



The Case Against Fireworks

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(Updated 29 Oct 2019)**

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1. Introduction

“All, too, will bear in mind this sacred principle, that though the will of the majority is in all cases to prevail, that will to be rightful must be reasonable; that the minority possess their equal rights, which equal law must protect, and to violate would be oppression.” ~ Thomas Jefferson

Every year, the primitive tradition of setting fuses alight in order to create explosions is sanctioned by Government. It seems strange that various minorities' beliefs are respected while the apparent minority of people who prefer peace and quiet are not.

It seems that instead of consideration towards others and respect for the law, many people seem to have embraced the attitude that entertainment trumps the law and our Constitution, violating the right we have to peace and quiet in our own homes by lighting invasive fireworks that not only produce very loud noises in contravention of noise nuisance laws, but also cause companion animals in suburbs to be fearful, often resulting in a 'fight or flight' state of panic during which they become lost or are hurt or killed. In many cases this is done in flagrant disregard for laws that explicitly outlaw such an activity.

It's time we stopped skirting around this issue. There is nothing beneficial about fireworks. Members of the public who have shown their unwillingness to show consideration for others must have their privileges, like children, taken away. Some Lawmakers have failed those who prefer peace to violence and quiet to noise, and need to rethink the legislation. There seems no good reason to leave this to local Municipalities to legislate; the Explosives Act is National, and since fireworks are definitively explosives, they are regulated nationally within the Explosives Act, and the exceptions created in many by-laws need to be revised or removed. It's difficult to see why fireworks legislation needs to be regional anyway, the invasive noise and the destructive effects of fireworks are the same everywhere.

2. The Constitution

When people are granted the legally- and purportedly constitutionally-sanctioned right to infringe the rights of others on the basis of religion or tradition, then there is something wrong, either with the religion or tradition and its practices, or there is something wrong with the law.

There are several religious and traditional festivals and commemorative events for which by-laws have been promulgated in many regions allowing for the use of fireworks by private citizens, in some cases in private homes. That fireworks invade people's homes with their noise and shatters their peace, scares children and terrifies animals, many of whom bolt and become lost or get hurt or killed, disturbs the elderly, causes PTSD sufferers anxiety and generally turns any suburb into a war zone, should make any rational person reconsider whether they can be legitimised by religion or tradition.

“It is important to recognise that religious customs may not be allowed to overrule universally accepted human rights or cause cruelty and environmental destruction. Religious customs which obviously threaten the human rights of others, such as the practice of Female Genital Mutilation or forbidding the education of girls, as some groups in Pakistan insist, must give way to a higher, more universal, right. “ - Alleyn Diesel

We cannot equate freedom of religion or culture with freedom to practice anything one likes in expression of religious beliefs or cultural tradition. This is just contrary to common sense, and it is the reason why there are clauses in the Constitution, namely 15, 31 and 36, which deal with religion and culture and exceptions to the rule of freedom of religion:

15. Freedom of religion, belief and opinion.-

- (1) Everyone has the right to freedom of conscience, religion, thought, belief and opinion. –
- (2) Religious observances may be conducted at state or state-aided institutions, **provided that-**
 - (a) those observances follow rules made by the appropriate public authorities;**
 - (b) they are conducted on an equitable basis; and
 - (c) attendance at them is free and voluntary.

31. Cultural, religious and linguistic communities.—

- (l) Persons belonging to a religious or linguistic community may not be denied the right, with other members of that community-
 - (a) to enjoy their culture, practise their religion and use their language; and
 - (h) to form, join and maintain cultural, religious and linguistic associations and other organs of civil society.
- (2) **The rights in subsection (1) may not be exercised in a manner inconsistent with any provision of the Bill of Rights.**

Fireworks are a case in point. The practice of using percussive fireworks in a residential area is inconsistent with any individual living in that area's common law right to peace and quiet, and the invasiveness of the noise constitutes a violent invasion of that person's peace. If, as the Constitution further states, that:

9.Equality. (1) Everyone is equal before the law and has the right to equal protection and benefit of the law,

then giving certain groups rights to break noise laws in a given residential area constitutes discrimination against those who have a right to peace and quiet. Any by-laws that allow such groups to light fireworks in a residential area, where noise laws specifically prohibit noise nuisances, are therefore unconstitutional and unlawful.

36. Limitation of rights.-

- (1) **The rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors,** including-
 - (a) the nature of the right;
 - (b) the importance of the purpose of the limitation;
 - (c) the nature and extent of the limitation;
 - (d) the relation between the limitation and its purpose; and
 - (e) less restrictive means to achieve the purpose.
- (2) Except as provided in subsection (1) or in any other provision of the Constitution, no law may limit any right entrenched in the Bill of Rights.

In terms of 9.(3) When applying a provision of the Bill of Rights to a natural or juristic person

- (a) in order to give effect to a right in the Bill, must apply, or if necessary develop, the common law to the extent that legislation does not give effect to that right;
- and
- (b) may develop rules of the common law to limit the right, provided that the limitation is in

accordance with section 36 (1).

There is therefore nothing prohibiting local municipalities and indeed central Government from limiting the activities of those who wish to light fireworks in celebration of either religious or secular observances.

Very few rights are inalienable. Even the right to freedom of speech is limited by the prohibition of hate speech and the incitement of riots. Any person's right to express their religion stops at the point at which it violates someone else's rights. And fireworks are an obvious case where the common-law rights of any person to peace and quiet are taken away forcefully by people who somehow do not see the disconnect between religious conviction and causing suffering and deprivation to others. No Government, Municipality or Community should condone such behaviour.

But here we are not just talking about infringing the rights of others – we are talking about activities that are life-threatening to animals and children and cause high levels of anxiety to adults, are destructive to the environment are contributing to the illegal black-market trade, are often supported by the exploitation of child labour in fireworks factories, and waste an enormous amount of resources merely to be expended in a short period.

Activities that produce noise that disrupts the peace and quiet of others, terrifies their animals, and poison the air is **inconsistent with provisions of the Bill of Rights:**

12. Freedom and security of the person.-

(1) Everyone has the right to freedom and security of the person, which includes the right-

(a) **not to be deprived of freedom arbitrarily or without just cause;**

(b) not to be detained without trial;

(c) **to be free from all forms of violence from either public or private sources;**

(d) not to be tortured in any way; and

(e) not to be treated or punished in a cruel, inhuman or degrading way

When noise from fireworks invades people's homes, it deprives them of freedoms. The first freedom taken away is the freedom to have peace and quiet in one's own home. The second is the freedom to engage in activities such as reading or listening to music or watching tv, all of which are interrupted or made impossible by the noise. Add to that the anxiety caused when their companion animals are terrified, and it should be patent that fireworks, hardly a 'just cause', given that they are not necessary conditions, especially in residential areas, of the festivals in which they are used.

Some might argue that fireworks cannot be construed as 'violent'. Firstly, they are explosives. They are designed to explode at the ignition of the material within the confines of a container, causing the material to detonate, which is basically a sudden expansion of the material, causing disintegration of the container. It is not a peaceful event. It does not immediately bring to mind ideas of peace and spirituality; in fact the exact opposite is true. The names given to some of the fireworks, such as "Breaking the Law", "Gorilla Bombs" and "Osama's Double Delight", certainly do not bring to mind spirituality – in fact precisely the opposite is true, they bring to mind images of conflict and destruction.

Definition and typology of violence

<http://www.who.int/violenceprevention/approach/definition/en/>

The Violence Prevention Alliance (VPA), part of the World Health Organisation (WHO) addresses the problem of violence as defined in the *World report on violence and health* (WRVH), namely:

"the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation."

The WRVH also presents a typology of violence that, while not uniformly accepted, can be a useful way to understand the contexts in which violence occurs and the interactions between types of violence. This typology distinguishes four modes in which violence may be inflicted: physical; sexual; and psychological attack; and deprivation. It further divides the general definition of violence into three sub-types according to the victim-perpetrator relationship.

- **Self-directed violence** refers to violence in which the perpetrator and the victim are the same individual and is subdivided into *self-abuse* and *suicide*.
- **Interpersonal violence** refers to violence between individuals, and is subdivided into *family and intimate partner violence* and *community violence*. The former category includes child maltreatment; intimate partner violence; and elder abuse, while the latter is broken down into *acquaintance* and *stranger* violence and includes youth violence; assault by strangers; violence related to property crimes; and violence in workplaces and other institutions.
- **Collective violence** refers to violence committed by larger groups of individuals and can be subdivided into social, political and economic violence.

The work of the VPA and its participants is built on the premise that violence is preventable, incorporating the following values:

1. Every sector of society – public institutions, businesses, philanthropic and faith-based communities, activists and the general public – has a role to play in preventing and eliminating the conditions that lead to violence, and fostering the conditions that protect against violence;
2. Every person has the right to live a life free of violence and the responsibility not to commit acts of violence against others;
3. Every person has the right to live free of the fear of violence, and responsibility to not create conditions that lead to fear;
4. In pursuit of truly civil societies, leaders and members of those societies should contribute to a culture of nonviolence rather than condone a culture of violence.

Violence has a broad range of outcomes – including psychological harm, deprivation and maldevelopment. Since fireworks can cause “**injury, death, psychological harm, maldevelopment, or deprivation**”, they are tools of violence. Even the user of the firework, the person setting it off, experiences high levels of stimulation rather than calm, mindful awareness...

The very fact that fireworks are explosives and can cause discomfort or major trauma to humans, and terrify animals solely from the sound, makes their use a form of violence in a place where there are other people and their animals. Their use is simply unconstitutional and violates the rights of citizens to be free of all forms of violence and intimidation. Fireworks are invasive; they cannot be avoided when someone uses them in a residential area, and for hours one is subjected to the abuse, and if one has animals one is subjected to the further anxiety of seeing them in fear. This is a deprivation of our freedom, and we have the right “not to be deprived of freedom arbitrarily or without just cause.” Invasive noise takes away our freedom to do things we normally do, like read, listen to music, and have a quiet conversation.

Noise

From a recent SAPS Notice:

NOISE

General legal principles

Disturbance of the Peace

The principle lies at the bedrock of the law. It is in this area of misconduct that most crimes are spawned. It is best illustrated by the terms of an order to keep the peace which reads as follows: -

If any person is conducting themselves violently towards, or is causing injury to a person or property of another or that they have used language or behaved in a manner towards another likely to provoke a breach of the peace or assault, then whether such conduct occurred or such language ensued or

such threat was made in a public or private place, the Magistrate may order such person to appear before him in terms of Section 384 of Act 56 of 1955 (The Criminal Procedure Act), or if necessary be arrested to do so, and thereupon the Magistrate shall enquire into and determine upon such complaint and may place the parties or the witnesses threat on oath and in his discretion may order the person against whom the complaint is made to give recognisance with or without sureties in an amount not exceeding R 2,000.00 for a period not exceeding six months to keep the peace towards the complainant and refrain from doing so or threatening injury to his person or property. Ss(1) amended by S 1 (a) of Act 4 1992;

Residential areas

Any area which contains residential housing, persons residing in a hotel, guest house, lodge, home, caravan park, camping site, vehicle, or vessel or who rent accommodation from a registered landlord, is considered a de facto residential area.

