



GREEN GAIN CONSULTING

Quarterly Newsletter | November 2009

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2009 has so far proved to be a very productive year in Environmental and Health and Safety fields and GGC hopes that we have made the changes and adjustments less stressful and frustrating for all of our clients.

Most of us are looking forward to holidays filled with sun, sand and family approaching, this newsletter adds some holiday fun to the mix. This is the last newsletter for 2009 sporting fun bumper stickers and holiday tips into the 'usual', unravelling some wild theories and discussing new legislation that has been commenced since the August 2009 Newsletter.

Population Boom and Doom

New Scientist has reported that 50 000 babies are born every 6 hours in the world and on average 75 million a year. Think about this for a second and the consequences it leads to. This is an enormous amount of tiny people being added to the world, and these tiny people turn into adults who need to be fed and educated.



The natural environment is ravaged to sustain more people and their need for adequate resources. Where a family is not able to sufficiently financially support more members there is a decrease in quality of life for the whole family and education and development suffers. It is easy to sit and 'preach' about contraception, but upon closer examination, especially in an African context, all of it is easier said than done.

In African culture family planning is not a priority, children will look after you when you are old, they will give you grandchildren and help bear the load of work the family undertakes to sustain itself. I have often heard these cultural opinions in rural South Africa, Botswana and Namibia, the argument is that it does not matter how difficult a larger family is to support, but rather the amount of happiness to be found in a large family and the support structure it holds. Beyond the cultural aspects there is a gap in education in Africa, many women do not know that they have a choice to fall pregnant or not. Contraceptives are expensive and difficult to come by in rural areas- Dischem is not across the road.

Another interesting theory regarding population growth is taken to extremes in the movie Idiocracy, it tells the story of how well educated persons have less offspring and later in their lives because they want to ensure the best possible quality of life for themselves and their 1 child. This while less educated people start having children at a younger age and these are the genes that are passed on to future generations. The 'smart' genes are not passed on and the world becomes more idiotic than can possibly be imagined. The movie, all in all, is not great but the concept it is found on is truly mind boggling especially because it makes a weird kind of sense.

Africa is a beautiful and diverse continent but the environment, especially in arid regions can barely support its population at present and factors such as global warming will most likely only add to the difficulty of raising a larger family. Education in relation to sustainable development and family planning may be expensive but in the long run rewards us threefold. In my opinion this is equally, if not more important than basic services and medical services as resource management is the cornerstone of a healthy and sustainable community. Of course my opinion is debatable, few people actually know what it involves to 'live off the land' and solutions to the rural population boom should ultimately be found within the communities themselves.

New Legislation

Environmental:

● **National Biodiversity Framework. Gazette Number 32474 Notice Number 813**

The purpose of the NBF is to provide a framework to co-ordinate and align the efforts of the many organisations and individuals involved in conserving and managing South Africa's biodiversity, in support of sustainable development. The NBF is a requirement of the National Environmental Management: Biodiversity Act 10 of 2004.



The NBF aims to:

- Focus attention on the most urgent strategies and actions required for conserving and managing South Africa's biodiversity;
- Point to roles and responsibilities of key stakeholders, including key organs of state whose mandates impact directly on biodiversity conservation and management.



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● **National Environmental Laws Amendment Act 14 Of 2009. GN 32580 Notice Number 65**

The Environmental Laws Amendment Act 14 of 2009 became active on the 18th of September 2009. The Act amends various environmental Acts, herewith a quick indication of the important amendments –

- **APPA** - Penalties for contraventions are adjusted.
- **ECA** - Penalties for contraventions are adjusted.
- **NEMA** - EMIs are no longer required to carry notices of designation with them and the scope of routine inspections on the search of vehicles is extended; it is an offence even if degradation occurs due to negligence. Provision is made for **criminal liability** in terms of section 28- Duty of care where non compliance with section 28 is criminalized with R1mil fine and or 1 year imprisonment. Non compliance with section 30 (Emergency provision) of the Act is criminalized. Reporting, cleanup and rehabilitation, reporting to government in 14 days. Non compliance with the section results in an R1mil fine and or 1 year imprisonment.
- **NEM: Protected Areas Act** - Penalties for contraventions are adjusted.
- **NEM: Biodiversity Act** - An EIA must now be obtained when genetically modified organisms are involved; the regulations are amended to allow for hunting.
- **NEM: Air Quality Act** - Now provides for a processing fee to review licenses; penalties for contraventions are adjusted.
- Note that all penalties referred to above can constitute a fine or imprisonment or both, meaning that any person committing any contravention can be held criminally liable.

