

An Honest Investigative Report into Geoengineering Technologies
and Media Gatekeepers



Figure 1 Morpeth Terrace - site of Winston Churchill's former home London, UK (2015)

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Introduction

In May of 2015, I became acquainted with the term ‘Geoengineering’ and Solar Radiation Management (SRM). At that time, I began to witness and document daily – aircraft releasing what appeared to be thick plumes of aerosols into the atmosphere over the skies of London. My curiosity piqued, which led me on an ever-deepening trail of intrigue combined with a keen desire to understand this much unheard of scientific field - mostly censored from mainstream media.

From my research, I would soon learn from the World’s most renowned Science Academy, Scholars and Scientists, NGO’s, Policy decision makers, Government documents, Environmental Agencies and Non-Profit Organizations, that Geoengineering defined as: "large-scale manipulation of the planetary environment to counteract climate change"[\[ref-1\]](#) is currently underway *globally* with limited knowledge by the World’s population.

The need to understand the serious health and safety risks of Geoengineering technologies are paramount. The technologies are various, but for the purpose of this research, I have focused on the term defined by scientists as Solar Radiation Management (SRM) and ‘stratospheric aerosol programs’ (also known as ‘albedo modification’).

Geoengineering technologies are visibly taking place globally and its wider discussion among the citizenry has been and continues to be deliberately curtailed. This is despite significant academic scholarly recommendations, including government and NGO's reports and the scientists themselves, all who are calling for a widespread and "open" public debate.

It is hoped that the truth of geoengineering technologies specifically 'Solar Radiation Management' (alteration of our atmosphere) will be brought to the light for the welfare of humanity, as well as the recommendation for a brand new scientific investigation and environmental impact statement (EIS) by a recognized global agency.

The changes of our atmosphere are clearly visible to the human eye and have been documented by citizens from around the World and uploaded to social media sites. Via YouTube, Facebook, Flickr, blogs and other social media sites, millions of World citizens have posted their videos, photographs and concerns of what appears to be aerosol spraying of the atmosphere referred by the general public as “chemtrails”.

For the purpose of this research, the scientific terminology of the alteration of the atmosphere known as: stratospheric aerosol programs and solar radiation management is used. Whether or not these terms, given by the academic scientific community are indeed ‘accurate’ statements of what is in reality taking place, is a key point worthy of further consideration and evaluation.

For many citizens, however, this is a deliberate attempt to deceive humanity by ‘stealth’ using commercial or military aircraft to dispense contaminants that are altering our atmosphere without having gone through proper national legislative, legal, social or ethical channels that define most democratically elected governments.

Moreover, today’s skies and weather patterns are currently artificially manipulated by geoengineering and weather modification technologies without any willful upstream engagement by World citizens. The current deployment of weather modification technologies is highlighted by the U.N.’s World Meteorological Organization (WMO) which recently noted that over 50 nations are involved today in various weather modification techniques today (source: WMO).

Furthermore, moratoriums on geoengineering technologies have been altogether sidestepped with recent examples of iron fertilization experiments off the coast of Canada as reported by The Guardian and presented in this book.

On the one hand, the Scientific community advising policy decision makers is calling for restraint and prudence, as well as the willful upstream engagement of the public.

On the other hand, the Policy decision makers, National Agencies and other ‘participants’ official response to concerned citizens is that there is "no current knowledge of any deployment of geoengineering technologies", clearly fearful of generating widespread, unwanted social unrest and upheaval.

Supporting the “agenda” of those who wish to prevent the dissemination of information to citizens are the media ‘gatekeepers’ responsible for keeping the information ‘under wraps’ for nearly two decades until recently. Polishing off their newly published books, endorsed by geoengineer scientists themselves, the media gatekeepers are calling for our ‘realistic’ review of these otherwise morally hazardous, environmentally dangerous and life-threatening technologies.

Meanwhile the ‘ruling elite’, geoengineers, Policy decision makers and others ‘in control’ have adopted what they believe is a clever PR campaign. By enlisting well-known journalists and editors (or “assets”) with direct ties to their Corporate owned publications (e.g. The Economist, The Washington Post, etc.) the Policy decision makers and 'ruling elites' have in turn promoted the media/press as spokespeople on behalf of the geoengineer scientists and their technologies. Together, the media/press and geoengineer enthusiasts embark on a well-crafted PR campaign and roadshow to raise fresh funding from Wall Street, global Financiers and the private sector.

Finally, there is a very visible and vocal group comprised of concerned citizens around the World who are raising awareness and challenging their local and national agencies in the interests of: the environment, public health and safety. They are sounding the ‘alarm’ on the alteration of our atmosphere, geoengineering technologies and documenting changes to the atmosphere through observation, scientific experiments, photos, videos, documentaries, blogs and more.

Grassroots organizations are raising awareness of geoengineering technologies. Justifiably angry, they are demanding answers from those who govern and those responsible to protect the environment and above all public health and safety. In response to their justifiable claims they have been branded with the pejorative ‘conspiracy theorists’, continuously ridiculed, threatened and even worse.

For those whose desire is to keep these programs silent, they have adopted a PR strategy that manipulates, misinforms and therefore, steers public attention to ridicule. Fortunately, this PR campaign has begun to show its’ weakness and ineffectiveness. In fact, in most cases it has had the opposite 'effect'; one of increasing public distrust in their policy decision makers, institutions and agencies, as well as the 'ruling elite'.

The majority of the World's unsuspecting and "sleeping" masses have no knowledge or clear understanding of the alteration of our atmosphere by aerosol spraying programs, as defined by scientists as 'Solar Radiation Management' (SRM). The simple reason is that the discussion has been deliberately prevented from airing on mainstream media and broadcast. Moreover, the public has not been invited to the ever-growing public debate despite the calls from various scientists, scholars, as stated in academic research, calling for widespread public engagement.

Many individuals living in their two-dimensional Worlds are oblivious to the fact that our once deep blue skies are gone. Never looking up or noticing that our skies have turned a pale blue and milky white; they do not question the tick-tack-toe grids or x's formations which are clearly visible. Some however do. As one Senior citizen noted recently, "I see cloud formations that I never saw as a child."



"X marks the spot" on Heathrow landing path - London, UK 2015

The question on every concerned and aware citizen's mind is: Why is our atmosphere being altered, by whom and for what reason(s)?