Entertainment or recreational establishments such as restaurants, clubs, bars, hotels, or gambling facilities **may not impose their entertainment upon any other or adjoining establishments or those in its proximity or on the public at large outside the establishment in question. To do so is to disturb the peace and it amounts to provocation which is a crime in terms of section 384 of the Criminal Procedure Act.**

NOISE POLLUTION

Definition:

"noise nuisance" means any sound which disturbs or impairs or may disturb or impair the convenience or peace of any person;

"disturbing noise" means a noise level that exceeds the ambient sound level measured continuously at the same measuring point by 5 dBA or more;

No person shall make, produce or cause a disturbing noise, or allow it to be made, produced or caused by any person, animal, machine, device or apparatus or any combination thereof.

Most regional by-laws include the following:

No person shall -

(f) use or discharge any explosive, firearm or similar device that emits impulsive sound and may cause a noise nuisance, or allow it to be used or discharged, except with the prior consent in writing of the local authority concerned and subject to such conditions as the local authority may deem necessary;

Powers of a local authority

A local authority may

(a) for the purposes of applying these regulations, at any reasonable time enter a premises without prior notice-

(i) to conduct thereon any appropriate examination, enquiry or inspection as it may deem expedient; and

(ii) to take any steps it may deem necessary;

(c) if a noise emanating from a building, premises, vehicle, recreational vehicle or street is a disturbing noise or noise nuisance instruct in writing the person causing such noise or who is responsible therefore, or the owner or occupant of such building, premises, vehicle, recreational vehicle or street from which or from where such noise emanates or may emanate, or all such persons, to discontinue or cause to be discontinued such noise within the period stipulated in the

instruction: Provided that the provisions of this paragraph shall not apply in respect of a disturbing noise or noise nuisance caused by rail vehicles or air traffic or by vehicles that are not used as recreational vehicles on a public road;

(f) designate a controlled area in its area of jurisdiction or amend or cancel an existing controlled area by notice in the Official Gazette concerned;

(i) impose such appropriate conditions as it deems fit when granting any permission or exemption in terms of these regulations;

Penalties

(1) Any person who contravenes or fails to comply with a provision of noise regulations shall be guilty of an offence and liable on conviction to a fine not exceeding R20 000 or to imprisonment for a period not exceeding two years, or to both such fine and such imprisonment.

Comparative Noises

The following are decibel levels for typical sounds: (Decibels (dBA))

150 Gunshot / artillery fire

140 Plane take off / 'big bang' fireworks

130 Pneumatic drill / typical fireworks

120 Thunder / loud stereo / nightclub / chainsaw / rock concert / emergency siren / smaller fireworks

110 Football crowd / personal stereo / car horn / shouting in the ear

85 At this level, protection must be worn in the workplace (Caution: Prolonged exposure above 85dB(A) can damage hearing)

80 Ringing phone / Hoover / hairdryer / doorbell

70 Washing machine / dishwasher / television

60 Normal conversation

50 Rainfall

40 Refrigerator / library

30 Soft whisper

Firework Noise

According to the International Symposium on Fireworks Society, the decibel level of fireworks shells, including salutes and reports, exploding in air is typically in the range of 88 to 126 for a spectator standing 800 feet away from the explosions. Keep in mind anything above 85 dB can be damaging and cause Noise-Induced-Hearing-Loss (NIHL). From close by, the decibel ranges are far higher, and since ambient noise is likely to be around 80 dbA in a very noisy environment without fireworks, it's difficult to see how they can not be a noise nuisance.

The Maharashtra Pollution Control Board in association with AWAAZ Foundation, a non-governmental organization has carried out noise level monitoring of commonly available fire crackers on September 8, 2006. The fire crackers of different make, manufactured by various units were tested for noise level in an open space in Mumbai. The noise levels in dbA ranged from 95 dbA to 145 dbA, which means that all those tested were more than 5 dbA above the ambient level.

Conclusion: Fireworks are definitively a noise nuisance

If we regard 'normal conversation' at 60 dbA to be a 'peaceful' level of ambient noise, then even small fireworks at 120 dbA are 60 dbA above ambient noise. If a 'noise nuisance' is regarded as any noise that exceeds the ambient sound by 5 dbA, it seems obvious that even if we regard ambient sound as a typical suburban situation where a television may be on and someone using the vacuum, fireworks (120 dbA) exceed even that level (80 dbA) by a significant amount, then fireworks constitute a noise nuisance and are unlawful, especially given the length of time of the disturbance.

The effects of noise pollution on humans can be significant:

Scientific data suggests that noise pollution can cause hearing loss, high blood pressure, heart attack and sleep disturbances. Normal decibel level for humans is 60 dB. An increase by 10 decibels means double the noise volume and intensity, K K Agarwal, chairman, Health Care Foundation, New Delhi

High decibel level results in restlessness, anger, fidgetiness, impulsive behaviour and over-reaction to situations. Most fireworks used have more than 80 dB noise that can cause temporary hearing loss. K K Agarwal, chairman, Health Care Foundation, New Delhi

Children, pregnant women and those suffering from respiratory problems suffer the most due to excessive noise. It results in making them hyperactive or withdrawn, says Dr Jitendra Nagpal, psychiatrist, Vidyasagar Institute of Mental Health and Neurosciences (VIMHAS), Delhi.

Allergic bronchitis, acute exacerbation of bronchial asthma, chronic bronchitis, emphysema, COPD (chronic obstructive pulmonary diseases), allergic rhinitis, laryngitis, sinusitis, pneumonia and common cold increase during this times, reports Dr Naarendra B Rawal, consultant chest physician and pulmonologist. The number of his patients doubles during Diwali. The firework is one of the provoking factors for childhood bronchial asthma, he adds.

Infrasound

Infrasound, sometimes referred to as low-frequency sound, is sound that is lower in frequency than 20 Hz (Hertz) or cycles per second, the "normal" limit of human hearing. Hearing becomes gradually less sensitive as frequency decreases, so for humans to perceive infrasound, the sound pressure must be sufficiently high. The ear is the primary organ for sensing infrasound, but at higher intensities it is possible to feel infrasound vibrations in various parts of the body.

The presence of the tone (17Hz) resulted in a significant number (22%) of respondents reporting anxiety, uneasiness, extreme sorrow, nervous feelings of revulsion or fear, chills down the spine, and feelings of pressure on the chest.

Higher frequencies are absorbed more rapidly in the air. This effect reduces as the frequency reduces. Hence, infrasound travels further, but does weaken as it spreads out, just like any other wave.

Infrasound is, like sound (and, for that matter, ultrasound), a matter of vibration. The difference is that infrasound vibrations are slower, which makes the pitch of the sound too deep for the human ear to make out - and the distance the sound can travel much longer. Nine-tenths of the energy in a sound wave at a frequency of 1,000HZ (the C above middle C, more or less) is absorbed by the air within seven kilometres. Absorbing that much of the energy in an infrasound signal at 1HZ takes 3,000 kilometres.

Fireworks produce infrasound, and so the practice of locking dogs inside when there will be fireworks is pointless. If animals are within range of the sound, they will be affected. In addition, since infrasound travels much longer distances, fireworks are 'present' to animals when humans cannot even hear them, and from a long distance away.

Chronic effect

It has been argued that a noise nuisance is one that occurs over time, and that the individual user of fireworks is therefore not guilty of a noise nuisance. But fireworks DO occur over a period of time; it is the combined effect of many individual users that is experienced by people in a residential suburb. Often the invasive noise goes on for days before and after the designated days and often at times not allowed by law. In addition, if permission is given for fireworks displays in residential areas, people with children and animals in those areas have to make provision for fireworks for the entire season, a period of continuing disturbance in which their common-law right to peace and quiet is taken away. It's difficult, again, to see how fireworks are NOT a noise nuisance.

Environmental Considerations

The right to a clean living environment is also in the SA Constitution:

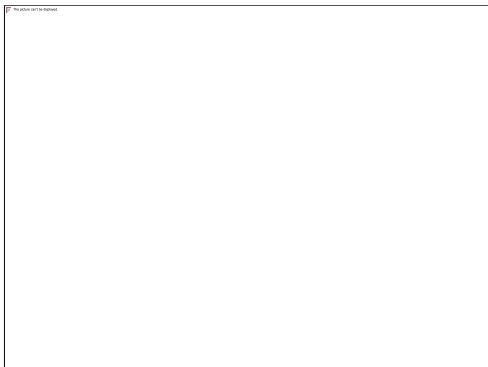
24. Environment.- Everyone has the right-

(a) to an environment that is not harmful to their health or well-being

Given the health risks and environmental damage cause by fireworks *used for celebration*, it's difficult to see how they are *not* contrary to our Constitutional rights.

The limitation of the 'right to light' to non-invasive, non-percussive fireworks is simply a matter of upholding the constitution of South Africa.

In order to understand the environmental impacts of aerial fireworks displays you first have to appreciate the basic mechanics. The heart of a colorful firework is the "**colour shell**," which contains a bunch of chemical pellets arranged to emit a particular color and design. Commonly used chemicals include: potassium chlorate, potassium perchlorate, potassium nitrate, sodiumbenzoate, sodium oxalate, ammonium perchlorate, strontium nitrate, strontium carbonate, sulfur, charcoal, copper oxide, polyvinyl chloride, iron, titanium, shellac, dextrine, phenolic resin, and aluminum.



Firework Shell

The pellets are packed in a paper or plastic casing, and stuffed inside the shell along with a "**burst charge**," usually made of black powder. The shell is then packed in a metal or plastic tube called a "**mortar**." Upon lighting the black powder charge, the shell is launched from the mortar up to 200-1000 feet in the air, where it explodes. In addition to color shells, a fireworks display may include "**salute shells**," which produce the loud percussive noise we associate with fireworks shows. Salute shells are packed and launched similarly to color shells, and also explode at high altitude.

The short-term environmental impacts of fireworks include **debris, smoke, noise, and light**. Most of the components of a firework device will burn up in the atmosphere, but some portions of the casing and residue typically are carried by the winds and fall back to earth. Debris also can result from duds or misfires. Debris from fireworks launched off an ocean, river, or lake coast can impact water quality or litter sensitive habitat areas if not properly cleaned up following the show.



Firework smoke can produce dangerous **fine particulate matter (PM 2.5) pollution** that significantly impacts air quality. The metals and chemicals in fireworks make firework smoke more toxic than other kinds of smoke. Firework smoke can contribute to lung inflammation, heart attacks, stroke, asthma attacks, and reduced lung function. Spikes in particulate matter have been documented during and immediately following fireworks shows. Such spikes can cause localities to exceed state or federal air quality standards for PM 2.5. In some cases, particulate concentrations after a fireworks display nearly double the federal maximum. Research shows that in urban areas, firework pollution clouds can drift over cities, resulting in elevated levels of PM 2.5 for multiple days following a fireworks display. Fireworks displays in urban areas may be particularly harmful because the urban atmosphere is already polluted.