● **National Environmental Laws Amendment Act 44 Of 2008. GN 32563 Notice Number 902**

The Environmental Laws Amendment Act 44 of 2008 became active on the 11th of September 2009. The Act amends various environmental Acts, herewith a quick indication of the relevant amendments:

- **APPA** - Now regarded as a specific environmental management Act
- **NEMA** - Non-compliance with a compliance notice issued by an Environmental Management Inspector can lead to a fine not exceeding R5 million or 10 years imprisonment or both.

● **National Policy on Thermal Treatment of General and Hazardous Waste. Government Gazette 32439 Notice Number 777**

The Minister of Water and Environmental Affairs has published for general information the National Policy on Thermal Treatment of General and Hazardous Waste.

The policy document presents Government's position on thermal waste treatment as an acceptable waste management option in South Africa, and provides the framework within which the following thermal waste treatment technologies shall be implemented in the country:

- The incineration of general and hazardous waste in dedicated incinerators or other high temperature thermal treatment technologies, including but not limited to pyrolysis and gasification; and
- The co-processing of selected general and hazardous wastes as alternative fuels and/or raw materials (AFR) in cement production.



● **EIA Listed Activity Regulation 387 Amendment. Government Gazette 32625 Notice Number R. 971**

The Minister of Water and Environmental Affairs has amended Activity 1(i) as published in **Regulation 387** of **21 April 2006**. The amendment substitutes the expression **including** with the expression **excluding** for the activity to read as follow -

*"the extraction or processing of natural gas **excluding** gas from landfill sites".*

This means that an EIA is no longer required for the extraction of gas from landfill sites but an EIA may still be required in terms of the Waste Act as the activity is a waste management activity.

Health and Safety:

● **Hazardous Substances Act 15 of 1973: Declaration of Leaded Paint as Group 1 Hazardous Substance. Government Gazette 32455, Notice Number 801**

Leaded paint is defined as paint containing lead or lead compound with a total content 0.06% (600ppm) and above, based on total non-volatile content which is used for decorating. This definition of leaded paint does not include for the purposed of this Notice:

- Industrial and commercial building and equipment maintenance coatings, included in this are traffic and safety marking coatings;
- Graphic art coatings such as billboards and identification marking in industrial buildings;
- Touch-up coatings for agricultural equipment;
- Catalysed coatings for radio-controlled model aircraft.

These products must however have a warning sign stating that the paint contains lead. This notice will come in to effect **31 January 2010**.

● **Occupational Health and Safety Act 85 of 1993: Pressure Equipment Regulations. Government Gazette 32395, GN R.734**



The Pressure Equipment Regulations became active on 1 October 2009. The Minister of Labour has made these Regulations, in terms of the Occupational Health and Safety Act of 1993. The Regulations contains provisions on the following :

• **General requirements:** All manufactures, importers, persons who sell or supply pressure equipment regulated in terms of these Regulations must ensure that equipment complies with these Regulations. All pressure equipment for use in the Republic shall be categorized and submitted to the applicable conformance assessments of SANS 347 in addition to the requirements of the relevant health and safety standard incorporated into these Regulations.

• **Duties of manufacturers:** The manufacturer has an obligation to ensure that all equipment designed and manufactured for use in the Republic shall be conformity assessed and subjected to the requirements set out in SANS 347.

Subject to the requirements of this Regulation a manufacturer shall issue a certificate of manufacture for all pressure equipment supplied, with a verification signature by an approved inspection authority when so required.

