws that have been put before us – with another few thousand pages of regulations to follow.

Various responses from our members occur elsewhere in this publication.

But perhaps a more pertinent question is: what would I want to see in a Health and Safety law, or indeed any similar law, if it was up to me to draft the first response?

This is always more difficult than a critique of other work, but for better or worse, here goes!!

I believe it is very important that all laws must have a recognisable purpose and be easily understandable if they are going to be followed by the public. In this case, my thought as to a meaningful purpose is as follows:

Purpose

The purpose of the Health and Safety Reform bill is to **"Protect people, communities and the environment against the adverse effects of hazards and hazardous substances while maintaining the benefits of the same."**

What is this about, and why are the above items of importance?

Protection of –

People, Tangata, Tangata, Tangata! (People, People, People)
It is important that ALL human laws are to protect all humans.

Communities. The benefit of the whole community is also important, but not at the expense of the individual's rights.

This is where democracy comes in as 'the best of the bad systems' so that fair and reasonable compromises can be sought between an individual's basic rights and the good of the community.

Businesses are part of the community and they must be able to function for the benefit of shareholders and their whole community in a fair 'market economy'.

In fairness, businesses also need to be protected against unfettered 'dumping' by offshore concerns so they can maintain the benefit of their whole community. This is where laws, minimum standards and inspections are most useful to check that an equal or level marketplace is maintained.

Environment. Our laws must be consistent with scientific principles because nature will still 'explode or poison' if natural laws are not heeded, no matter how many human laws say it shouldn't!!

Protecting nature is also for the benefit of all people, as when it comes down to our basic needs, most want food, shelter and a beautiful natural world! Any laws that ignore nature's laws, sooner or later will fail and be detrimental to the people!

Hazards. All hazards have a risk of occurring. The purpose of a good law is to minimise the risk while maintaining the benefits of all items.

Workplace hazards can be addressed through the adequate use of personnel protective equipment, guarding, pressure controls and safety systems. All parties in an operation should have shared responsibility here.

Hazardous substances.
Almost all substances can be useful if used properly. but also hazardous if handled in an adverse manner. Some could argue that the good use of chemicals and energy have been a fundamental reason for humanity's improved living conditions in the past 200 years.

Conversely, the unwanted or adverse side effects of substances need to be balanced if they are to continue to be useful (eg: beneficial petroleum products v global warming, chocolate v weight-gain, etc).

It could be argued that protecting ignition sources, fuel and oxygen is the key to controlling flammables and toxics should be handled with care and not spilled out into the environment.

Protect against adverse effects while maintaining benefits.
Our good law must maintain the balance between maintaining the benefits of potential hazards and substances while protecting against the adverse effects. It is the balance between benefits and adversity that is important.

Now, having been so verbose in describing the 'purpose' to our law, I have run out of room, so now need to shorten 300 pages of legislation to a sentence as follows:
The Law –
'LOOK AFTER EACH OTHER AND YOUR SURROUNDINGS'

While this may look simple, due to adversarial reactions from a number of QCs, to clarify the meaning of 'look after' and 'surroundings' not to mention 'each other', we refer to regulation 1.

Regulation 1: 'BE CAREFUL OUT THERE'!

News of the world

TIPP negotiations compromised
A leaked document from the December 2013 round of the Transatlantic Trade and Investment Partnership negotiations has exposed the extent of chemical industry influence over secretive on-going US-EU trade negotiations, according to independent researchers.

Their report says chemical industry proposals to TTIP would have a 'chilling effect' on the regulatory environment, slowing down the implementation of precautionary decisions on toxic chemicals, undermining democratic decision-making and stifling the innovation of safer alternatives.

Fracking dangers little understood
Known dangers of shale gas exploitation and the poorly understood risks of fracking processes mean the industry must be tightly regulated, the UK's TUC has warned. In a submission to an inquiry by the House of Lords select committee on economic affairs it notes, "there are very limited data regarding occupational health hazards from exposure to the chemicals, proppants and processes used in high volume hydro-fracking."