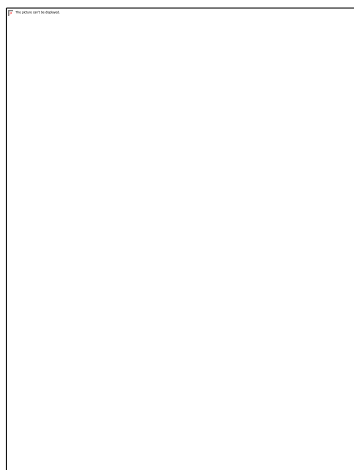
The **noise and light pollution** accompanying fireworks shows can negatively impact wildlife, as illustrated by the 2006-2010 controversy over the fireworks display in the Town of Gualala in Mendocino County, CA. On Independence Day weekend 2006, following a fifteen-minute fireworks display near the Gualala River estuary and Gualala Point Island, which is part of the California Coastal National Monument, the CA Coastal Commission received complaints that the explosions had disturbed nesting shorebirds and harbor seal haul-out sites. This prompted the U.S. Bureau of Land Management and Fish & Wildlife Service to study the 2007 Gualala fireworks. The federal agencies published a report documenting a high rate of Cormorant nest abandonments during the period surrounding the display, citing that the abandonments “likely resulted from fireworks disturbance.” Any eggs or juvenile chicks left in the abandoned nests were consumed or killed by predators. In addition, the CA Department of Fish and Game noted that Brown Pelicans, an endangered species, use [Gualala Point Island] as a roost at night. Marbled Murrelets, another endangered species, are also observed in the ocean near Gualala at dawn and dusk every year at this time. Both of these endangered species, and the nesting birds, could potentially be impacted by the fireworks display. . . .

Fireworks also have the **potential to cause fires**. According to the National Fire Protection Association (NFPA), in 2011, fireworks were the cause of an estimated 17,800 fires resulting in 8 deaths, 40 injuries, and \$32 million in property damage. The NFPA further reports that more US fires are reported on Independence Day than any other day of the year, accounting for 2/5 of all fires on that day. In dry areas, firework-related fires have the potential to develop into wildfires. As a result, in 2012, Colorado Governor Hickenlooper issued an executive order banning private fireworks displays, and more than 40 Colorado cities canceled Fourth of July fireworks displays.

Additionally, there may be **long-term water quality and human health impacts** associated with the toxic components like lead, barium, ammonium perchlorate, and sulfur dioxide in the firework shell, although the long-term effects of these chemicals is not well understood. Fireworks are often launched near waterbodies like lakes or along ocean coasts, allowing combustion residue to fall into surface waters. Chemical pollutants in the residue can adversely impact water and sediment quality. Water quality monitoring reports following fireworks displays have documented elevated

levels of water pollutants such as arsenic, copper, and phosphorous.

The firework-related pollutant **perchlorate** (NH_4ClO_4) is of particular concern. Perchlorate is both naturally occurring and man-made. In fireworks, perchlorate acts as a propellant. Scientists do not fully understand the health and environmental impacts associated with perchlorate water pollution, but perchlorate has been demonstrated to interfere with thyroid function in humans, affecting metabolism and growth. It is clear that fireworks displays can result in perchlorate accumulation in surface and ground waters, resulting in perchlorate concentration spikes of 24 to 1028 times the mean baseline value following a fireworks display. These perchlorate spikes potentially can be a problem for drinking water sources.



Eutrophication

Although **phosphorus** typically is only included in modern-day fireworks in trace amounts, phosphorus residue can accelerate eutrophication of lakes. Where lakes are already nitrogen-loaded from sources like fertilizers, even small amounts of additional phosphorus can be a cause for concern. Eutrophication is linked to algal and cyanobacteria blooms that can negatively impact drinking water quality, fisheries, wildlife, and human health.

There are many ways **regulators can mitigate the adverse impacts of fireworks**. The first, most important step is to require permits or registration of all public and private firework displays so that environmental regulators can keep track of the number of shows, where they occur, and what types of fireworks are used.

Where **firework permits** are required, regulators can use permit conditions to mitigate potential adverse impacts to the environment and human health. Regulators should require that displays be located away from environmentally sensitive areas like marine sanctuaries, habitats for endangered species, migratory bird pathways, and nesting areas. Similarly, localities or entities sponsoring large public displays should be required to implement measures to ensure public viewers keep away from environmentally sensitive areas. Fireworks also should be timed to avoid common spawning, nesting, and roosting seasons.

Proper monitoring procedures before and after the display are key to alerting officials of any environmental threats. Permits can provide for **third-party monitoring**. The monitoring report should identify a baseline for wildlife abundance and behavior in the event vicinity several hours prior to the fireworks display and identify any adverse impacts to wildlife during and for several hours after the display. Follow-up monitoring should occur at regular intervals for several weeks following the event. Based on the monitoring, officials can recommend modifications to the event for future years to mitigate any negative impacts to wildlife.

A fireworks permit also should require **clean-up and restoration** following the display to remove any fallen debris. Debris can be further controlled by subjecting fireworks displays to **limitations** on the total number of aerial shells detonated, requirements that all plastic labels and wrappings be removed from devices prior to launch, and prohibitions on devices that include more than a specified percentage of non-biodegradable components.

To better protect water quality, regulators should prohibit private firework explosions on sidewalks or roadways, where contaminants and debris can end up in storm drains. In addition, for large fireworks displays, regulators should require sponsors to **contain runoff** in cases where water is used to control misfires or duds.

To address the air quality impacts of fireworks, officials can monitor air pollutant concentrations before and after fireworks displays and warn the public of any dangerous conditions. To reduce smoke and perchlorate pollution, regulators can **require that all fireworks be perchlorate-free**. For instance, in 2004, Disney Corporation began using compressed air to launch all fireworks at Disneyland, resulting in a reduction in particulate air pollution and perchlorate water concentrations. Researchers also have working to develop alternative propellants that use nitrogen-based materials instead of perchlorates.

Given all of the ways above in which fireworks are harmful to others, it should be obvious to any rational person that their use should be regulated, and prohibited in private hands in residential areas at the very least.

The limitation of the 'right to light' to non-invasive, non-percussive fireworks is simply a matter of upholding the constitution of South Africa.

"A case study has shown that within 1 hour of fireworks displays levels of Strontium in the air increased 120 times, Magnesium 22 times, Barium 12 times, Potassium 11 times, and Copper 6 times more than the amount present in the air before the event. Strontium was found to be the best tracer in this study because it measured very high during the event and much lower at other time intervals which indicated that it was mostly a result of the fireworks display.

Another study found that firework events brought air pollution spikes in suspended particles, Nitric oxide (NO), Sulfur dioxide (SO₂), and created and dispersed an aerosol cloud hosting a range of metallic elements. The researchers found that although the "recreational pollution" from fireworks is transient in nature, the pollutants are highly concentrated and add significantly to the total yearly metal emissions and the particles are on average small enough to be easily inhaled which poses a health risk to sensitive individuals." - *Fireworks - Cheap Thrills with Toxic Consequences* (http://www.backcountryattitude.com/toxic_fireworks.html)

More reading: <http://www.stop-fireworks.org/english.htm>

www.sciencedirect.com/science/article/pii/S1352231015301369 effects of Independence Day in USA

Effects of fireworks on wildlife

Anthropogenic disturbances of wildlife, such as noise, human presence, hunting activity, and motor vehicles, are becoming an increasing concern in conservation biology. Fireworks are an important part of celebrations worldwide, and although humans often find fireworks spectacular, fireworks are probably perceived quite differently by wild animals.

Although generally perceived by humans as spectacular, the unexpected loud noises and bright lights fireworks produce are probably a source of disturbance for many species of domestic and wild animals.

"Based on this broad ecological knowledge and the published scientific literature on these topics, along with a specific review of the environmental effects of fireworks displays, I can report with

certainty that fireworks displays can have an impact on the environment and that impact can be significant...the lights and noise associated with fireworks are disruptive to wildlife.” - Travis Longcore, PhD

Marine mammals can be impacted by fireworks displays in three ways: light, sound, and debris. The primary causes of disturbance are light flashes and sound effects from exploding fireworks. Pyrotechnic devices that operate at higher altitudes are more likely to have a larger impact area (such as aerial shells), while ground and low-level devices have more confined effects. The impact area is defined as the area where sound, light, and debris effects have direct impacts on marine organisms and habitats. Direct impacts include, but are not limited to, immediate physical and physiological impacts such as abrupt changes in behavior, flight response, diving, evading, flushing, cessation of feeding, and physical impairment or mortality.

Aerial shells produce flashes of light that can be brilliant (exceeding 30,000 candela) and can occur in rapid succession. Loud explosive and crackling sound effects stem primarily from bursting charges at altitude. People and wildlife on the ground and on the surface of the water can feel the sound waves and the accompanying rapid shift of ambient atmospheric pressure. This pressure wave has been known to activate car alarms that detect vibration. Sounds attenuate farther from high altitude shells than low altitude shells since they are not as easily masked by buildings and landforms, allowing the sound envelope to ensonify more surface area on the ground and water. The intensity of an aerial show can be amplified by increasing the number of shells used, the pace of the barrage, and the length of the display.

With every new study, the impacts of fireworks on wildlife are becoming better understood, and there is no doubt that they are detrimental...

Crime

Fireworks are now being used as IED's (Improvised Explosive Devices)

From a Security company alert:



On the New years eve we were called out to one of our sites upon arrival 1 of our guards was injured,we asked him what happened he said that a fire cracker went off and he felt a sharp pain in his left leg,upon further examination we found that he had 2 nails in his upper left leg and a 1 nail in his ankle,upon further investigation we came to find out that there is a new MO out there,they are now using the big fire crackers rolled with insulation tape rolled with nails and bound onto the

crackers, with further investigation we were able to find out that they sell them for R50 and it was told to our source that the criminals will be using them against our security guards and SAPS member's by throwing them in guards rooms and into any security and SAPS vehicle

3. The Law

The Laws have improved in many Municipalities. But in many others, they are so badly written that they offer loopholes to members of the public to exploit. To take an obvious example, the Joburg by-laws state that it is an offence to light a firework 'in the presence of animals', which means that if I live next door to someone with animals, I can still light fireworks, since the animals are not 'in my presence'. To animals fireworks are 'present' from 200 metres away. More disturbing is the fact that the by-laws make provision for permits, thereby allowing people to BREAK THE LAW on the basis of a need for entertainment or religious observance, not to mention that the Animals Protection Act states very clearly that it is an offence to 'terrify an animal' – except, somehow, when religion or another humanistic ritual demands it. What gives these lawmakers the right to marginalise the rights of some people – those who prefer peace and quiet and those who love animals – because there are others who think self-indulgence is more important than fundamental rights? There is NO provision in the Constitution for the 'right to entertain oneself at the expense of the rights of others', nor should there be. The Lawmakers are therefore guilty of contravening the principles of the Constitution by not defending the rights of the minority that don't regard fireworks as 'fun'. They are also guilty of contravening the Animals Protection Act by providing the public with the means to terrify animals under protection of the law.