• **Duties of importers and suppliers:** Importers and suppliers shall ensure that pressure equipment sold complies with the requirements of these Regulations. The importer shall assume the liability of the manufacturer in terms of these Regulations. Any pressure equipment that requires a permit to be issued by an organisation approved by the chief inspector shall ensure that such approval is obtained by the

"The superior man seeks what is right; the inferior one, what is profitable."

— *Confucius*

"The ultimate test of man's conscience may be his willingness to sacrifice something today for future generations whose words of thanks will not be heard."

— *Gaylord Nelson*

"To forget how to dig the earth and tend the soil is to forget ourselves."

— *Mahatma Gandhi*

"We do not inherit the earth from our ancestors; we borrow it from our children."

— *Chief Seattle*

importer or manufacturer before the pressure equipment is placed in the market: Provided that such equipment shall comply with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act.

- **Duties of users:** The user shall ensure that the pressure equipment is operated and maintained within its design and operating parameters.
- **Registration of a steam generator:** No person may use a steam generator unless in possession of a certificate of registration.
- **Pressure equipment marking:** Every manufacturer of pressure equipment shall cause the pressure equipment to be marked in accordance with the relevant health and safety standard incorporated into these Regulations. Every manufacturer shall cause a data plate to be permanently fixed in a conspicuous place to any steam generator or pressure vessel.
- **Pressure and safety accessories:** No user may require or permit pressure equipment to be used unless it is provided with all the pressure and safety accessories required by the relevant health and safety standard which is incorporated into these Regulations under section 44 of the Act and used in the design, construction and manufacture of such pressure equipment.
- **Inspection and test:** To be carried out for different pressure vessels at such times as indicated in the Regulations.
- **Risk-based inspection:** The user may, as an alternative to the in-service inspection and testing interval requirements implement a risk-based inspection management system in accordance with the relevant health and safety standard incorporated into these Regulations. A risk-based inspection process and implementation shall be verified by a certification body accredited by the accreditation authority in terms of ISO 17021 specifically for risk-based inspections and approved by the chief inspector.
- **Records:** Every user of pressure equipment shall keep a record, which shall be open for inspection by an inspector, in which the certificate of manufacture, and the results, after manufacturing, of all inspections, tests, modifications and repairs shall be recorded. The manufacturer shall keep the original manufacturing records of the pressure equipment for a minimum period of 12 years.
- **Access:** The user shall cause pressure equipment to be erected and maintained in such a manner that access to and exit from any chamber, flue, manhole, inspection opening, control or accessory is safe and unobstructed.
- **Gas reticulation equipment and systems:** No person may install a gas appliance without the proper authorizations. An approved inspection authority or authorised person must issue a certificate of conformity after completion of a gas installation.
- **Transportable gas containers:** No user shall use require or permit a transportable gas container to be used, and no user shall fill, place in service, handle, modify, repair, inspect or test any transportable gas container, other than in compliance with the relevant standards incorporated into these Regulations under section 44 of the Act.
- **Fire extinguishers:** No user shall use, require or permit the use of a fire extinguisher unless designed, constructed, filled, recharged, reconditioned, modified, repaired, inspected or tested in accordance with the relevant safety standard incorporated into these Regulations under section 44 of the Act. No person shall fill, recharge, recondition, modify, repair, inspect or test any fire extinguisher unless such person is an authorised person employed by a permit holder: Provided that a permit is issued by an organisation approved by the chief inspector.

Please note that many relevant SANS codes have been incorporated into the regulation. Ensure that copies of the relevant codes are also obtained from www.sabs.co.za for the detail requirements that organisations have to comply with.