Anyone with 20/20 vision and born before the 1980's, having grown up with natural deep-blue skies and large puffy white clouds, can see that our skies are being 'fixed'. We know what cumulus and other *natural* cloud formations are. We also know that 'condensation trails' occur naturally when temperatures are very cold thereby producing ice particles from jet engines flying at high altitudes. These condensation trails rapidly dissipate into the atmosphere once the aircraft has left its' position without ever leaving white trails lingering behind them. Presently, on a clear day many such visible elongated white stripes that linger and spread out can be seen; they turn a beautiful blue-sky into a dismal grey overcast day.

Often times when private citizens are confronted with the unspeakable truth about our skies, suddenly an opaque look of denial washes over one's facial expression. A deliberate attempt to refuse to believe what is incredibly obvious to many – that the very air that we breathe has forever been altered drastically without our knowledge, consent or approval.

Rachel Carson, the author of '*Silent Spring*,' who took the chemical companies to task in the 1960's for the use of chemical pesticides (DDT) on agriculture, challenged the notion that as humans we are capable of 'mastery over nature by chemicals, bombs and space travel'. It was Ms. Carson who also said, "*Introducing contamination into our World is the question of moral responsibility – responsibility not only to our own generation, but to those of the future.*"[\[ref 2\]](#)

Ms. Carson was certainly fearful of the 'evil and the destruction' that scientific advancement and space travel could unleash on our World which was recently echoed by Dr. Stephen Hawking at the BBC Reith Lectures where he warned of 'humanity at risk of lethal own goal.' (BBC 19 January 2016)

The few, including Scientists who have tried to raise the issue at local, National, Governmental levels, or with the US Environmental Protection Agency, the recently abolished Department for Energy & Climate Change (DECC) in the UK and the list goes on, have been met with consistent replies of denial that such programs even exist.

In a Freedom of Information request to the Dept. of Energy & Climate Change their reply to a concerned constituent on the 8th of May 2014 stated that, "*No solar radiation management program exists in the UK and DECC has no knowledge of any spraying of particles in the sky.*"

Shortly after the Brexit vote to 'leave' the EU in Great Britain's May referendum (2016), the new Prime Minister, Theresa May decided to scrap the DECC. This department has been merged now into a new entity called the Business, Energy and Industrial Strategy or BEIS and headed by Greg Clark, the former Communities Secretary. In the Times article, "*Green campaigners protest as climate department is axed,*" by Jill Sherman (Whitehall Editor) the abolishment of the DECC is the '*biggest Whitehall shake-up for almost a decade.*' Little do the UK environmentalists 'up in arms' realize that the real issue is not 'climate change' but rather geoengineering technologies and weather modification.

Hence, the scrapping of the DECC could be potentially viewed in line with current and ongoing geoengineering technologies supported by industry and policy decision makers and their industrial energy policies. Geoengineering technologies fit 'neatly' within the *Business, Energy and Industrial Strategy* (BEIS) bucket when one comes to think of it.

No sooner had the DECC been abolished did the new Prime Minister of Great Britain send a letter off to the President of The Royal Society, Sir Paul Nurse, stating that she wanted '*science and the government to be hand in glove*'.

Such a statement is all too reminiscent of Aldous Huxley's predictions in his 1932 book entitled *Brave New World* where he spoke of the emergence of a scientific dictatorship. Huxley forewarned of an 'ultimate or final revolution', where humanity will actually enjoy being "enslaved" by the technological evolution. One needs look no further for such evidence today than examples such as: Big Brother, iPhones, tablets, smart phones, Pokémon Go games in the park and so forth.

A US Scientist who I have had the privilege to discuss geoengineering in detail with and who will be introduced later in this book, has spent nearly 20 years researching and documenting the aerosol spraying programs; he has compiled over 350 research and scientific experiments and analyses available on-line for humanity (www.carnicominate.com). Despite his attempts to

raise his concerns with policy decision makers, including the U.S. Congress, the Environmental Protection Agency based on his substantiated scientific proven research and fibrous material samples, any attempts to demand a legitimate investigation into the environmental catastrophe unfolding has been met with either complete silence, categorical denials or both.

Even the Scientists of The Royal Society (the oldest Scientific Academy in the World est. in 1660) will not admit that geoengineering technologies are currently deployed although they do recommend that the public be invited to the debate as the technologies *affect* everyone.

It is this author's hopes that this comprehensive research and investigation, all substantiated by the Scientists themselves, including testimony to Congress and Parliament, official government and scientific documents will 'raise awareness' of geoengineering technologies and the current on-going alteration of our atmosphere.

It is hoped that: a) the public will be invited to the debate on the governance, regulation and transparency of geoengineering technologies; b) that an investigation into the deliberate prevention of critical information from reaching citizens be conducted; c) that a new scientific investigation, and environmental impact assessment (EIA) be conducted worldwide by an independent organization.

Furthermore, we must acknowledge that we are at a 'tipping point' in the history of civilization due to catastrophic environmental disasters currently unfolding; these include the risks and impacts that are being unleashed indiscriminately on human populations, our bio-diversity and ecosystems.

At the same time, there is an urgent need to awaken the 'sleeping' masses, in order to address geoengineering technologies as a global issue.

Legal challenges must be considered in order to demand immediate cessation of all geoengineering technologies and weather modification programs which are harmful to human populations and the environment based on International laws and treaties which most Nation states have signed and/or are parties to. Those responsible for deploying these programs without

public consent or oversight, and thereby willfully bypassing proper legislative protocols in order to alter our atmosphere must be brought to the 'light' and held accountable.

It is every person's 'inalienable birthright' to be informed of any direct manipulation of our atmosphere, geoengineering of our planet, threats to bio-diversity and ecosystems which may have serious adverse and catastrophic effects, unknown to the Scientists themselves.

Citizens must raise their concerns demanding redress with their local GP offices (Medical Practitioners), MP's (Ministers of Parliament), Members of Congress, Policy decision makers, Environmental Protection Agencies, IPCC, CBD, International Organizations, United Nations, International Government Bodies, NGO's to call for an immediate ban of geoengineering technologies; specifically, what the Scientific community has defined as '*stratospheric aerosol programs*' also known as SRM.

World citizens have the 'right' to demand immediate:

- Transparency
- Governance
- Regulation

Collectively utilizing the business talents and skills that every individual has 'divinely' been given - we must act collectively to bring the geoengineering debate out into the open without further manipulation, censorship, gag orders, misinformation and ridicule in order to 'raise awareness' of these life-altering and environmentally dangerous technologies.

This is a battle we must acknowledge truthfully. To deny that it is occurring (or to live in a state of 'denial') or the desire not to have our 'little World' disrupted will be a tragedy beyond measure for this generation and future generations to come.