3.1. The Animals Protection Act (APA)

The APA states:

2. OFFENCES IN RESPECT OF ANIMALS –

(1) Any person who:

(a) overloads, overdrives, overrides, ill-treats, neglects, infuriates, tortures or maims or cruelly beats, kicks, goads or **terrifies** any animal... ..shall, subject to the provisions of this Act and any other law, be guilty of an offence and liable on conviction to a fine not exceeding R4 000 or in default of payment to imprisonment for a period not exceeding twelve months or to such imprisonment without the option of a fine, or, where any such act or omission is of a wilful and aggravated nature, to a whipping not exceeding six strokes or to both such a fine and such a whipping or to both such imprisonment without the option of a fine and such a whipping.

Fireworks terrify animals. While some animals seem to cope better with them than others when the distance between themselves and the fireworks is larger, there is no doubt that all animals are terrified by a firework that explodes close by as in next door or in the same street and this effect is worsened when the explosion is larger as in 'Big Bang' fireworks.

Therefore, anyone using a firework within the proximity of an animal is committing an offence. What constitutes proximity? Surely this must be interpreted from the animals' perspective, and given their superior hearing and greater sensitivity, the precautionary principle should be invoked, in which case any area in which animals are known to be resident should be regarded as a no-firework zone.

3.2. The Explosives Act

The Regulations in the Explosives Act 26 of 1956, currently in force until the Explosives Act 15

of 2003 is gazetted, states:

USE OR EXPLODING OF FIREWORKS

10.34 It shall be unlawful for any person to use or explode any firework

- (a) within 500 metres of any explosives magazine, explosives factory, petroleum depot, or gasometer;
- (b) in any building or on any public thoroughfare: or
- (c) on any public place or resort, except with the prior written permission of the local authority.

10.35. 1 No person shall operate a public display of fireworks on any premises without the written permission of the Chief Inspector of Explosives.

2 Such permission shall stipulate the conditions to be complied with and non-compliance with any of these conditions shall constitute an offense under this regulation.

This means that until the new Explosives Act is promulgated, these are the only provisions contained in the current Act, which means that unless there are municipal by-laws regulating fireworks use, the provisions above from the Explosives Act apply. This means that except on the above circumstances, fireworks may be used.

It effectively gives licence to anyone in any residential area to use fireworks if there are no by-laws prohibiting such use.

The Draft EXPLOSIVES ACT 15 OF 2003, still to be promulgated (we await the latest draft) states:

'fireworks' means any pyrotechnic substance contemplated in paragraph (b) of the definition of 'explosives' which

- (a) is manufactured for the purposes of amusement or entertainment; and
- (b) is divided into such classes as may be prescribed

Explosive (b) a pyrotechnic substance in a solid or liquid state, or a mixture of such substances, designed to produce an effect by heat, light, sound, gas or smoke, or a combination of these, as the result of non-detonative self-sustaining exothermic chemical reaction, including pyrotechnic substances which do not evolve gases

From this, we can safely conclude that a 'firework' is 'an explosive' and therefore the Explosives Act applies in its entirety to any use of fireworks.

2 Application of Act

- (1) No person may possess explosives or carry out **any activity** relating to explosives unless he or she holds a **licence, permit or authorisation** issued in terms of this Act.
- (4) In the event of any inconsistency between this Act and any other law in force at the commencement of this Act, other than the Constitution, **this Act prevails.**

Effectively, this means that any by-law that is inconsistent with this law is rendered null and void.

10 Keeping, storage, possession or transportation of explosives

(1) No person may keep, store or be in possession of any explosives on any premises other than an explosives manufacturing site or an explosives magazine, unless the explosives are kept, stored or possessed in accordance with-

- (a) the conditions of a **permit** issued by an inspector; and
- (b) any applicable regulation.

- (2) No person may transport any explosives unless the explosives are transported in accordance with-
- (a) the conditions of a **permit** issued by an inspector; and
 - (b) any applicable regulation

13 Licence to deal in explosives

(1) No person may sell, deal in or act as a broker in respect of any authorised explosives unless he or she is in possession of a **licence** granted in terms of this Act.

(2) Possession of a licence contemplated in subsection (1) does not entitle the licensee to exemption from holding any licence or permit which may be required in terms of any other law.

15 Prohibition on use of explosives without permit

(1) No person may use any explosives unless he or she is-

(a) in possession of a **permit** authorising such use, issued by an inspector in the prescribed manner; or

(b) under the immediate and constant supervision of a person who is in possession of such a **permit**.

(2) (a) The Minister may by regulation or by notice in the *Gazette* **exempt** any person or any group of persons from obtaining a permit contemplated in subsection (1) if the exemption relates to the use of fireworks in celebration of a specified religious, cultural or traditional event.

(b) The Minister may **limit** the fireworks which may be used to any specified **class** and must specify the period for which the exemption is valid.

(3) No permit may be issued under this section unless the applicant is a suitable person.

Effectively, this means that if no exceptions are provided for through by-laws in any municipality, the Explosives Act applies and firework usage is prohibited without permits.

We await the latest draft of the Explosives Act and Regulations pertaining thereto.

3.3 By-Laws

The By-Laws for each region or municipality are enacted autonomously by each municipality but they cannot contradict the Explosives Act, nor, arguably, the Animals Protection Act. They provide EXCEPTIONS to the rule that fireworks, which are by definition explosives, may not be kept, transported or used without a permit.

It's important to note that, in the absence of by-laws stipulating exceptions to the Explosives Act in any region, the Explosives Act applies, which means that fireworks may not be stored, transported or used unless permission has been granted.

Here is a short summary of the by-laws for several municipalities, highlighting the strengths and weaknesses of each.

3.3.1 Joburg

Joburg's by-laws make provision for places where fireworks may not be discharged, like schools, near petrol stations, inside any building, and more. The by-laws also stipulate dates and times for cultural and religious celebrations using fireworks as well as permits required for selling fireworks or presenting fireworks displays, and the prohibition of the use of fireworks by minors. All this is well and good.

The Joburg by-laws also state that 'No person may light or ignite fireworks in any place where animals are present', and this is too vague on the one hand, given that someone could easily look around and say, "I see no animals", and light up with alacrity. On the other hand, it could be argued that since the term 'animals' is not defined in the emergency services by-laws, it could be interpreted to mean ALL animals in which case it is almost impossible to find a place

where there are no animals; it is completely impossible in any domestic suburb. It could therefore be argued that this by-law effectively prohibits the use of fireworks in suburbs, but the word 'present' can be used to justify their use if no animals are perceived to be so.

To a companion animal, whether dog or cat or horse, a firework is arguably 'present' from 500 metres away, and frightening at any distance below that. A firework lit in suburbia is also invasive to those who prefer peace and quiet. The wording of this by-law needs to be changed so as to close this obvious loophole.

Instances have been noted in Johannesburg where permission has been granted to hold fireworks displays at places where the by-laws explicitly prohibit it, for example at schools, effectively giving those holding the displays permission to break the law. In Mandela Bay, such permission may not be obtained unless a number of conditions have been satisfied. One would think that the Mandela Bay approach is the more responsible. It seems pointless to make a rule which can then simply be bypassed by 'permission'.

3.3.2 Cape Town

The 'Community Fire Safety Amendment by-law' of 2007 applies.

The by-law prohibits the sale or storage of fireworks in any residential building, and also prohibits the use of fireworks without permits.

3.3.3 Mandela Bay (Port Elizabeth)

In Mandela Bay, which interestingly is also one of the most progressive municipalities in respect of pet legislation, the 'Fireworks By-Law' applies.

They have, purely and simply, taken the use of fireworks out of public hands in residential areas and created designated areas, where only qualified people with permits may discharge fireworks.

3.3.4 Durban (Ethekwini) <http://www1.durban.gov.za/durban/government/policy/fireworks>

There are no by-laws stipulating exceptions to the Explosives Act at this point in time. The 'guidelines' are not by-laws, so it is difficult to see how they apply at all.

The Ethikwini municipality seem not to have noticed clause 15(1) of the Explosives Act above prohibiting the use of explosives without a permit. They have attempted to differentiate certain types of fireworks from others but the criteria are vague and look more like a desperate attempt to justify the use of fireworks than a sincere effort to deal with the needs of the community fairly.

In addition, the following guidelines are problematic:'

V. It shall be unlawful for any person to set off, discharge or explode any fireworks on any street, on private place other than on a lot of a private dwelling or property and only with the knowledge and consent of the occupant or owner and subject to other conditions hereunder.

Allowing discharge of fireworks on the lot of a private dwelling or property is inconsiderate to those living within a 1-2 km radius in respect of noise, and terrifying to any animals in the vicinity.

VII. All fireworks which fire a projectile shall be so set up that the projectile will go up into the into air as nearly as possible in a vertical direction.

This is patently absurd. It surely does not need a rocket scientist to understand that firework rockets are not ballistically perfect. The probability that any firework will land in the place from which it was fired is zero. Effectively, this makes these fireworks definitively invasive and dangerous.

IX. The municipality shall give permission in writing to a person or organisation to detonate or

explode fireworks for religious, cultural or ceremonial purposes with details of the conditions of usage and time.

The municipality 'shall' give permission? So all I need to do is state that I am having a religious or cultural event, and as long as I supply usages and times, they have to give permission? What happened to due consideration for the community in respect of noise and safety?

XVI. No approved dealer shall sell fireworks other than in a family pack which contains an assortment of "family fireworks" in which "nuisance fireworks or firecrackers" when totalled shall not comprise more than 20% of the entire items in the package.

Since it is not clear what exactly any of these terms mean, this guideline is meaningless. It basically give carte blanche to dealers and the public and allows too much leeway, and we know what people do when given the opportunity... It also approves the provision of 'nuisance fireworks', thereby sanctioning the use of fireworks as a nuisance.

The Ethekwini guidelines are out of kilter with the by-laws everywhere else in SA, and are comparatively irresponsible and short-sighted.

The argument is used to justify fireworks, invoking section 31 (1) of the Bill of Rights, which declares that 'Persons belonging to a cultural, religious or linguistic community may not be denied the right, with other members of that community:

(1) to enjoy their culture, practise their religion and use their language...

This is a specious argument. It conflates the methods used to express a religious festival with the essential practises of the religion, presenting the idea that the prohibition of a certain practice constitutes denial of the right to practise the religion. I could then argue, if I was a Satanist, and there is no reason why I could not be, since the Constitution states that everyone has freedom of religion, that I should be allowed to perform animal or human sacrifice rituals. This could not be condoned because of other laws; similarly the laws concerning the use of fireworks cannot be set aside by a religious observance. If a religion's truth or effectiveness depends on the lighting of a firework, the religion is bankrupt.

Government should not be in the business of sanctioning inconsiderate behaviour justified by religion. Religion should be the pinnacle of obviating inconsideration and increasing compassion, not the reverse.