● Tobacco Products Control Amendment Act 63 of 2008. Government Gazette 32345

The Tobacco Products Control Amendment Act 63 of 2008 commenced on 21 August 2009. This Act amends the Tobacco Products Control Act, 1993, by:

- Provides anew for the advertising, sponsorship, promotion, distribution and information required in respect of the packaging and labeling of tobacco products;
- Makes the standards that apply to manufacturers of tobacco products applicable to importers of tobacco products; to
- Prohibits the sale of tobacco products to and by persons under the age of 18 years;
- Extends the provisions in respect of free distribution of tobacco products;
- Provides anew for tobacco sales by means of vending machines;
- Extends the Minister's power to make regulations;
- Adjusts the provisions in respect of offences and penalties.

The Silly Season

This time of the year is all about finishing work deadlines and starting to plan well deserved holidays. Planning and preparing for holidays are key to reducing stress and having the holiday you deserve and being kind to the environment while being safe only adds to the spirit. Here are some holiday tips to decrease the madness, while being kind to mother earth and all her inhabitants:

Gifts

- Gifts can be made more personal and environmentally friendly by giving gifts of time or talent. This reduces use of resources and ensures more quality time spent with the ones you love. Going to the theatre, hosting a special dinner, babysitting or planting some flowers in a friend's garden is less expensive and more fulfilling than simply wrapping a generic present.
- Metallic gift wrapping and ribbons can not be recycled and often contain harmful chemicals and paints. Wrapping gifts in recycled paper reduces strain on the environment and boxes can be reused as handy storage instead of only having a minute's pleasure out of pretty packaging. Essentially using a box for packaging a present is another present.
- Instead of buying cards and tags for Christmas wishes, write your message on the packaging and save a tree or two.



Travelling

- Ensure that your geyser is turned off and all non essential appliances should be unplugged before leaving home, your electricity bill will reward you and electrical fire concerns won't interrupt your time away. Install motion sensor lights outside your house which can be left 'on' while you

Planting a vegetable garden in 10 easy steps

With food prices soaring and the quality of our veggies decreasing a vegetable garden is the ideal solution!

- ☑ The perfect area is must have plenty of sun as vegetables, herbs and fruit love full sun. Choose carefully, this is the most important step to success!
- ☑ Soil should be well drained, mix equal amounts of compost and potting soil for a winning combination. Planting in pots makes soil quality, pests and weeds easier to manage.
- ☑ Make sure that you sow the correct seeds for the current season- in summer this is almost anything! Generally a seed should be planted at 3 times the depth of its size. Finer seeds can be mixed with maize meal to ensure good distribution.
- ☑ Soil has to be kept moist while seeds germinate and it is often necessary to water them everyday for the first week or two.
- ☑ Once the seedlings reach 10 cm in height you can start to 'thin' them by removing smaller, weaker plants and ensuring adequate spacing between plants.
- ☑ Use an organic fertilizer like Nutrisol once a month to make your garden a source of pride!

are away. These will only consume energy when triggered to switch on and still ensures visibility when needed.

- ☀ Make sure your vehicle is in good working order before leaving on a trip, check tyres (including spare), wipers, lights, brakes, oil and water levels. An emergency kit in your car can also turn a catastrophe into easily handled situation or save a live in an emergency situation.
- ☀ Reduce your speed and not only will you save on petrol costs but CO₂ emissions are reduced and there will be no surprise traffic fines to greet you back at home. South African roads have shocking accident statistics and speed and drinking and driving greatly adds to the problem. It is better to arrive a day late than to not arrive at all, relax and enjoy the trip as part of your holiday.

Remember while the environment sustains us and needs to be protected, that safety comes first, a human life is priceless and a moment can forever change your own and countless others' lives. Spending a holiday in hospital or spending the holiday budget on repairs and fines will only spoil what should be the best time of the year.

Mazibuku: You want how much free water?

In the May 2009 Newsletter the Mazibuku case was discussed in relation to the fundamental right to have access to sufficient water supply in terms of the Constitution section 27(1)(b). According to the Water Services Authority each resident of the community Phiri was entitled to 25 litres of free water per person per month, the High Court decided that necessary resources were available to increase this amount to 50 litres per month.