Moreover, we have a 'moral responsibility' to expose the truth, as well as to demand justice based on Constitutional legal rights, as has been passed down to us since the signing of the Great Charter or Magna Carta of 1215. The 'great charter' is the foundation of 'freedom under law' in the United States and United Kingdom still today.

If we deny the truth, and stick our 'heads in the sand' with the hopes that it will all just go away, then we must be prepared to face the dire and significant environmental consequences that will be unleashed on all of humanity, as well as our natural World.

*“If we remain silent in order to preserve our freedom and liberty,
then we are certain to lose both.”*

Benjamin Franklin

Fellow

The Royal Society

"We need to have a widespread public debate and widespread engagement." [\[ref 3\]](#)

John Shepherd

Fellow

The Royal Society

*Dedicated to all those who have so valiantly fought the 'good fight'
and for those no longer with us.*

I. Introducing the Royal Society – *Nullius in Verba*

Let us begin by introducing the oldest and most respected science academy in existence - The Royal Society. The Royal Society was founded in 1660 after a lecture given by Sir Christopher Wren, the architect of St. Paul's Cathedral in London, and today boasts membership of 1600 prestigious scientists, scholars and Nobel laureates from around the World. Their offices located at 6 – 9 Carlton House Terrace, a street in the St. James district of the City of Westminster, are located just a stone's throw away from Buckingham Palace and overlooking St. James Park 'birdcage walk'.

The Society's motto 'nullius in verba' means 'take nobody's word for it' expressing their Fellows determination to, '*withstand the domination of authority and to verify all statements to appeal to facts determined by experiment,*' as stated on their official website (www.royalsociety.org).

8,000 Fellows have been elected to The Royal Society over the past four centuries of which some of the most notable names in Science include: Newton, Einstein and Darwin.

The Royal Society is proud to take credit for publishing Sir Isaac Newton's *Principia Mathematica*, who lived in the nearby borough of Kensington and Benjamin Franklin's kite experiment regarding the electrical nature of lightening. The Society's journal '*Philosophical Transactions*' is the longest running scientific journal in the World.

Today, Jocelyn Bell Burnell, Richard Dawkins, and Stephen Hawking join the long list of distinguished Fellows. The Royal Society's Fellows and Foreign members are elected through a peer review process and remain members for life. It is by far the most well-known illustrious club of pre-eminent scholars and scientific minds known in the World.

In 2009, The Royal Society published a lengthy report entitled: "*Geoengineering the Climate; Science, Governance and Uncertainty*". Following upon the recommendations in The Royal Society's initial report came the research entitled, "*Solar Radiation Management,*

The Governance of Research” which included The Royal Society, EDF (Environmental Defense Fund) and TWAS (developing countries). This study addressed purely the governance of ‘solar radiation management’. Both comprehensive reports (available on their website – www.royalsociety.org) set out to define geoengineering technologies and specifically solar radiation management.

These reports explain in lengthy detail the vast complexities in deliberately intervening in the Earth’s climatic systems and the manifold uncertainties that not even the most brilliant Scientists and Physicists of the four-hundred-year old Academy can foresee.

The Royal Society has defined Geoengineering (also referred to as ‘Climate Engineering’) as: the ‘deliberate and large scale intervention of the Earth’s Climatic system with the aim of reducing global warming or (GHG – greenhouse gases) [[ref_4](#)]

As there are several categories of technologies being proposed to intervene in our Earth’s climatic system, this research has focused on one specific technology defined by the Scientists themselves as - Solar Radiation Management (SRM).

SRM, as mentioned in The Royal Society’s report entitled, “*Solar Radiation Management the Governance of Research,*” 2009 refers to “*proposals to cool the Earth by reflecting a small percentage of inbound sunlight back into space, in order to reduce global warming.*” [[ref_5](#)]

To put this into perspective, there are several “camps” or reasons for SRM programs and their deployment today by individuals familiar with the subject. Here are three:

1. SRM is a method to mitigate GHG (Greenhouse Gases) or ‘catastrophic climate collapse’ due to anthropogenic climate change a warming of our Earth’s climate estimated to be (realistically) at 5 degrees Celsius by 2050 – Message given by Scientists, Government, NGO’s.
2. Geoengineering/SRM enable regimes to ‘control the weather’ (see document: US Military on ‘Weather as a Force Multiplier - Owning the Weather by 2025 also available on-line)

3. SRM is being used to ‘depopulate’ the World’s population in order to take control of Society otherwise touted as the - New World Order (NWO)

The research provided in this book focuses on the first camp which claims to utilize solar radiation management (SRM) as a way to mitigate GHG (greenhouse gases) and to raise awareness of the current alteration of our atmosphere to the UN Council on Bio-Diversity, ENMOD (Environmental Modification Convention), IPCC (Intergovernmental Panel on Climate Change), Vienna Convention on the Protection of the Ozone (1985), the Convention on Bio-Diversity, London Protocol and finally - to the International Court of Justice in The Hague.

At the same time the reports from The Royal Society were published, the U.S. House Committee and Britain’s Parliament convened in order to hear from leading scientific and scholarly authorities on the debate of geoengineering the only planet known with intelligent life.

In the UK, the Government’s Response to the House of Commons Science and Technology committee 5th Report of Session 2009 – 10 was published. The report entitled, ***The Regulation of Geoengineering***’ presented to Parliament by the Secretary of State for Energy and Climate Change by command of Her Majesty. Under the ‘*Regulation and Research Report heading 24*’, states that “*Field-testing of geoengineering techniques (both CDR and SRM) presents risks of negative, trans-boundary impacts on regional climates, ecosystems and human populations.*” [\[ref 6\]](#)

The same year, on the other side of the ‘pond’, the US House Committee on Science and Technology held their own meeting on the 5th of November 2009, entitled - ***Geoengineering: Assessing the Implications of Large Scale Climate Intervention***. Chairman Gordon (House of Representatives) who chaired the hearing, notes that it was the first time a congressional hearing was convened to hear testimony from a distinguished panel invited to enlighten the Committee about this much unheard of and understood scientific field. Representative Gordon stated that geoengineering has the potential for catastrophic environmental side – effects; the hearing was convened in order to understand the implications.

Among the Scientists who were invited to give testimony to the US House Committee on Science and Technology were: Professor Dr. John Shepherd, Oceanographer and Fellow of The

Royal Society; Dr. Ken Caldeira of the Carnegie Institute, Mr. Lee Lane a Resident Fellow and Head of the AEI (American Enterprise Institute), Dr. Alan Robock of Rutgers University and Dr. James Flemming of Colby College, Maine.