3.3.5 Tshwane (Pretoria)

In Tshwane, the use of fireworks is covered in the Fire Brigade Service By-Laws, which state:

No person may discharge any fireworks or permit the discharge of any fireworks within the area without the permission of the Chief Fire Officer.

Simple. No permission, no fireworks. It's consistent with the Explosives Act and admits no exceptions. It leaves the discretion to an expert, not a member of a municipality, where it can be misinterpreted or corrupted. What it doesn't do is set rules for where displays may not be held, and leaves permission to the discretion of a person rather than setting criteria for what conditions must prevail for such permission to be granted. If the Chief Fire Officer is firework-friendly, this by-law has little effect.

3.3.6 Ekurhuleni (East Rand)

In Ekurhuleni, fireworks fall under the 'Police Services By-Laws' and state the following:

No person shall discharge fireworks without the prior written consent of the Council, and such written consent shall hereafter be called a "Fireworks permit". Such "Fireworks permit" will be readily available at the event and produced on request by an authorised officer. Any person failing to do so shall be guilty of an offence.

Problem here is that what does the Council know about fireworks and risks? Permission could be granted without due consideration of the effect on the community and the associated risks.

3.3.7 West Rand

In the "STREET AND MISCELLANEOUS BY-LAWS" it is stated:

No person shall in any street or public place or on any private property in any municipal area within the West Rand district, discharge any fireworks without the explicit written approval of the chief fire officer.

Same reservations apply as with Ekurhuleni – it leaves the decision open to an individual who may be sympathetic towards those who see fireworks as necessary to celebration, to the detriment of the community.

3.3.8. uMHLATHUZE (Richard's Bay)

In the "Possession and discharge of fireworks" by-laws they have stipulated designated areas and permits:

Notwithstanding the provision of clause 3, the Chief Fire Officer may for religious, cultural or ceremonial or festive purposes, give written permission for the controlled discharge of fireworks by a registered pyrotechnician at an approved place, date and time subject to such conditions as the Chief Fire Officer may deem appropriate in respect of each such application.

Like Mandela Bay, they have covered all the bases, but what happens when the Chief Fire Officer deems fireworks necessary for traditional or religious celebration? The laws should make it impossible for personal preference to play a part in decision-making.

3.3.9 Hibiscus Coast (Port Edward)

I kept this for last because it is easily the most comprehensive firework legislation in SA and constitutes the benchmark all other municipalities should follow. It sets the following provisions:

1. Licences for dealers and limits on the volumes they may hold in inventory and the manner in which they must be stored, and provision is made for seizure in the absence of such licence. Any application for a licence to trade in fireworks must be accompanied by a detailed sketch plan showing the storage location of the fireworks as well as distance to and location of filling stations, buildings, and public roads. Rules are set for fire extinguisher locations and numbers, and the proximity of fire risks.
2. Discharge of fireworks by anyone is prohibited unless permission has been granted, and provision is made for seizure in the absence of such permission.
3. Public displays may only be conducted by qualified pyrotechnicians and permission will be granted on consideration of a written application and an accompanying sketch plan, which must detail the location of buildings, roads, telephone lines, power lines, trees, filling stations and a number of other prerequisites.
4. Private fireworks displays, in which the person conducting the display does not have to be a qualified pyrotechnician, are allowed provided that the distances stated in the Annexure can be maintained, permission has been granted by the Chief Fire Officer, and such permission will be granted if the application complies with chapter 10 of the Explosives Act.

My only reservation is that the distance of 100 metres may be insufficient in respect of shielding animals from the noise. I have observed dogs being terrified by noise from more

than 500 metres away.

These by-laws make it something of a 'mission' to set up and run a fireworks display and this is a good thing. Fireworks are dangerous invasive and destructive, and unless harm to the community and the environment can be reduced or obviated, they constitute little more than a risky self-indulgence.

3.3.10 Kwadukuza (Dolphin Coast, KZN)

These recently-promulgated by-laws are not bad; they define certain types of fireworks like 'Bombs' as illegal, prescribing the dimensions that legal fireworks sold to the public must conform to.

They also specify that only 'technicians' (probably should have read 'pyrotechnicians;') may operate public displays and then only with permission from the fire officer or Explosives Department.

3.4 Policing

The fact is that most of the police do not know the laws and their response in most cases is apathetic or incompetent. When police don't respond to reports of fireworks being lit in a suburban area where the law is very clear on the illegality of such an act, they effectively side with the lawbreakers. That is a human rights violation. It is also contrary to their mandate to uphold the law. The argument presented by the police is that they have more important issues to deal with. This is a weak justification and excuse. If something is law, the police must enforce it, otherwise it makes no sense to put the law in place. If we presented the same argument in the medical profession, we could argue that certain diseases could safely be ignored because they are less prevalent, which would be an unethical discrimination. Effectively, by not acting against those who break the law in this respect, the Police side with the criminal, which contributes significantly to the lawlessness of our society, and represents a violation of our right to protection. The Police are therefore guilty of both violation of our rights under the Constitution and of Cruelty to Animals.

4. Other Practical and Ethical Considerations

4.1 Global Warming

Fireworks are propelled by black powder, also known as gunpowder. This substance consists of an oxidizer (potassium nitrate), a fuel (carbon), and an accelerant (sulphur). For every 270 grams of black powder used, 132 grams of carbon dioxide are created, the rest of it turning into potassium sulphide and nitrogen. It is estimated that the annual U.S. carbon dioxide emissions from fireworks is 60,340 tons or the same emissions from 12,000 cars on the road for a year.

The detonation of fireworks releases many toxic compounds into the atmosphere, including sulphur dioxide, nitric oxide, potassium nitrate, nitrogen dioxide, heavy metals, and ozone. The colour-producing ingredients of fireworks include potentially toxic elements such as strontium, titanium, mercury, lead, antimony, barium, copper, aluminium, and lithium, and also various chemicals which combine to produce deadly chlorine gas. The use of fireworks contributes to the production of smog, acid rain, water pollution, and noise pollution. The carbon dioxide that is released by fireworks may also contribute to Global Warming.

With all of the concern that has been generated by the threat of carbon dioxide-caused Global

Warming, and considering that many governments are proclaiming that everyone should do whatever they can to 'reduce their carbon footprint', it surprises me that governments and citizens continue to indulge in fireworks displays, which are an enormously wasteful and unnecessary greenhouse-gas-generating activity.

4.2 Health

A recent study in the journal *Environmental Science & Technology* found that perchlorate contamination in the waters of Oklahoma Lake rises up to 1,028 times above background levels within 14 hours of the July 4 public firework displays held in the US each year. In high doses the chemical is thought to affect the development of the central nervous system in children. A Chinese study found air pollution levels five times higher than normal in Beijing during the 2006 lantern festival, in which fireworks explode around the city.

People who live in cities already inhale significant amounts of contaminant particles stemming from traffic emissions, chimneys and cigarettes, and the dense smoke caused by fireworks only worsens this situation: <http://www.sciencedaily.com/releases/2010/11/101116111715.htm>

Suspended particulate matter (SPM) exposure to the level of 100 ppm results in headache and reduced mental acuity. The effects are more pronounced in people with heart, lung or central nervous system diseases. Sulphur dioxide is readily soluble and dissolves in the larger airways of the respiratory system. This stimulates a contraction at 2 to 5 parts per million (ppm). At higher concentrations severe contraction restricts the breathing process.

Nitrogen dioxide is less soluble and so penetrates to the smaller airways and into the lungs. They destroy the linings of the respiratory surface, thereby reducing the intake of oxygen for the body. These cause respiratory allergies like asthma especially to the susceptible population.

Causes throat and chest congestion, and are likely to aggravate problems for those already suffering from coughs, colds and allergies.

High decibel level results in restlessness, anger, fidgetiness, impulsive behaviour and over-reaction to situations. Most crackers used have more than 80 dB noise that can cause temporary hearing loss, says K K Agarwal, chairman, Health Care Foundation, New Delhi

Scientific data suggests that noise pollution can lead to hearing loss, high blood pressure, heart attack and sleep disturbances. Normal decibel level for humans is 60 dB. An increase by 10 decibels means double the noise volume and intensity, says Agarwal.

Children, pregnant women and those suffering from respiratory problems suffer the most due to excessive noise. It results in making them hyperactive or withdrawn, says Dr Jitendra Nagpal, psychiatrist, Vidyasagar Institute of Mental Health and Neurosciences (VIMHAS), Delhi.

Allergic bronchitis, acute exacerbation of bronchial asthma, chronic bronchitis, emphysema, COPD (chronic obstructive pulmonary diseases), allergic rhinitis, laryngitis, sinusitis, pneumonia and common cold increase during this times, reports Dr Naarendra B Rawal, consultant chest physician and pulmonologist. The number of his patients doubles during Diwali. The firework is one of the provoking factors for childhood bronchial asthma, he adds.

The Toxics Link study pointed out that there is threat of exposure even from the unburnt material. These particles are very small (1 to 5 microns in size) and contain metals along with carbon.

Harmful effects of Chemicals Used in Fireworks:

Copper: Poison to humans by ingestion. Inhalation of copper dust and fume causes irritation in the respiratory tract. Absorption of excess copper results in "Wilson's disease" in which excess copper is deposited in the brain, skin, liver, pancreas and myocardium (middle muscular layer in

the heart).

Cadmium: Can be poisonous to humans by inhalation, ingestion, intraperitoneal, sub-cutaneous, intra-muscular and intravenous routes. Cadmium absorption can damage the kidneys and can cause anaemia. It is a potential human carcinogen. Cadmium causes increased blood pressure and also a disease called "Itai-Itai", which makes bones brittle resulting in multiple fractures.

Lead: Affects the central nervous system in humans. A poison if ingested, moderately irritating. It can cause cancer of lungs and kidneys and an experimental teratogen. When heated it can emit highly toxic fumes. In inorganic form, it is a general metabolic poison and an enzyme inhibitor. Young children can suffer mental retardation and semi-permanent brain damage by exposure to lead. In case of lead levels in blood, the disturbing feature is that the natural levels are very close to the lowest safety limits.

Magnesium: Poison by ingestion, inhalation of magnesium dust and fumes can cause metal fume fever. Particles embedded in the skin can produce gaseous blebs and a gas gangrene. Dangerous fire hazard in the form of dust or flakes when exposed to flames. Manganese in the air has adverse effects on humans. Poisoning takes the form of progressive deterioration in the central nervous system.

Manganese: An experimental carcinogen and mutagen. Human toxicity caused by dust or fumes. The main symptoms of exposure are languor, sleepiness, weakness, emotional disturbances, spastic gait and paralysis.

Potassium: Dangerous fire hazard. If there is any confinement, an explosion can occur.

Sodium: In elemental form, it is highly reactive, particularly with moisture with which it reacts violently and therefore can attack living tissue. When heated in air, it emits toxic fumes of sodium oxide. Dangerous fire hazard when exposed to heat and moisture.