Residents of the community have now approached the Constitutional Court to increase the 50 litres of water per month, which the Court in the first instance ruled to be fair and reasonable free supply by the Water Services Authority.

There is a common misperception that all rights contained in the Constitution places an obligation on the incumbent government to provide us as citizens with those rights. This approach poses insurmountable problems of delivery as the Constitution contains amongst other the rights to housing, health care, food, water, social security, education and environment. Expecting government to providing all these rights to every person in South Africa using limited state funding is an obvious impossibility.

Constitutional rights fall in two distinct groups. The first group is the civil-political rights or rights that place a negative obligation on the state. That would mean the state may not interfere with the exercise of those rights by the citizens such as religion, speech, life, privacy, association, expression, movement, occupation etc.

The second group is the socio-economic rights or rights that place a positive duty on the state to ensure that those rights are realised or achieved by providing certain public goods or services such as housing, health care, food, water, social security, education and environment. This second set of rights poses the larger problem.

The central conundrum of these second type of rights, is to what extent the state has to provide these goods and services? The next question that invariably arises is if someone is not happy with the extent to which government is providing these goods and services, can they be taken to court to force them to provide these goods and services, and more importantly, can they be taken to court and forced to provide the goods and services at a certain level?

The good news is that in a constitutional democracy such as South Africa, the function of the judiciary is to be a check and balance to the laws that parliament make and the actions that the executive takes. So yes, government can be taken to court if they do not provide on the socio-economic rights contained in the Constitution.

What has been made clear in the Mazibuku case before the Constitutional Court is that the court may only investigate whether the government acted reasonably when they set the levels of delivery of goods and services that they aim to achieve. The court will therefore not apply their own discretion as to what level of goods or services they feel the government should be providing. The decision as to what the level of goods or services are, must be left to technocrats in government who have a good understanding of what the needs are and also of what the capacity and funding of government is to achieve the aims. The court may merely inquire as to whether the process followed to decide on the levels of provision of goods and services was a reasonable one.

What are the implications for section 24, the environmental right? The answer is slightly schizophrenic. The first part of the environmental right imposes a negative obligation on the state not to do anything that can detrimentally impact on the environment to the extent that it is not detrimental to our health or well being. The second part places a positive duty on the state to take "...reasonable legislative and other measures..." We see the legislative measures in the flurry of legislation that we have experienced lately. The "other measures" are the more interesting section and was considered in the **Constitutional Court case of Grootboom**, where Judge Yacoob held: "*Mere legislation is not enough. The state is obliged to act to achieve the intended result, and the legislative measures will inevitably have to be supported by appropriate and well directed policies and programmes implemented by the Executive. The policies and the programmes must be reasonable both in their conception and in their implementation. The formulation of a programme is only the first stage in meeting the State's obligation. The programme must also be reasonably implemented. An otherwise reasonable program that is not implemented reasonably will not constitute compliance with the state's obligations*".

The section 24 environmental right therefore place both positive and negative obligation on the state. In short, we can demand action from government to take other measures except legislative measures to protect the environment, but the type and level of intervention or measures stands to be determined by the technocrats themselves and cannot be set by even the Constitutional Court.

Riddle me this....

In each sentence the name of a tree is hidden. The willow is hiding in the first sentence. Can you find the others?

1. I will owe you a favor if you drive me to the airport.
2. I am afraid of going up in elevators.
3. Drinking cocoa keeps me warm on long winter nights.
4. I hope the map leads us to buried treasure.
5. "Eat another bonbon," said our charming hostess.
6. Nepal may be the most interesting place I have ever visited.
7. Remember to fold the map, please.
8. I feel many lumps in this mattress.
9. Word processing is not as useful as pens and paper for creative brainstorming.

You can find the answers on our website under the "Documents" tab!

The Constitutional Court's judgment amounts to the residents of Phiri once again only be entitled to 25 litres of water per person per month and not 50 litres as the High Court in the first instance ruled. Talk about shooting yourself in the foot because of nasty human greed.