Legislation failure alarming
The failure of the European Commission to deliver legislation on endocrine-disrupting chemicals is alarming, according to leading members of the Socialists and Democrats grouping in the European Parliament. An industry lobbying and product defence campaign set out to dissuade the European Commission from acting, and January this year the Commission said it would delay action for a least one year.

Deadly dispersants need investigation
Australia's offshore petroleum industry safety regulator must fully investigate the use of potentially deadly dispersants to clean up oil spills in Australia, according to the ACTU.

Michael Borowick said reports on the "60 Minutes" programme regarding dispersants used to clean up spills in Australia were deeply concerning, and the National Offshore Petroleum Safety and Environmental Management Authority needs to conduct a genuine and timely investigation, putting health and safety first.

Chunnel workers poisoned
Thirty-two workers changing rail tracks inside the Channel Tunnel have suffered suspected carbon monoxide poisoning in two incidents on consecutive nights.

Technology and operation strategies

The manufacturing operation is a collection of different functions designed to transform raw inputs through a process mechanism into value-added products to satisfy a market need.

At the highest-level, management develops a strategic plan with the typical requirement to create added value or profit for the stake and shareholders in the industry. This strategic plan, and we mean more than the annual budget manoeuvres here, must spread right throughout the organisation.

Marketing, operations, technical, accounting and administration should all have specific strategies consistent with the overall strategies of the firm, and these strategies shall inter-relate and be understood by differing business functions.

Traditional company structures divide the collections of differing functions into areas of expertise such as marketing, production, financial and procurement, and arm these with collections of key performance indicators and other useful mechanisms to ensure compliance on an annual basis.

A small business production manager showed with some pride some hundreds of tow-bars constructed to a high degree of quality in a record time period which, in itself, constituted a high degree of production efficiency in terms of output per labour unit, materials per unit, capital per unit and other simple measures of productivity on a partial factor basis.

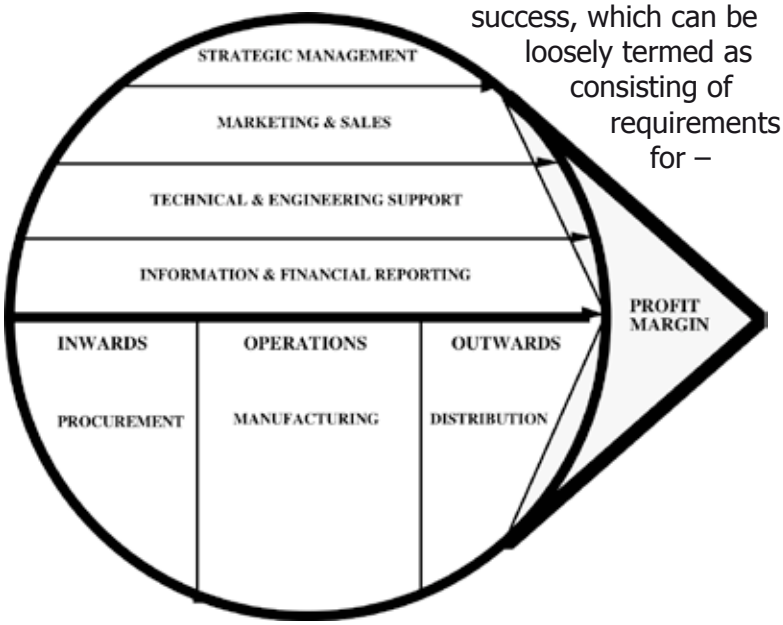
However, on consideration that the estimated market demand for these towbars was in the order of tens per month, it would appear that the stock-holdings for this company would form an impressive proportion of the firm's balance sheet unless an alternate market shift such as specialty paperweights was identified within a short period of time.