Zinc: Human skin irritant and effects pulmonary system. Pure zinc powder is non-toxic to humans by inhalation but difficulty arises from oxidation (burning), as it emits zinc fumes. Zinc is perhaps the least toxic of all heavy metals, in fact an essential element in animal and human nutrition, still they become toxic when absorbed in excess. Zinc stimulates the sensation of vomiting. An exposure to 150 mg of zinc can stimulate the process of vomiting in an adult male.

Nitrate: Large amounts taken by mouth can have serious and even fatal effects. The symptoms are dizziness, abdominal cramps, vomiting, bloody diarrhoea, weakness, convulsions and collapse. Small repeated doses may lead to weakness, general depression, headache and mental impairment. Also there is some implication of increased cancer incidents among those exposed. Highly inflammable and on decomposition they emit highly toxic fumes.

Nitrite: Large amounts taken by mouth may produce nausea, vomiting, cyanosis, collapse and coma. Repeated small doses can cause a fall in blood pressure, rapid pulse, headaches and visual disturbances. When heated, emit highly toxic fumes of NO_x.

Phosphorous in PO₄: Poison to humans. Dangerous fire hazard when exposed to heat or chemical reaction. Poison by inhalation, ingestion, skin contact and subcutaneous routes. Ingestion affects the central nervous system. Toxic quantities have an acute effect on the liver and can cause severe eye damage.

Sulphur in SO₄: Poison to humans by inhalation an eye, skin and mucous membrane irritant and corrosive, an experimental carcinogen. It chiefly affects the upper respiratory tract and the bronchi. It may cause edema of the lungs or glottis, and can produce respiratory paralysis.

Source: Hazardous Chemicals Desk Reference, N. Irving Sax and Richard J. Lewis

Emissions of fireworks are a well-known cause of health impairments. Particularly affected are persons who suffer from illnesses of the respiratory system, multiple chemical sensitivity (MCS) as well as heart and circulation disturbances. The poisonous smoke leads to dizziness, heart disturbances and asthma attacks.

http://www.stop-fireworks.org/injured_persons.htm

PTSD (Post Traumatic Stress Disorder)

"Posttraumatic Stress Disorder (PTSD) is an anxiety disorder that can occur following the experience or witnessing of a traumatic event. A traumatic event is a life-threatening event such as military combat, natural disasters, terrorist incidents, serious accidents, or physical or sexual assault in adult or childhood." - National Center for PTSD, U.S. Department of Veterans Affairs.

Sudden and loud noises can trigger episodes of PTSD, bringing veterans back to traumatic experiences they have lived through during their service. And many citizens of South Africa suffer from PTSD -- especially concerning for those (from all backgrounds) who have been victims of violent gun crime, members of the police or defence force.

"Fireworks hit right in the heart of these causes [PTSD triggers.] Here's an explosive-looking thing and a loud noise. What they'll feel when they hear or see fireworks is mostly fear, a sense of threat as they did during combat. Anyone who's been in combat knows that almost every time we heard those sounds ... it was either because they were trying to kill us or because we were trying to kill them. Those of us who've been in combat don't like to make a big deal out of it, but next time you're in the park watching fireworks, take a look around. A lot of veterans - as patriotic as they come - won't be there."

Given that nobody knows whether someone suffering from PTSD lives in their vicinity, it seems irresponsible and inconsiderate to not take into account the possibility that someone does.

Explosions from fireworks cause exaggerated "fright or flight" responses in those suffering from PTSD, somewhat similar to those experienced by animals, as the effects of PTSD acts on a more primal aspect of the human psyche. They may be expecting the "bangs", in actual fact it actually exacerbates it, as they anticipate the noise, which then makes them more anxious and nervous, and then when they do start exploding they alternate between the "fight" (anger and aggression) and the "flight" responses.

4.3 Waste of Money

One would think, given the state of the economy, that people would find less wasteful ways of spending their money. Fireworks are definitively wasteful – they are lit, their energy is exhausted, and the only somewhat dubious benefit is the entertainment value. It is difficult to see how any spiritual value effects from their use. Since we do not manufacture fireworks here, it also means that the nett outflow of cash on fireworks does not benefit the local economy.

4.4 Culture of Violence

We already have one the most violent cultures on the planet. Why would we want to reinforce people's desire to explode things in the name of culture and religion?

4.5 Child Labour and working conditions in fireworks factories

Fireworks made in China, the Dominican Republic, El Salvador, Guatemala, India, and Peru employ child labour, the consequences of which are work that is mentally, physically, socially or morally dangerous and harmful to children; and interferes with their schooling by depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work.

In its most extreme forms, child labour involves children being enslaved, separated from their families, exposed to serious hazards and illnesses and/or left to fend for themselves on the streets of large cities – often at a very early age.

Read this on working conditions in fireworks factories: <http://www.galli.in/2012/11/its-time-to-tell-the-truth-balaji-maheshwar.html>



4.7 Injuries from Fireworks

From the South African Medical Journal:

Many studies conclusively recommend the introduction of stricter regulations and banning the indiscriminate sale of fireworks. There should also be greater control of retailers, the public be encouraged to use pre-approved firework sites, and school education initiatives be supported. Proposed amendments to by-laws include that fireworks can only be used by the permit holder, for a certain time duration, and in the 'premises for which it was issued'. As children cannot obtain permits, they would be prevented from handling fireworks. However, these terms would not apply to Guy Fawkes and New Year's Day, for which occasions designated areas are determined for public use and are 'subject to conditions as may be determined by the controlling authority'. As the greatest fireworks use and highest record of child injury is on festive days, by-laws should also apply to these days.

In conclusion, fireworks are associated with serious but preventable injuries among the paediatric age group. Parents should take their children to safer public fireworks displays rather than allow consumer fireworks to be used by or near their children. More enforcement of regulations, education and parental supervision are needed to reduce fireworks-related injuries, and mail-order pyrotechnics should be banned.

From the American Academy of Pediatrics:

"An estimated 8500 individuals, approximately 45% of them children younger than 15 years, were

treated in US hospital emergency departments during 1999 for fireworks-related injuries. The hands (40%), eyes (20%), and head and face (20%) are the body areas most often involved. Approximately one third of eye injuries from fireworks result in permanent blindness. During 1999, 16 people died as a result of injuries associated with fireworks. Every type of legally available consumer (so-called "safe and sane") firework has been associated with serious injury or death. In 1997, 20 100 fires were caused by fireworks, resulting in \$22.7 million in direct property damage. Fireworks typically cause more fires in the United States on the Fourth of July than all other causes of fire combined on that day. Pediatricians should educate parents, children, community leaders, and others about the dangers of fireworks.

Recommendations of the American Pediatric Academy:

1. Pediatricians should educate parents, children, community leaders, and others about the dangers of fireworks. Children and their families should be counseled to attend public fireworks displays rather than purchase fireworks for home use.
2. Public sales, including those by mail or Internet order, of all fireworks should be prohibited. Ideally, this should be done on a national level by federal law or CPSC regulation. International importation of fireworks for private use should also be banned. Sales to professional pyrotechnicians for the purpose of creating public displays would be exempt.
3. The private use of fireworks should be banned. Pediatricians should work to increase the number of communities and states that ban the private use of all fireworks.

5. Religious and Secular Festivals

Specific religious, cultural and traditional events are exempt from acquiring a permit to use fireworks on certain days.

5.1. The Festivals

There is much irony in the use of fireworks in the celebration of religious, cultural and traditional events. Given that a large proportion of the community find fireworks invasive it is questionable whether lighting fireworks is consistent with any of these celebrations.

5.1.1 Human Rights Day.

South Africans celebrate Humans Right Day on 21 March; it remembers the massacres in Sharpeville and other parts of the country. On that fateful day in 1960, police opened fire and killed 69 people at a peaceful demonstration against the apartheid pass laws. It's a day to reflect and honour the heroes and heroines who laid down a monumental foundation during the struggle for a rights-based, democratic and just society.

The day also celebrates the country's Constitution and the Bill of Rights. Surely on such a day respecting other people's rights to peace and quiet and not to have their animals terrified should be fundamental to the celebration?

5.1.2. Freedom Day

Freedom Day commemorates the first democratic elections held in South Africa on 27 April 1994. Fifteen years later, and following our fourth general election, the country can celebrate the achievements that have been made in entrenching democracy and creating a better life for all.

Democracy should not be a tyranny of the majority. A majority has no right to vote away the rights of a minority. The political function of rights is there to protect minorities from oppression by majorities, and the smallest minority on earth is the individual.

If the intent of our democracy is truly a 'better life for all', then the rights of the individual who is part of a minority are no less important than the rights of someone who is part of the majority. One cannot argue that the right to engage in a specific mode of celebration – the lighting of fireworks – is more important than the right to peace and quiet. Anyone has the right to celebrate as long as it is not at someone else's expense.

Fireworks lit in suburban areas where other people's rights are infringed are incompatible with democracy.

5.1.3 Christmas

If ever there was a celebration that was inconsistent with fireworks, it is Christmas, the celebration of the birth of Jesus Christ, who represents the essence of consideration and compassion for others. To light a firework in an area where other residents' peace is disturbed or their animals terrified is contrary to the Spirit of Christmas.

5.1.4 Day of Goodwill

Previously known as Boxing Day, the **Day of Goodwill** was renamed to remove connections to South Africa's colonial past, and to be inclusive of all South Africans. The day is meant for the sharing of festive cheer and goodwill, not indulgence at the expense of others.

Boxing Day originated from the British culture, and dates as far back as the Middle Ages, when it was tradition to give gifts in boxes to less-privileged members of society. The boxes would be placed in shops in the weeks before Christmas, and people would put monetary and other donations into the boxes.

In essence, the Day of Goodwill is just that – a day on which good will is shown to others. It should be self-evident that inconsideration in the form of noisy fireworks is inconsistent with this value. Donating the money that might have been spent on fireworks, to the poor, would be a far better gesture of goodwill...

5.1.5 Guy Fawkes

What has Guy Fawkes to do with South Africa? Nothing. People who celebrate Guy Fawkes are still clinging to colonial roots, from which we have long been emancipated.

I have always considered the Guy Fawkes celebration a little ironic. The reason I say that is this: Fawkes was stopped just as he was about to light the gunpowder that would have blown up parliament and its inhabitants. So in order to commemorate this, one should buy fireworks, and NOT light them. To light them would be to express solidarity with Guy Fawkes, a religious terrorist, hardly politically correct!

People who light fireworks on 5th November are doing so not because they are celebrating a valid South African tradition, but because it's an excuse to party, and they normally do so with

no consideration for the needs of others.

5.1.6 Diwali

Many Hindus claim that Fireworks have religio-cultural significance for Hindus. There is a lot of evidence that this is in fact not so, and that the use of fireworks is a recent tradition that has little to do with Hinduism.

In an answer on Quora, Ajit Naryanan, who is Indian, wrote the following:

The association of firecrackers and Deepavali is an act of marketing success that rivals De Beers' successful association of diamonds and love. This marketing miracle was the result of two business geniuses from Sivakasi: Ayya Nadar and his brother Shanmuga Nadar.