Property Developers in for a Surprise

The Supreme Court of Appeal has recently delivered judgment on the use of the Development Facilitation Act (DFA) for fast tracking approval of developments where agricultural land needs to be subdivided in *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal and Others*.

Property developers have been using the DFA to obtain development approval from tribunals as the Act can overrule the provisions in terms of subdivision of agricultural land in the Agricultural Land Act (ALA). The ALA provides that local government must give approval for this type of development, applications through local government however are a very time consuming process and this is the reason why developers use the DFA.

The Court investigated the Constitutional legitimate powers of tribunals and found that Chapters V and VI of DFA are Constitutionally invalid. The Constitution states that functions and powers that have been specifically conferred to local government by it may not be exercised by tribunals and use of the DFA is therefore not allowed in this instance. The Court declared the relevant Chapters of the DFA invalid but suspended the judgment for 18 months although tribunals will not be allowed to give approvals for sub division of agricultural land in this time period. The Supreme Court of Appeal's finding of invalidity does still need to be reviewed and confirmed by the Constitutional Court before it can be enforced and this may be the reason for the suspension of the judgment.

Just for Interest

Save the Earth - The Radical Way

Call it crazy or call it the ultimate sacrifice but the Voluntary Human Extinction Movement (VHEM) believes that voluntary extinction of humans is the alternative to extinction of millions of plant and other animal species and ultimately the demise of our planet. Their idea is based on the fact that the earth and its animal and plant species and their preservation is more significant than the continued existence of humans. This is in my opinion a truly noble concept although the general believe is that the earth exists for humans to use as the 'top' of the food chain, without humans there is no reason for the earth, animals or plants to exist. VHEM does not encourage suicide but rather a conscious decision to not reproduce and to educate people on the importance of sustainable living and development.

The VHEM website is filled with interesting facts and figures, open your mind to a different view and visit the site for an interesting read. www.vhem.org



"Only after the last tree has died and the last river has been poisoned and the last fish has been caught, will we realise that we can not eat money"
-Cree Proverb

Abusing Happy Hour

With the holiday season approaching alcohol abuse concerns are at the foreground. This is not an issue concerning only a couple of countries and goes far beyond driving under the influence of alcohol, it affects every person. While holidays place a microscope on alcohol abuse it is a constant concern that needs to be addressed. Alcohol abuse is dangerous to the abusers health but also increases violence, all kinds of accidents and encourages irresponsible behaviour.

The World Health Organisation has declared its war on 'booze' this year, and has found that alcohol abuse is the fifth leading cause of premature death and disability worldwide. A document is now being drafted by WHO which will be released to governments in January 2010. This document will highlight the problem, create awareness and provide for the most cost effective policies which have shown success world wide. This action centres around the realisation that alcohol abuse and its effects go beyond the abuser but have a passive effect on family and friends as well.

An alcohol fact sheet can be found on the SA Health Info site which contains some shocking statistics on alcohol abuse in South Africa.

www.sahealthinfo.org/admodule/alcohol.htm

Responsible Cars

Most of us know that smaller engine cars equal less CO₂ emissions and petrol consumption but

are you really willing to give up your luxury car to do your part in easing global warming? Take a look at the environmental heroes and villains.



Car	Fuel Consumption (l/100km)	CO ₂ Emissions (g/km)
Hyundai Atos	4.5	109
Citroen C2 1.4	6	110
Toyota Yaris 1.3	6	141
BMX X5	6.4	152
Audi Q 7 3.0 TDI	10.5	282
Mercedes CLK 63 AMG	14.4	344

Swine Flu Mania

Unnecessary or preventative use of antiviral medications to prevent and treat H1N1 could assist in drug-resistant strains of the virus forming. Already, a handful of cases of Tamiflu-resistant H1N1 have been reported and there is no shortage of examples of misuse of the antiviral medications. People often fail to complete a full course of the antiviral medication, similar to antibiotics, and this leads to drug resistant strains of a virus which are more difficult to treat and pose greater health treats.