Once the hearing was convened, all 5 panelists presented their views and ‘thesis’ with regards to the deployment of geoengineering technologies, and specifically what the scientific community has defined as, ‘stratospheric aerosol programs’ otherwise known as solar radiation management. The video of the hearing can be watched in full on YouTube [U.S. House Committee Science and Technology Meeting 2009](#) entitled, “Hearing: Geoengineering, Part I: Assessing the Implications of Large Scale Climate Intervention.”

In the introduction to the House Committee, Professor Dr. John Shepherd, (then Chair of The Royal Society) called for a ‘widespread public debate and widespread public engagement’. He said, “Geoengineering, by intention will affect everybody on the planet, because it is an intentional moderation of the environment; consequently, everyone has an interest in the outcome.” [\[ref 7\]](#)

This book will not go into each panelists’ viewpoints here; rather a selection of them will be presented throughout this book.

As the Scientists of the Royal Society and elsewhere have stated, a public debate of these technologies is recommended as it *affects* us all. A number of the Scientists involved in the alternative to controlling emissions have suggested geoengineering as an accompanying strategy.

Therefore, geoengineering should not be left to the World’s ‘ruling elite’, scientists and scholars, policy decision makers, the military and the 1% of the World’s wealthiest individuals; as sole individuals able to decide on deploying these technologies on behalf of 99% of the 7 billion who call this planet - home.

Dr. Alan Robock, a leading U.S. nuclear climatologist expert stated in his testimony given to the US House Committee on Science and Technology that ‘*geoengineering should only be deployed in an environmental emergency and that it is not a solution for climate change.*’ [\[ref 8\]](#)

Geoengineering the climate and altering our atmosphere (the very air we breathe), impacts every human being and living plant and creature. Geoengineering technologies effect:

- **Precipitation/rainfall**
- **Drought**
- **Floods**
- **Fish Kills**
- **Crop failure**
- **Forest die off**
- **Adverse ecological impacts**
- **Human population**
- **Pollinators/Birds**

The majority of the Scientists agree that ‘geoengineering’ is *not* a substitute for emission controls.

Why then is our atmosphere under-going visible and documented change? Why is there a need to manipulate and deceive World’s citizen’s from knowing and understanding the truth about geoengineering when the very scholars and scientists themselves have called for a widespread open, public debate and engagement?

The Royal Society states in their report on Solar Radiation Management that, ‘*SRM methods mitigate against a rise in global mean surface temperature. They do nothing to reduce atmospheric concentrations of CO² or the rate they increase.*’ [ref_9] They outline that Geoengineering of the stratosphere with constant injections of Sulphur would require decades, possibly even centuries to balance the ‘*increased radiative force by greenhouse gases and that SRM methods would lead to entirely new environmental conditions with impacts on biological systems that are hard to predict.*’ They admit that SRM would have complex effects throughout the ecosystem and admit, ‘*that the costs, benefits and inherent risks to our health, Planet and eco-systems are not well understood.*’ [ref_10]

Professor John Shepherd (Professorial Research Fellow in Earth System Science with Ocean and Earth Science, National Oceanography Centre Southampton at the University of Southampton, England) was Chair of the Royal Society's Geoengineering report issued in 2009. He also stated that there are major uncertainties and social consequences. He encouraged widespread public debate and public engagement. Contrary to Dr. Shepherd's recommendations and many other prominent scientists, there has been little open public engagement or debate.

So, why have the Policy decision makers, Leaders decided not to heed the advice of these prominent Scientists calling for transparency and an open public debate? Why is it *verboten* to inform the public and citizens about geoengineering technologies and the alteration of our atmosphere including 'iron fertilization' programs which have been deployed in our oceans? A myriad of responses comes to one's mind.

In sum, 2009 - 2010 saw the publication of several key reports on Geoengineering and Solar Radiation Management by The Royal Society, as well as the UK's House of Commons Science and Technology Committee 5th Report of Session 2009 – 10 and across the *pond* to the US Committee on Science and Technology's hearing. These reports and testimonies were designed to educate leading Policy decision makers of these newly developed technological 'fixes' which have since been unleashed on the most complicated, natural system that not even the Scientists themselves fully understand.

Fast forward a few years to 2015, the U.S. National Academy of Sciences study, "*Climate Intervention: Reflecting Sunlight to Cool Earth*" (McNutt *et.al.*2015) writes, "*There is significant potential for unanticipated, unmanageable, and regrettable consequences in multiple human dimensions from Albedo Modification at climate-altering scales, including political, social, legal, economic and ethical dimensions.*" [[ref 11](#)]

An interesting side note with regards to this research is the dedicated Appendix to 'conspiracy theories' and several mentions within this research published by the National Academy of Science, responsible for advising the U.S. Federal government since the charter granted to it by Congress (1863) came into effect.

This deliberate mention and acknowledgement of ‘conspiracy theories’ in an academic scientific research paper is worthy of reflection. The terms: conspiracy, clandestine or other pejoratives have no place within true academic scientific research and investigations. It may be then, that the mention is being used as a possible ‘defensive mechanism’.

Highlighted in the NAS’s report is the Asilomar International Conference on Climate Intervention Technologies in California which took place in March 2010, shortly after the publication of The Royal Society’s reports on Geoengineering and Solar Radiation Management.

The NAS report notes five recommendations regarding the governance of research resulting out from the Asilomar Conference, of which recommendation number (5) states *‘public participation and consultation in research planning and oversight, assessments, and development of decision-making mechanisms and processes must be provided.’* (ASOC, 2010) [[ref_12](#)]

Having a better understanding then of The Royal Society and their reports of Geoengineering and Solar Radiation Management, as well as the U.S. and UK Congressional and Parliament Committees on Science and Technology hearings of 2009, the Asilomar International Conference, as well as the more recent study published by the U.S. National Academy of Sciences (McNutt et. al. 2015) we may now move forward to the introduction of the geoengineer scientists themselves.

It is especially important to note before moving on, that every scholarly published report, academic research, conference recommendations or study has *underscored* the need for widespread public participation and engagement; to date this still has not taken place.