There is no description of using fireworks to celebrate Deepavali anytime before the Mughal period. During the Mughal era, Deepavali was celebrated primarily using lamps; and, to a very limited extent restricted to the Gujarat area, illuminative fireworks. (On a side note, Aurangzeb banned the public exhibition of both lamps and fireworks for Diwali in 1667.) After the Mughals, for much of the British rule, the stringent Explosives Act restricted the manufacture and sale of the raw materials used to create fireworks.

In 1923, Ayya Nadar and Shanmuga Nadar planted the seed that would grow to become the phenomenon that is Diwali fireworks today. Having migrated to Calcutta in search of their fortunes, and having found their fortunes working in a match factory there, they returned to their native Sivakasi and established a match factory. In 1940, the Explosives Act was amended, making the manufacture of a certain class of fireworks legal. The Nadar brothers seized the opportunity and in 1940, created the first fireworks factory in Sivakasi.



Ayya Nadar - the fireworks man

The Nadar brothers worked hard to associate Deepavali with fireworks, and their nationwide presence from the match industry gave them a platform to do so. The fireworks industry in Sivakasi grew by leaps and bounds, and by 1980, there were 189 factories in Sivakasi alone, manufacturing fireworks and supplying them all over the country.

Today, for many people, Deepavali and fireworks are synonymous with each other - but this connection is no more ancient than 1940.

No fad can grow exponentially without leaving a bloody trail behind it. When De Beers made diamond rings *de rigueur* for engagement and marriage ceremonies, they lit the spark of ravenous consumerism that is today responsible for ecological destruction and political

devastation in countries like Congo, Angola, Liberia and Ivory Coast, which shows no sign of stopping. Likewise, the fireworks industry in Sivakasi was responsible for child labour, occupational death and disability, and fuelling caste tensions in its home town; and it leaves a legacy of noise, smoke, pollution, and a terrifying day for babies and animals all over the country.

Deepavali is the festival of lights; and lighting a few lamps is all the celebration that is needed for this amazing festival. When you buy and burst crackers on this day, all you are doing is proclaiming to the world that you, too, have been successfully conned by the scam orchestrated in 1940 by the Nadar brothers. There is no pride, honour or spiritual reward in that.

<https://www.quora.com/What-is-the-connection-between-history-of-firecrackers-and-Diwali>

There are also some inherent problems with regarding the authenticity of regarding fireworks as a traditional foundation of the Diwali festival:

Safeguarding the Sacred from the Profane during Deepavali

Of importance to the preservation of Hindu religio-cultural heritage is the necessity of clarifying and qualifying what exactly are the sacred religious rites to which the culture accords; only through this understanding are we then able to establish and safeguard a traditional foundation, without which we cannot move forward with sincerity and legitimacy.

In respect to the Hindu religious liturgy, it should be noted that the languages of Sanskrit and Tamil are considered sacred; they provide the foundational meaning for the ancient religious texts, which, in turn, inform the ritual celebrations. The name *Deepavali* (Tamil: *Tipavali*, Hindi: *Divali*, “Diwali”) is etymologically rooted in the Sanskrit *deepa-* (“oil lamp”, traditionally made with a clay base) and *-avali* (“rows”). This clearly indicates that the original and authentic Deepavali “festival of lights” is traditionally founded on the practice of placing or hanging rows of oil lamps or lanterns. There is no sacred etymological foundation for the use of loud exploding fireworks. Furthermore, an informed distinction needs to be made between the origins of the Hindu religion, the origins of the Ramayana in the late Vedic period, the consequent Deepavali festival, and the relatively modern interpolation of commercial fireworks that has hijacked the traditional use of oil lamps and lanterns.

It should also not be forgotten that the Hindu Lord Rama is titled *Maryada Purushottama* as the exemplar of virtue overcoming vice: righteous action overcoming tyranny and disorder. In Valmiki’s *Ramayana* (the foundational text for Diwali), the reuniting of Rama and his wife Sita, and the restoration of civil order (bringing peace, joy and celebration to the city of Ayodhya), are integral to the celebrated “triumph of light”. In contradistinction to this victory and the associated state of “Ram Rajya” (i.e. a principled, virtuous and ethical governance of society), the modern indulgence in dissonant and exploding fireworks ironically signifies a chaotic and profane tearing apart, a disjointed separation, and as such cannot be justified on the grounds of divine unity, socio-religious virtue, or cultural enrichment.

One of the primary issues of contention is the loud noise that is clearly disruptive to civil society; it can be argued that these percussive fireworks have no legitimate place in the “festival of lights”. Hindu devotees who are knowledgeable and respectful of their religious tradition would also never make such a fundamental error of associating the sacred *Om/Aum* (which is creative and unitive) with fireworks (which, by their obvious explosive dynamics, are destructive and signify a breaking

apart). Every Hindu temple, domestic home and public venue can adequately accommodate the lighting and placement of *deepa* lamps (or “*diya*”), the hanging of lanterns, and enjoy the beautiful and illustrious history of Indian song and music – this is suitably celebratory, traditionally legitimate, and welcomed by all members of society.

The fact is: percussive firework events in residential areas are not a private or respectful practice; they are a total imposition on everyone and with no other choice possible but to endure that imposition (the frenetic noise invades every corner and space of one’s home, one’s supposed refuge – there is absolutely no way of escaping the stressful bangs). While some representatives from the Hindu community have made a formal appeal to the South African Constitution to protect and promote Hindu religious and cultural practices (with regards to fireworks), they have failed to notice e.g. Section 24 of our democratic Constitution which states, “Everyone has the right to: An environment which is not harmful to their health or well-being”. In addition, animal welfare legislation prohibits the abuse of animals; environmental legislation prohibits the unnecessary release of toxic emissions into the atmosphere; and our constitutional commitment to human rights demands that we decline the often unethical manufacture of fireworks (i.e. the exploitation of adult and child labour in toxic and volatile environments).

It is naïve to suggest that the solution to fireworks abuse is to simply ask those who thrive on igniting dangerous projectiles, to do so “responsibly” and “safely”. For the last 15 years, there have already been many such appeals to use fireworks responsibly and safely, but what we have witnessed in reality – in the absence of effective and binding legislation to protect both humans and animals in residential areas – is an actual *increase* in the *harmful* types of fireworks used, a *worsening* of the abuse of fireworks, and a total *lack* of “responsibility” by users, which is why we are once again appealing to the formal legal institutions to effectively ban fireworks.

Given all these concerns, it is disappointing when people attempt to hide behind and devalue the richness of culture and religion by using them as an excuse for destructive behaviour. Are we being led to believe that “culture” is somehow unassailable and exempt from rational evaluation? Let us test this line of logic elsewhere: Female genital mutilation has been claimed to be a “cultural” practice, but it is clearly an injustice and unacceptable to all reasonable, caring humans. All South Africans should remember how institutionalised racism was “culturally” and “religiously” entrenched in European colonialism and Apartheid South Africa – yet unacceptable to any principled human and an enlightened Constitution. We can all agree that the ending of the “cultural” and “religious” practice of child sacrifice by the Mayans and Ancient Near East cultures was a necessary and welcomed development in human society. The intent here is not to make direct comparisons between these cultural abuses, but specifically to expose the faulted line of logic: Merely because a practice is widespread and habitual, this does not make it inherently right, legitimate, enriching or ethically acceptable.

A ban on fireworks is the only effective solution to this situation. Banning fireworks will also preserve and safeguard the true traditional foundations of this sacred and beautiful Hindu celebration of Deepavali.

* * * *

“There is a principle in Hinduism called ‘*ahimsa*’, which, simply put, means ‘do no harm to any creature’ and it is completely consistent with the idea that all creatures have souls. To harm another soul would be bad karma, and may result in one suffering in one’s next life, or even this one. So to cause harm to another creature is not what one could call in keeping with the tenets of the Hindu religion.” – *Derek du Toit, The Diwali Contradiction.*

“Culturally, spiritually and historically, fireworks offer no significance to Hinduism. It is sad to see Hindus bring such disgrace to the image of our beautiful religion. Burning fireworks increases bad karma. Only the ignorant support fireworks. Current Hindu leaders need to step down and the better educated need to lead the community.” ~ *K R RAMLAKHAN, a Hindu, in a letter to the Sunday Tribune, 2011* It's also interesting to note the views of Mohandas K. Gandhi, also referred to with the appellation 'Mahatma', meaning “the great souled one”, on fireworks:

Alley N Diesel, who has written extensively on Hindu culture, had this to say concerning fireworks in her article, “No place for fireworks in a compassionate world”:

SPECIAL NUMBER

INDIAN OPINION


Founded by
- MAHATMA GANDHI -
- IN 1903 -

Nos. 43 & 44—Vol. LIII.

Friday, 11th November, 1955

REGISTERED AT THE G.P.O. AS A NEWSPAPER
Price: ONE SHILLING.

Mahatma Gandhi On Divali



Mahatma Gandhi
Mahatma Gandhi

66. **A** CORRESPONDENT invites me to warn those who care against turning the forthcoming Divali holidays good money into fireworks, bad sweets and unhygienic illuminations. I heartily respond. If I had my way I should have people to do house cleaning and heart-cleaning, and provide innocent and instructive amusements for children during these days. Fireworks I know are the delight of the children, but they are so because we the elders have habituated them to fireworks. I have not known the untutored African children wanting or appreciating fireworks. They have dances instead. What can be better or healthier for children than sports and picnics to which they will take not bazaar-made sweets of doubtful value but fresh and dried fruit? Children both rich and poor may also be trained to do house cleaning and white-washing themselves. It will be something if they are coaxed to recognise the dignity of labour if only during holidays to begin with. But the point I wish to emphasize is that at least a part, if not the whole, of the money saved by doing away with fireworks etc., should be given to any cause in which the poorest are served. There cannot be greater joy to men and women and young and old than that they think of and associate the poorest of the land with them in their holidays.

Reproduced from 'Hindu Dharma' by Mahatma Gandhi, published by Navajivan publishing house, Ahmedabad

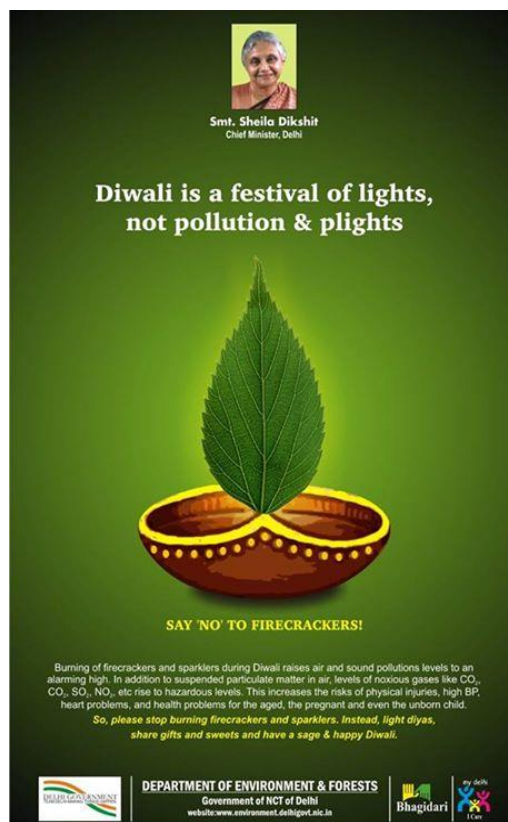
“The life, teachings and activism of Mahatma Gandhi reflect the consistency of his belief in ahimsa, the Sanskrit term meaning “do no harm”, “avoid violence”. Himsa means violence, the addition of the preceding “a” indicating the negative, prohibiting the harming or killing of any living being. As well as much of Hindu teaching promoting ahimsa, the related Asian religions of Buddhism and Jainism adopted this standpoint as essential for the avoidance of bad karma. This moral stance is, of course, indivisibly linked to vegetarianism as the ethical basis for avoidance of cruelty.