The summer season in South Africa has for the time being halted the spread of the virus as the warmer weather makes it more difficult for viruses to survive. We are

COMPOST HAPPENS

now enjoying summer while the virus is forming new strains and come winter we will once again be plagued by this often hypochondriac illness.

Although swine flu has spread widely and is considered a serious treat it is in most cases no worse than normal seasonal flu. The only benefits drawn from self medicating without diagnosis is pharmaceutical companies 'coining it'. So beware of the hype and realise the responsibility of taking antiviral medications not only towards you but all other people affected by drug resistant strains of viruses.

Solar Roads Paving the way into the Future

Grist has recently reported on a project called Solar Roadways in the USA which has the potential to change the world into a clean-energy haven. Solar road panels are being developed to replace paved and tarred surfaces, these panels will supply solar power and be fitted with LED lighting, heating units, power transmission lines and possibly electric vehicle charging stations. It is estimated that if all asphalt surfaces in the USA are replaced with these panels there will be nearly enough electricity produced to supply the ENTIRE WORLD! The cost estimates are enormous but when measured up to the cost of building infrastructure for coal derived energy and the increased safety it provides for drivers it seems very reasonable.

Now just imagine if Africa with its magnificent sunshine could support a project such as this one! Less coal trucks on our roads, less pollution, cheaper electricity, healthier people and less road accidents. It seems that our appreciation of beautiful sunny days and how we can use them for our benefit is lacking creativity and drive. Efficient use of free and renewable energy sources can make Africa the 'light' continent through education, innovation and careful spending of limited financial resources, and in the long run the pay off will be significant.

Egypt Says No GM Food

Reuters reported that Egypt has put its foot down in not allowing genetically modified (GM) products to be imported or exported into the country. All agricultural imports and exports must now be accompanied by a certificate stating that the product has not been genetically modified.



GM refers to crop plants created for human or animal consumption using molecular biology techniques. These plants have been modified in the laboratory to enhance desired traits such as increased resistance to herbicides and drought or improved nutritional content. Not only can genes be transferred from one plant to another, but genes from non-plant organisms also can be used. An example of this is the

use of *Bacillus thuringiensis*, which is a naturally occurring bacterium that produces crystal proteins that are lethal to insect larvae.

The debate surrounding GM foods has been a hot topic for many years and inconclusive evidence of side effects from eating such food or its effects on the environment only adds to the confusion. GM products have improved production of many crops aiding in improving the quality of life of many people but is it really worth the risk?

Typical noise levels:

- **A quiet room**
23 – 33 dBA
- **Computer**
37 – 45 dBA
- **Refrigerator**
40 – 43 dBA
- **Microwave**
55 – 59 dBA
- **Printer**
58 – 65 dBA
- **Hairdryer**
80 – 95 dBA
- **Coffee grinder**
84 – 95 dBA

Glass ½ Full

An American study has shown that women who are optimistic have a lower risk of heart disease and death. The research on nearly 100,000 women, published in the journal *Circulation*, found pessimists had higher blood pressure and cholesterol. Mind over matter has long proven to be one of the key aspects in mental and physical health but people fail to realise the effects of a negative mindset. The Placebo effect is based on the same principle: The human brain and the mental capacities it possesses can be more powerful than medicine.

Little Einstein

Mother earth network has reported how a 16 year old has solved the crisis of decomposing the almost indestructible plastic bag. Daniel Burd presented his research on microorganisms that can rapidly biodegrade plastic at this year's Canadian Science Fair in Waterloo, Ontario. Daniel undertook an experiment to identify and isolate the most productive microorganisms which naturally decompose plastic and then to multiply them to shorten the natural 1000 year decomposition process of plastic. He achieved a 43 % degradation of plastic in six weeks, an almost inconceivable accomplishment.

Nuclear Ecosystems

James Lovelock, author of 'The Revenge of Gaia', has recently proposed that endangered ecosystems can be saved by nuclear waste. He suggests that ecosystems like the Amazon can be used as nuclear waste disposal sites, which will deter humans from undertaking harmful or for that matter, any activities in the area. Deforestation, pollution and extinction of species are all linked to human activity and this extreme course of action is proportional to the extreme violations of humanity against nature.