*For additional information on Geoengineering and Solar Radiation Management, we suggest reading both reports by The Royal Society listed in the reference section. You may also wish to consult the video on-line on YouTube posted by Nasa Jet Propulsion Laboratory (California Institute of Technology) von Karmann lecture entitled, “*Geoengineering and Climate Intervention – What we need to know.*”



II. Introducing the Scientists behind Geoengineering and Solar Radiation Management (SRM)

In 1945 a brilliant mathematician John von Neumann invited Scientists to Princeton University to discuss weather modification. They expected it could make a great difference in the next war. Despite the race for nuclear weapons between the US and then Soviet Union, they were entering

a more fateful race to ‘control the weather’. Von Neumann realized that computer modeling of weather systems was critical. Computer models would assist the Scientists understanding of how the atmosphere would respond to any given intervention. The information would then assist in understanding how to change the climate. Von Neumann foresaw climatic warfare as yet unimagined. He hoped that it would encourage humanity to find a new global approach to its political issues. [[ref_13](#)]

Years later, an eminent Russian climatologist by the name of Mikhail Ivanovich Budyko would be the first to suggest artificial solar radiation management in case of pressing global warming concerns. His recommendation - releasing stratospheric sulfate aerosols by flying aircraft into the lower stratosphere. His suggestion became known as ‘Budyko’s blanket’ (1974). Since then, there have been various suggestions of apparatus to deliver sulfur to the stratosphere including rockets, artillery and other structures and systems.

Following in Budyko’s footsteps shortly after was Hungarian born American nuclear physicist Edward Teller (1908 – 2003), a Member of the Manhattan Project. Teller had written a research paper entitled, “*Global Warming and Ice Ages: Prospects for Physics-Based Modulation of Global Climate Change, (1997)*” for a presentation he would give in Italy that year. He also authored a contributed article for the Wall Street Journal (1997) entitled, ‘*The Planet Needs a Sunscreen*’.

In his concluding remarks of his op-ed piece, Teller wrote, “*Yet if the politics of global warming require that "something must be done" while we still don't know whether anything really needs to be done--let alone what exactly--let us play to our uniquely American strengths in innovation and technology to offset any global warming by the least costly means possible. While scientists continue research into any global climatic effects of greenhouse gases, we ought to study ways to offset any possible ill effects. Injecting sunlight-scattering particles into the stratosphere appears to be a promising approach. Why not do that?*” [[ref_14](#)]

The scientist however credited with removing the ‘taboo’ of geoengineering was Nobel Prize winning Dutch scientist – Dr. Paul Josef Crutzen. An atmospheric chemist, Crutzen was one of 70 Nobel Prize scientists who co-signed a letter repealing Louisiana’s Creationism Law and is

best known for his work on ozone depletion. He is considered by many to be the 'Father' of stratospheric aerosol injection. It was Dr. Crutzen who promoted to artificially cool the global climate by releasing particles of sulfur into the upper atmosphere, along with other particles at lower atmospheric levels which would reflect sunlight and heat back into space. His editorial essay in 2006 entitled, '*Albedo Enhancement by Stratospheric Sulfur Injections: A Contribution to Resolve a Policy Dilemma?*' brought geoengineering and the much heated debate amongst the Scientific community out into the open.

In the past decade, Harvard Scientist Dr. David Keith has taken up the baton in promoting Geoengineering technologies. Dr. Keith (Canadian) who has appeared on broadcast in the UK (HARDTalk 2011 and Colbert Talk Show 2013) is a leading authority on Solar Radiation Management and has written a book entitled, 'The Case for Geoengineering.' He is also working on another technology called 'Carbon Capture' where his Company – Carbon Engineering (www.carbonengineering.com) is said to have received large investments by prominent individuals such as Richard Branson, as stated in his interview on HARDTalk (2011). Carbon Dioxide Removal (CDR) is a highly expensive way of removing CO₂ out of the air and putting it back into the Earth. According to Dr. Keith and the scientific community, there are fewer environmental consequences involving CDR than Solar Radiation Management and stratospheric aerosol programs.

A defining moment for the study of 'stratospheric aerosol programs' was the volcanic eruption of Mount Pinatubo in 1991. After approximately 500 years dormant, this destructive volcanic eruption responsible for ejecting millions of tons of sulfur dioxide gases into the atmosphere formed a large cloud over the earth, naturally decreasing average worldwide temperatures for several years' post eruption. It was the first time in history where global satellites were positioned and able to capture visually the effects of such a large scale volcanic eruption and its' subsequent cooling effects on the planet. This natural event also was responsible for contributing to a rapid destruction of the ozone layer over Antarctica, which reached its largest size following Mount Pinatubo's eruption.

Given this major natural event, the scientific community and geoengineers could more fully understand the cooling effects of large Volcanic eruptions; they also knew how volcanic particles

ejected into the atmosphere and reaching the stratosphere, contributed in blocking the Sun's powerful rays thereby, cooling the Earth's temperature.



(Photograph taken in Pimlico London, – June 2015)

Other Scientists touting Solar Radiation Management include Dr. Hugh Hunt of the University of Cambridge who in the video by SPICE (Stratospheric Particle Injection for Climate Engineering) speaks of 10million tons of nanoparticles being released at mid-latitude approximately 20,000km high. At the same conference, Dr. Steve Rayner, Professor at University of Oxford outlines very articulately the social, legal and political issues surrounding climate engineering; the problems with regards to control (who controls the thermostat?), what types of regulatory governance are needed, the fact that aerosol injection is controversial and that the, 'Americans are clearly more *gung – ho* than the Brits'.

In the U.S. Dr. Alan Robock, a University Professor at Rutgers University, Department of Environmental Sciences was one of several US and UK Scientists who testified before the House Committee on Science and Technology on the 5th of November 2009 hearing on, ***“Geoengineering: Assessing the Implications of Large Scale Climate Intervention.”*** His research has focused on the idea of mirroring explosive volcanic eruptions, *‘by attempting to produce a stratospheric cloud that would reflect some incoming sunlight, to shade and cool the planet to counteract global warming.’*[\[ref_15\]](#) In his written testimony to questions from the Committee he writes, *“three proactive strategies to reduce the risks of climate change are: 1) mitigation: reducing emissions; 2) adaptation: moderating climate impacts by increasing our capacity to cope with them; and 3) geoengineering: deliberately manipulating physical, chemical, or biological aspects of the Earth system.”* [\[ref_16\]](#)

In Dr. Robock’s testimony, he highlighted over a dozen potential risks of geoengineering and only a handful of benefits. The possible risks outlined by Dr. Robock are a myriad of major global life altering possibilities including: drought in Africa and reduction in Asia’s Monsoon season, further ozone depletion, continued ocean acidification due to CO², reduced solar power, the end of deep blue skies, unknown environmental impacts, military use of the technology, commercial control, human error, rapid warming if ceased, regrettable consequences, *who* controls the thermostat, conflicts with current international treaties, and last, but not least - a moral hazard in not reducing emissions.[\[ref_16\]](#) Above all, Dr. Robock questions, ‘do Policy decision makers and the scientific community have the ‘moral authority’ to do this’?