As a seriously observant Hindu, and therefore a life-long vegetarian, Gandhi, like most contemporary animal-rights advocates, preached a consistent, unbroken link between human and animal rights, each being necessary in order to uphold the other. His satyagraha principle (“truth force”), developed in South Africa, taught the wrestling for human rights according to the principles of love, compassion and non-violence, a strategy later adopted to powerful effect by the great American human-rights activist, Martin Luther King.

Explaining the foundations of his thought and action, Gandhi said, “A notary of ahimsa therefore remains true to his faith if the spring of all his actions is compassion, if he shuns to the best of his ability the destruction of the tiniest creature, tries to save it, and thus incessantly strives to be free from the deadly coil of himsa. He will be constantly growing in self-restraint and compassion.”

Specifically with regard to animal-rights, Gandhi famously maintained: “The greatness of a nation and its moral progress can be judged by the way its animals are treated.””

In addition, the Delhi Department of Environment and Forests have communicated very clearly their position concerning fireworks: “Diwali is a festival of lights, not pollution and plights”



And watch this movie made in India: Happy Green Diwali

In the light of the above, the assertion that "Fireworks certainly have religio-cultural significance for Hindus" may be true of some Hindus, but they are by no means regarded as *de rigueur* or even necessary by many others, arguably those who adhere closest to the religion's tenets. To claim that fireworks are inherent to the Hindu belief system is even more tenuous.

5.1.7 New Year celebrations

There are many Hindu New Years (<http://pushti-marg.net/bhagwat/new-years.htm>) so it's not clear which one is specified, but whether it's Chinese New Year, Western New Year or any other, fireworks seem to be part of the traditional manner of celebrating it.

What is debatable is whether such new year celebrations should be allowed in residential areas, especially given that not everyone shares the belief that noise should accompany bringing in of a new year. We could also arrive at a situation where, given the cosmopolitan nature of the SA demographic, more new years will result and there will be many more days in the year when those who prefer peace and quiet and have animals will have their privacy invaded and their peace taken away.

5.1.8 Why religion and tradition cannot trump practical and ethical considerations

Freedom of religion does not equate to freedom to practice that religion in a manner that inhibits the freedoms of others. It's also contrary to the spirit of religion.

Anyone who demands the right to celebrate their religion in a manner that infringes on the rights of others is using their religion as leverage to get their own way. Any religion that supports or reinforces such behaviour is self-contradictory.

6. Recommendations

Necessity for change

That there is a need for change should be self-evident from the above. If certain sectors of the public will not take responsibility and consider others, and it seems this is the case, even in the face of much pleading and appealing to their 'better natures', then more definitive and drastic steps must be taken.

What should change

In some cases, as stated above, the legislation is poorly written. In others, the Explosives Act is sufficient, but law enforcement personnel either do not know about or do not understand the legislation. In others, they know about it but are seemingly as irresponsible as the public.

The following needs to take place:

1. Legislation all over the country needs to be aligned. Ideally, the Explosives Act should be amended to include fireworks and all provinces should be bound by it.
2. SAPS personnel should be trained regarding the relevant legislation and given a mandate for upholding the law.
3. Volunteer groups should be set up in each municipality to assist the SAPS in identifying lawbreakers and abusers. Local forums should be set up to discuss methods of educating the public.

Roles and responsibilities

Fire Officers, Council members, legal advisers, animal welfare organisations, SAPS leaders, Health officials, and any other interested parties should engage in discussions to arrive at equitable and sustainable solutions in each municipal region.

Addendum: Response to proposals by Ram Maharaj of the South African Hindu Dharma Sabha

In a recent submission to the Minister of Police as well as the Chief Inspector of Explosives. Ram Maharaj of the Hindu Dharma Sabha, and organisation purportedly representing the interests of Hindus in South Africa, made a number of proposals concerning the laws pertaining to fireworks in South Africa. I have included these below followed by our responses:

1. *“Fireworks are of profound religio-cultural significance to Hindus worldwide. (Kindly refer to Annexure 3).”*

This assertion implies that ALL Hindus think fireworks are of religio-cultural significance, which is clearly not the case – see page 28 to 32.

2. **“Hindus have a constitutional right to use fireworks at home during the auspicious period of Diwali. In terms of the *Constitution of the Republic of South Africa, Act No 108 of 1996* : 31(1) **Persons belonging to a cultural or linguistic community may not be denied the right, with other members of that community – (a) to enjoy their culture, practise their religion and use their language.**”**

The constitution says nothing about WHERE Hindus may use fireworks – in fact it says nothing about fireworks at all, and since the assertion that fireworks are an integral and non-negotiable component of Hinduism is unlikely given that MANY Hindus do not use them, and prefer not to because of their destructive effects, whether fireworks are necessary to practising the Hindu religion is debatable. Ram is conflating the right to practise a religion with the right to engage in a practise that is arguably not only contrary to the tenets of the religion itself but also inconsistent with respect for the rights of others.

3. *“In the historic and epoch-making case relating to MEC for Education, KwaZulu-Natal and Others v Pillay 2008 (1) SA 474 (CC), Chief Justice Langa ruled that “Our Constitution requires the community to affirm and reasonably accommodate difference, not merely to tolerate it as a last resort.” He added that people should be encouraged “to express their religion or culture, this was to be celebrated, nor feared.””*

The case quoted concerned the wearing of earrings, which do not cause other people distress, harm the environment, or terrify animals, so it's use here can only refer to underlying principles. While we agree with Justice Langa entirely, there is an enormous difference between expressing one's religion and culture and causing fear, depriving people of peace, terrifying animals, and polluting the environment. Many Hindus agree that fireworks are not an expression of the Hindu religion but a distortion of it. See page 28-32.

4. *“Fireworks do not explode but deflagrate. Fireworks are definitely not in the category of dangerous blasting material.”*

While fireworks may not be 'blasting material', they most certainly do explode, and the idea that they are not dangerous is absurd. The injuries sustained every year by children and animals from direct contact, and the animals killed while trying to escape from the noise were certainly fearful that the firework was dangerous to them, never mind all those that went missing. Fireworks that deflagrate are non-percussive ones. It's important that we qualify which types of fireworks are problematic; in principle, non-percussive fireworks, where there is no 'bang' or explosion, are acceptable from a noise point of view, although it's also important to recognise that they still pollute the environment.

5. *“We propose that the age limits be reduced from 18 to 14 in view of the fact that the children of today are far more advanced than in the preceding years”*

This assumes that all 14-year-olds are of equal maturity and understanding, and this not only unlikely but also unsubstantiated. We think it is a mistake to allow children to be in control of fireworks, especially given that most cases of animal abuse using fireworks involved ignorant

youngsters.

6. Proposed: No person may use consumer fireworks –

(a) Within 500 metres from any explosives magazine, explosives factory, fuel depot, liquefied petroleum gas (LPG) depot or gasometer;

(b) Within 100 metres from any industrial premises, nature reserve, kennels;

(c) Within 25 metres from any airport, hospital, old age home or home caring for aged and frail;

(d) Within 25 metres from any filling station or retail premises where flammable gas containers are used, stored or filled;

(e) Within 25 metres from a South African Police Service Community Service Centre;

The reasons given for this proposal included discrimination against a community that were forced to live close to various facilities by the Group Areas Act and that this effectively penalises them further. If we are talking about non-percussive fireworks we don't have a problem with this. But the moment you introduce percussive fireworks or rockets, then these distances are simply insufficient; at least 500 metres should be specified for hospitals, old age homes, kennels and anywhere else where other people may be disturbed by the noise. This also applies to any residential area, where percussive fireworks and rockets should simply be outlawed.

7. “In 2001 the South African Hindu Dharma Sabha called for a ban on the importation of extremely loud fireworks termed “big bangs”. Officials of the Sabha worked co-operatively and closely with officials from the Inspectorate of Explosives in testing dangerous types of fireworks. In 2002 a ban on the importation of the so-called “big bangs” was imposed. The Sabha welcomed the ban and called upon Hindus not to buy or use “big bangs”.

If such a ban was imposed, where is the legislation banning them, and how did these fireworks then get into the country? In addition, the term 'big bangs' is a little vague and suggests only very loud fireworks should be banned; we advocate that all percussive fireworks (all those in which there is a 'bang' from the explosion or a 'whoosh' from a rocket) should be banned in private hands and should only be used by pyrotechnicians in displays far away from residential areas.

8. “It must be recognized that nowhere in the world do animal rights supercede human rights. Our State President, the Honourable Jacob Zuma, last year alluded to the definitive position that interests of animals should not take precedence over the interests of human beings.”

This is a strange argument, coming from someone who claims to represent Hinduism, which makes no distinction between animal and human souls. In his own words later in the same passage, Ram says: “Hindus believe that like human beings, animals also have souls. Hindu scriptures teach us to revere and fete animals... ..Hindus believe that all life is sacred”. If this is so, then the consideration non-human animals should be shown should be equivalent, not reduced by human needs. Please note that we are not claiming equal rights for animals; but it is completely inconsistent with Hinduism to claim human ascendancy over animals. In addition, surely consideration for animals is of more importance to Hindus than inanimate objects? Lastly, it's important to note that when an animal is fearful, then so is their human companion, and effectively, causing animals discomfort, pain or fear is tantamount to doing it to their owners. One cannot tell members of the public not to establish personal relationships with animals; this too, would be unconstitutional in respect of freedom of association and expression of culture; namely, that of the animal-loving community.

9. “It is a fact of life that in the animal kingdom which is based on the survival of the fittest, all animals (including healthy, unsexed domesticated dogs and cats) have inherent defence mechanisms whereby hormones are secreted to reduce stress and serious harm to hearing which help them survive through the explosive noise of thunder and lightning as well as fireworks.”

This is just nonsense. While hormones may reduce stress and harm to hearing, this does not have any effect whatsoever on the fear the animal feels upon hearing the noise. Ram's understanding of animal behaviour is so limited as to be irrelevant.

This booklet is free to anyone who needs to understand the impact and ethics of fireworks or utilise the arguments in the booklet to educate and inform others . If you are in a position to do so, please make a donation to the Hopeful Foundation so that we can continue to provide educational and advocational content:

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