Lovelock argues that animals and plants are not endangered by radioactivity while humans will suffer serious consequences by spending time in a nuclear ecosystem. Evidence of plants and animals being 'happy' living with nuclear substances can be found in Belarus. After the nuclear accident at Chernobyl, plant and animal numbers in the region increased significantly although their average lifespan decreased. Nuclear waste will serve as a guardian to plants and animals but there are many human factors, especially in the long term which will have to be considered before converting forests into nuclear waste sites.

Noise and Chemical Induced Hearing Loss

Canadian Research shown that chemicals and noise combined in the workplace found cumulatively to contribute to hearing loss.

Both animal experiments and human studies suggest that certain chemical exposures may cause "ototoxic" effects (damage the hearing and balance functions of the ear). In general, the exposure concentrations that cause these effects are considered high. However, exposure to some of these chemicals and noise at the same time can significantly increase the risk of developing ototoxic effects.



Ototoxins are chemicals, which can damage hearing and can cause mild to severe hearing

loss, tinnitus (ringing in the ears), or deafness. An ototoxin can be ingested, absorbed, or inhaled into the body. Once in the bloodstream, the ototoxin is circulated to the ear and absorbed by the auditory nerve, damaging the nerve and causing hearing loss. Ototoxins can also cause hearing loss by damaging the cochlear hair cells (as happens in hearing loss caused by noise).

Ototoxic chemicals can cause hearing loss on their own, however when combined with noise exposure, the effects can be even more severe. Organic solvents are the most commonly identified chemicals, but others may also be involved (e.g. metals and chemical asphyxiate). The hearing frequencies affected by solvent exposure are different than those affected by noise. Research suggests that solvents may interact synergistically with noise. Even when noise and chemicals are at permissible exposure levels, the impact of a combined exposure can do more damage than a higher exposure to either hazard alone.

Chemicals that may be associated with hearing loss include:

- Benzene
- Carbon disulphide
- Carbon monoxide
- Ethyl benzene
- Hydrogen Cyanide
- Lead
- Mercury
- N-Hexane
- Solvent Mixtures
- Styrene
- Trichloroethylene
- Xylene
- Toluene

How to protect workers:

- Conduct a hazard assessment as the first step in a hearing loss prevention program to learn if and what hazardous exposures exist in the workplace.
- Remove the source of hazardous exposures from the workplace (the most effective way to prevent hearing disorders from noise or chemical exposure, but may not be possible).
- Substitute ototoxins with less hazardous chemicals.
- Take steps to minimize potential ototoxin exposures through inhalation, ingestion, and/or skin absorption.
- Minimize exposure to these chemicals through process changes, ventilation, and/or skin or respiratory protection.
- Reduce noise levels through engineering or administrative controls.
- Wear hearing protection when exposed to noise, or when exposed to ototoxins – even when noise levels are below the threshold - to prevent the combined effects of noise and solvent exposure.
- Start a hearing conservation program for workers at lower levels of noise exposure than is required by occupational health and safety legislation.
- Include workers exposed to chemicals in hearing conservation programs, whether or not they are exposed to noise. These programs should consider the possible combined effects of exposure to both solvents and noise.

Extract taken from CCOHS

Website

<http://www.ccohs.ca>



SANS 3000- Railway Safety Management Systems

SANS 3000 is required to be complied with by all network, train and station operators, in terms of the National Railway Safety Regulator Act and the Railway Safety Management Regulations, 2004, when compiling their safety management systems (SMS). A SMS is required by all operators before they will receive their Safety Permit, without which they may not operate legally.

Digilex is the perfect tool for implementing and managing SANS 3000 which is being added to compliment the existing ISO 14 001, OHSAS 18 001 and ISO 9001 systems. What better tool to manage your risks, documents and incidents in one place using one login?

For more information please send us an e-mail.

**Regards,
GGC Team**