The risk of ‘moral authority’ in altering our climate and therefore, the very air we breathe, the effects on water and precipitation which sustains all forms of life, and our soil which effects our global food supply should be of primary concern. Without any doubt, we have a moral responsibility towards future generations.

Handing down to our children and future generations a “geoengineered” planet by directly intervening in the Earth’s natural processes demonstrates a serious moral failure. Why has the World failed to seriously deal with the issue of reducing carbon emissions (the US and China being the largest emitters)?

Do we have the right to contaminate the atmosphere, raining down contaminants on all of humanity and life forms inhabiting this planet and altering the very composition of the air we breathe? Are these geoengineering technologies operating within national laws and international treaties, for the benefit of World citizens who have not even been asked for their consent or approval? Do citizens have the legal right to understand the significant *risks* surrounding geoengineering technologies with respect to public health, as well as the environment which not even the most distinguished scholars and pre-eminent scientists can't begin to explain?

Surely, as the most evolved species on this planet, having the intellectual capability to reason between right and wrong and 'good and evil', one would expect Policy decision makers, social institutions and agencies created to protect the environment and public health to choose the moral highroad.

Can the geoengineering Scientists, Policy decision makers and other participants involved effectively communicate to their citizens what is the "planetary climate crisis" required for altering our atmosphere drastically without public knowledge or consent; why have they circumvented proper legislative protocol?

Surely many of us understand the discussion of climate change and the 350ppm (parts per million) of CO² limit and the danger of methane gas 'burps' from beneath the permafrost of the diminishing Artic sea ice – but "who" has the right to determine that a *real* climate catastrophe is upon us? Finally, is contaminating our environment and altering the only planet known with intelligent life exclusively the knowledge for a select group of individuals or should it be an 'open' debate for everyone affected as highlighted by many scholars, scientists, academic reports, government reports and other sources?

As in the 1960's, when the chemical companies decided to unleashed their 'rain of death' by pouring pesticides and DDT on all living organisms in nature and agriculture, today's 'man of control' is no different; rather he has become more *evil* in his ever-greater quest to play God. There is virtually nothing in the environment or in nature that man has left unchanged.

In June of 2008, prior to his testimony before the House Committee, Dr. Robock contributed an article to the 'Bulletin of The Atomic Scientists' entitled, "**20 Reasons Why Geoengineering**

May be a Bad Idea,” Vol. 64, No. 2 p. 14 – 18. In it, he spells out the history of geoengineering, effects on bio-diversity, environmental impacts, human error, no going back, military use and unexpected consequences. [[ref 17](#)]

He states that “*some have proposed to artificially alter climate and weather patterns to reverse or mask the effects of global warming.*” He continues, “*since scientists know that stratospheric aerosol injection might impact the ecosphere, do humans have a right to plow ahead regardless? Yet, there is no global agency to require an environmental impact statement for geoengineering.*” [[ref 18](#)]

The idea that countries may go to war over climate engineering whereby those who do not hold the technology could be subjected to hotter temperatures and those who are in control can enjoy cooler, temperate weather could produce what he calls a ‘Nuclear Winter’.[[ref 19](#)] This comes from another interview conducted with journalist Elisabeth Eaves (April 15, 2015) in ‘Bulletin of The Atomic Scientists’ entitled, “**Cloud Control: Climatologist Alan Robock on the Effects of Geoengineering and Nuclear War.**”

Dr. Robock clearly articulates that, “*If geoengineering is ever used, it should be as a short-term emergency measure, as a supplement to, and not as a substitute for, mitigation and adaptation.*”[[ref 20](#)] A compilation of Dr. Robock’s publications may be reviewed at: [Publications by Dr. Alan Robock.](#)

The ‘Geoengineering Model Intercomparison Project’ (GeoMIP) with 13 countries participating shares information on climate modeling. If countries are collaborating on climate models as suggested in Dr. Robock’s testimony in 2009, could this validate the current large field experiments, alteration of our atmosphere which are clearly visible globally?

One of the most insightful and historical books of man’s quest to control the ‘heavens’ currently in circulation is Dr. James Rodger Fleming’s “**Fixing the Sky – The Checkered History of Weather and Climate Control**” (Columbia Press). Dr. Fleming is a Professor at Colby College, Maine and along with Dr. Robock is one of several scientists who testified before the House Committee on Science and Technology hearing in 2009.

In his book, Dr. Fleming outlines eloquently the history of wanting to control the heavens from Greek mythology through to the present day. Not only is it an ‘eye opener’ of man’s quest to ‘play God’ with our heavens, but Dr. Fleming is refreshingly truthful when he calls today’s Geoengineers, touting SRM solutions without understanding the significant catastrophic outcome, as ‘self-delusional’ and “full of ideas and full of themselves”.

He continues that the Geoengineers, ‘have come to the conclusion that the twenty-first century will be “geotechnic” – that the atmosphere is humanity’s aerial sewer, sorely in need of treatment and the Earth needs a thermostat. They seek a technological fix through geoengineering or the ultimate fix. It is a tragic comedy of overreaching hubris, and self-delusion. He concludes, “Global climate engineering is untested and untestable, and dangerous beyond belief.” [\[ref 21\]](#)

Dr. Raymond T. Pierrehumbert, Halley Professor of Physics at Oxford University and previously Louis Block Professor in Geophysical Sciences at the University of Chicago shared his views on geoengineering our climate with his contributed piece that appeared for the on-line publication ‘Slate’ (February 10, 2015).

He states, “The nearly two years’ worth of reading and animated discussions that went into this study (NRC – National Research Council) have convinced me more than ever that the idea of “fixing” the climate by hacking the Earth’s reflection of sunlight is wildly, utterly, howling barking mad.”