Of course, the larger corporate companies would never make such a fundamental error with the use of the sophisticated MRP and other business tools. Or would they? How many marketing experts decide to mass produce the latest wonder-product without a consideration of whether the packaging, product delivery mechanisms and process scheduling fits with an existing job-shop method of manufacture. And more importantly, whether a mass-producing unit can maintain the flexibility for changing styles that has been a past characteristic of the market in the past.

Any strategic business unit of a company should operate in the context of its existing corporate resources, the general and competitive industry environment and the specific corporate goals of the company and in particular ensure that all of the areas within the Corporate structure are included in the development of ongoing strategies.

Set of criteria

In any area that a manufacturer chooses to compete is a set of specific market-based criteria for success, which can be loosely termed as consisting of requirements for –



Efficiency, or minimising the use of scarce resources while maintaining high outputs to produce a cost advantage

Effectiveness, or the ability to meet specific criteria such as delivery schedules and technical capability

Quality, or the degree to which the product meets customer expectations (not necessarily the rigorous adherence to a pre-determined paper trail) and

Flexibility, or the capability to change as business conditions change.

Choices

From an operations strategy established from the market base criteria for success, including a regular market feedback loop to ensure that current goals are congruent with changing market needs, the operations manager must make choices in conjunction with input from the other business areas on:

- **Facilities**, eg the scale and location of facilities;
- **Aggregate capacity;**
- **Choice of process;**
- **Vertical integration**
- **Operations integration and operations interface with other functions.**

The combination of choices made in the above area represent the operations strategy of a particular firm and provided this is not carried out in isolation to the other business functions, and especially to the market changes and safety, the operations strategy can ensure the ongoing competitive advantages of the manufacturer.

Danger lurks in forests

Forests are a beautiful part of the landscape, and introduced conifers an important part of the New Zealand economy.

While it would be nice if trees could always stand tall softly twisting in the winds, the reality is different. Trees must come down to be useful as wood, and it is the foresters and loggers whose work achieves this. Unfortunately it is not just the trees that are coming down, but the foresters too are being brought down in far too great a number.

Nine deaths amongst foresters in 2013 –
January 11: Eramiha Eruera Pairama, 19, is struck while felling a tree near Whakatane; January 17: John Sanderson, 40, dies near Whangarei when a falling tree hits another, snapping a branch that falls on him, severing his leg; February 18: Robert Thompson, 43, is hit by a hook after a rope snaps near Thames; March 26: Robert Arapeta Epapara, 23, is killed after being struck by a tree while working with a forestry gang near Rotorua; April 22: Adam Tony Olsson, 23, is killed when a rotten trunk snaps and falls on him near Waitara, in Taranaki; May 6: Mark Rogan, 45, succumbs to an infection caused by a piece of wood that flew into his throat, in the Otago region; July 19: Charles Finlay, 45, is hit in the head by a log in Waikato's Kinleith Forest; November 26: David Charles Beamsley, 63, dies in a tree-felling accident near Murupara; November 29: Michael Langford, 28, is pinned between two trees near Nelson; December 19: Lincoln Kidd, 20, is killed while felling trees near Levin.

And 28 deaths in the previous five years! These were in spite of significant research work carried out by the Logging Industry Research Organisation (LIRO) and its introduction of an Accident Reporting Scheme (ARS) in the 1980s.

According to the 1991 analysis of loss time accidents (Parker 1992), felling and trimming accidents are the most common (accounting for more than 50% of the total followed by landing work and breaking out). The data from the ARS helps establish which aspects of the logging operation need investigation to increase safety, guide the development of new techniques and monitor the success of new equipment and methods of work. For example, in 1985 chainsaw protective leg-wear was made compulsory in the New Zealand logging industry and since then significant forestry requirements have been developed to try and further reduce the dangers.

Even so, deaths and workplace injuries are occurring far too often and to try and understand the root causes of these, inspections have been instigated by Worksafe to try and reduce these injuries to more tolerable levels. The Institute will continue to watch this space with interest.

www.nzihsm.org.nz

office@nzihsm.org.nz