He continues, “The actions discussed for the most part are referred to as “climate intervention,” rather than “climate engineering” (or the common but confusing term geoengineering). Engineering is something you do to a system you understand very well, where you can try out new techniques thoroughly at a small scale before staking peoples’ lives on them. [Hacking the climate](#) is different—we have only one planet to live on, and can’t afford any big mistakes.” [\[ref 22\]](#)



Dr. Pierrehumbert's impressive accolades include: Guggenheim Fellowship (1996); Fellow of the American Geophysical Union and Chevalier de l'Ordre des Palmes Académique by the Republic of France. He was a lead author on the IPCC's (Intergovernmental Panel on Climate Change) third assessment report and co-authored the NRC's (National Research Council) report entitled '*Abrupt Climate Change: Inevitable Surprises*' (2002). In 2015, Dr. Pierrehumbert was elected to the American Academy of Arts and Sciences and sits on the Science and Security Board of the ***Bulletin of Atomic Scientists***. The ***Bulletin of Atomic Scientists*** was launched by former Manhattan project physicists after the atomic bombings of Hiroshima and Nagasaki.

This should demonstrate that many scholars and scientists are clearly 'voices of reason' and given their understanding and knowledge of physics, nuclear physics, geoengineering, climate engineering and other sciences, advise prudence rather than deployment of geoengineering technologies. For all accounts, it appears that those who have taken the decision to alter our atmosphere without the citizenry's knowledge or consent, have gone ahead despite having received expert testimony and scientific opinions. They have rejected their "experts" advice.

III. The Hard Science – Aerosols and Nanoparticles

Dr. David Keith's whitepaper entitled, "*Photopheric levitation of engineered aerosols of geoengineering*," (Sept. 2010) describes using an 'idealized' example of engineering aerosols: '*consider a thin disk with a radius of 5 μ m and thickness of 50nm composed of three layers: 5nm aluminum oxide, 30nm of metallic aluminum and finally, 15nm of Barium titanate.* [[ref 23](#)]

Unlike his predecessor Paul Cruzen, Keith proposes using 'engineered aerosols' in the place of sulphates. Sulphate aerosols focus on Hydrogen Sulphide (H₂S or Sulphur Dioxide - SO₂) which can be introduced into the stratosphere as a "gas" where they are expected to oxidize into sulphate particles several tenths of a micron. These nanoparticles are so minute in size that they enter into the bloodstream, water and air virtually every living organism on Earth undetected except for the 'ill effects' as mentioned in Dr. Keith's broadcast interviews.

Aluminum Oxide Nanoparticles (A1203) (see supporting document titled: US3007) states that tumorigenic effects have been documented in laboratory animals and that aluminum oxide is responsible for Alzheimer's disease and the increase of pulmonary disease [[ref 24](#)]. The document goes on to say that, '*to the best of our knowledge, the acute and chronic toxicity of this substance is not fully known.*' It advises not to allow release of said material without proper government permits.

The Welsbach Patent 5003186 (Stratospheric Welsbach seeding for reduction of global warming spraying with aluminum) was filed in 1990 by two scientists; David Chang and I-Fu Shih employed by Hughes Aircraft Company in California. The patent, outlines the use of Welsbach materials which are metal including 'aluminum oxide' in the apparent attempt to reduce greenhouse gases (GHG). These patents are owned by Raytheon Corporation today.

In the film, '[Why in the World Are They Spraying](#),' professionals from Forestry, as well as the US Food and Drug administration offer independent lab results with soil contamination of aluminum being 6,000 times the normal amount found naturally in the soil. Widespread soil and water contaminants has been confirmed and scientifically substantiated independently around the

World. Trees, birds and bees die off are common knowledge today. Yet, people are unable to make the connection between the loss of pollinators, forests, etc. with the deliberate and ongoing geoengineering technologies, in large part because they are not informed.

One scientist who has boldly stood out is Dr. J. Marvin Herndon, an interdisciplinary Scientist (Physics) with a PhD in Nuclear Chemistry from Texas A&M. Dr. Herndon has submitted three research studies to scientific journals on geoengineering programs, all of which were subsequently retracted.

The first research paper that Dr. Herndon published was in India's 'Current Science' journal entitled, *Aluminum poisoning of humanity and Earth's biota by clandestine geoengineering activity: implications for India* – 25th of June 2015. The second contributed piece entitled, "Evidence of Coal-Fly-Ash Toxic Chemical Geoengineering in the Troposphere: Consequences for Public Health" which appeared only briefly in the *International Journal of Environmental Research and Public Health* published on the 11th of August 2015, before it was retracted on the 15th of September 2015. The third, was published in June 2016 on-line in 'Frontiers'. This article was also retracted a month later and refuted by website Metabunk.org.

In his first contributed article, Dr. Herndon replies to an urgent request by 'Current Science' to help understand the geological association of high aluminum mobility with human health in the Ganga Alluvial Plain. Dr. Herndon goes on to describe the clandestine geoengineering activities which have continued over 15+ years and have been ramped up in the last several years (similar to Dr. Keith's interview where he mentions that the goal would be to ramp up the distribution of the aerosols watching for 'ill effects'). He outlines the widespread neurological diseases caused by aluminum mobility and the effects on the Earth's biota defined as - animal and plant life of a particular region or habitat.

Dr. Herndon writes, "*Life on Earth came into being and evolved under circumstances of extreme immobility of aluminum (Al), an element that comprises by weight about 8% of the crust. Consequently, the biota of our planet, including humans, failed to develop natural defense mechanisms for exposure to chemically mobile aluminum. Globally, for the past decade or more, with dramatically increasing intensity, our planet is being deliberately and clandestinely exposed*

to a non-natural substance which releases toxic mobile aluminum into the environment. Here I provide evidence on the dispersal and nature of the non-natural substance, describe its potential causality in a host of increasing human and biota debilitations, and discuss the implications for India in light of recently published extreme levels of chemically mobile aluminum observed in water from the Gomati River, a major tributary of the Ganga River in the Ganga Alluvial Plain in North India.” [\[ref_25\]](#)

He continues, *“But there has been no public admission, no understanding, no academic investigations, no informed consent, and no disclosure as to the nature of the toxic substances being dispersed into the air. Instead, there appears to be a systematic pattern of disinformation, efforts to brand concerned observers with the pejorative moniker, ‘conspiracy theorists’, and to falsely imply that the observed geoengineering toxic chemical trails are simply the formation of ice crystals from the exhaust of commercial jetliners flying at high altitudes.*

Herndon adds, *“During the period between July 2011 and November 2012, 73 rainwater samples were collected and analyzed for aluminum and barium; 71 were collected from 60 different locations in Germany, 1 from France and 1 from Austria. Aluminum was detected in 77% of the rainwater samples, at an average concentration of 17.68 μ g/l. The average barium concentration was found to be 3.38 μ g/l. Strontium, with an average composition of 2.16 μ g/l, was also observed in 23 rainwater samples.”* [\[ref_26\]](#)

Finally, Dr. Herndon states, *“After the US President Barack Hussein Obama was sworn in for a second term in office on 20 January 2013, geoengineering activities escalated sharply, becoming a near-daily occurrence in many parts of America. If coal fly ash geoengineering activities are the principal cause of aluminum-implicated neurological diseases, then there will be a sharp spike in their occurrences after 20 January 2013; proof, albeit horrific proof, of crimes against humanity and Earth’s biota of a magnitude and severity never before experienced.”* [\[ref_27\]](#)

In both contributed articles, Dr. Herndon presents his scientific evidence of what he deems is toxic coal combustion fly ash being the most likely aerosolized particulate sprayed by tanker jets for geoengineering purposes.

In Dr. Herndon's research, he demonstrates the comparison of 8 elements analyzed from rainwater and a comparison of 14 elements analyzed in dust collected outdoors with their manifold consequences for the public.

The elements found in the rainwater included: Boron, Magnesium, Aluminum, Sulfur, Calcium, Iron, Strontium and Barium. Measurements have been taken in the US, Canada, France, Portugal, Germany, Australia and New Zealand.

Dr. Herndon emphasizes that the consequences on public health are, *“profound, including exposure to a variety of toxic heavy metals, radioactive elements and neurologically implicated chemically mobile aluminum released by body moisture in situ after inhalation or through transdermal induction.”* [[ref 28](#)]

He continues, *“Chemically mobile aluminum is implicated in such neurological diseases as Autism, Alzheimer's, Parkinson's, ADHD (Attention Deficit Hyperactivity Disorder) and impairs the fertility in men and neurological disorders of bees.”*

Dr. Herndon urges investigations should consider airline flight crews, as well as frequent airline travelers who breathe the air at nearly the same altitude as the on-going spraying. The potential damage to public health and the environment is likely to be unprecedented in its planetary scope. He mentions on-going nighttime tanker – jet spraying presumably to hide activity from public view.

In June 2016, Dr. Herndon published yet another contributed article entitled, *“Human and Environmental Dangers Posed by Ongoing Global Tropospheric Aerosolized Particulates for Weather Modification”* available on-line for non-profit organization 'Frontiers' an open science platform taking publishing entirely on-line, headquartered in Lausanne, Switzerland. (www.frontiersin.org). [[ref 29](#)]

Dr. Herndon's article was retracted one month later on the 20th July 2016. Frontier's website states that their collaborative review process of submissions guarantees that they publish *‘all papers judged unanimously to be technically sound.’* Therefore, the subsequent retraction raised a few eyebrows amongst the citizenry with and without scientific backgrounds.

It may have been one of Dr. Herndon's article retractions that prompted US martial arts actor, Chuck Norris to weigh in on the conversation of geoengineering in his contributed piece for the on-line source World News Daily entitled, "*Why are Geo-Engineering Researchers Being Stonewalled?*" (November 2015).

In his 3-page article, Mr. Norris makes mention of "gag orders" being placed on agency employees of the U.S. National Weather Service, the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Commerce. He includes the quote that Bill Hopkins, an Executive Vice President for the National Weather Service Employees Organization (NWSEQ) filed with the U.S. Special Counsel to lift multiple nondisclosure policies. Mr. Norris attributes the '*suppression of free speech and public information clampdown on government employees as a direct result of the increased pursuit of citizens seeking truth about geo-engineering: the artificial modification of Earth's climate systems.*'[\[ref 30\]](#)

Mr. Norris's article mentions several prominent scientists, including Dr. J. Marvin Herndon (and his 2015 retracted articles); Dr. Coen Vermeeren (Professor of Aviation and Aerospace Engineer at the Delft Institute of Technology (Delft, Netherlands) and his findings regarding a 336 page anonymous report titled, '*The Case Orange Report: Contrail Science, it's impact on climate and weather modification programs conducted by US and Allies,*' as well as Dr. William R. Travis, Associate Professor of Geography at the University of Colorado Boulder and formerly director of the Center for Science and Technology Policy Research from 2008 – 2013.

We shall explore this report mentioned in Mr. Norris's article written by anonymous Scientists entitled, Case Orange and reviewed and addressed by Dr. Coen Vermeeren of Delft Institute of Technology in the Netherlands in the following chapter.

IV. The Case Orange Report

The Case Orange Report was anonymously prepared by a team of Scientists for the Belfort Group and was distributed to embassies, news organizations and interested groups around the World to force debate on climate and weather modification. The Belfort Group held a symposium on the 29th of May 2010 in Brussels where they invited Dr. Coen Vermeeren to discuss the report and his evaluation of the research – which can be viewed on YouTube.

Mr. Norris states in his article, “*Vermeeren’s conclusions about the report at the end of his speech were these: 1) There are extensive amounts of verifiable references in it, 2) it is a proper investigation; 3) conclusions are well backed up by the research, 4) not all of the ongoing discussion is brought into the research, 5) recommendations are valid, and 6) although most evidence could be described as circumstantial, 7) health issues could (should) be further discussed.*” [\[ref 31\]](#)

The Case Orange Report provides the reader a timeline of weather modification technologies which date back to the WWII (World War II). A few examples include:

1943 Atmospheric seeding for enemy purposes by the UK (chaff) interrupts enemy radar

1947 Operation Cirrus seeding clouds with ice particles; an experiment to mitigate a typhoon which failed miserably and resulted in lawsuits (which was kept quiet)

1962 Operation Storm Fury – modify the path of hurricanes through seeding

1967 Operation Pop-eye – Monsoon was extended by 45 days in the Vietnam War

1986 Chernobyl disaster – Russia seeded clouds so that the fallout didn’t hit Moscow but rather Belarus

1995 H.A.A.R.P (High Frequency Active Auroral Research Program) test run. US Army/Navy manipulating our ionosphere. 10 Ionosphere heaters exist in the World today – 4 in the U.S.; 5 in Russia; and 1 in Norway – official claim is civil use to study the Aurora Borealis.

The Report highlights the companies owning the patents for weather modification including Hughes Aircraft (previously mentioned), Arco Power Technologies and E-Systems which were all bought out by Raytheon Corporation – the main supplier contractor for US Aerospace and Defense Industry. It is believed, by the team of Scientists who authored the report, that the US wants dominance by all means and that weather modification is part of the National Security Policy with domestic and international implications.

In James Rodger Flemings book, “*Fixing the Sky: The Checkered History of Weather and Climate Control*,” he reveals that weather modification historically dates back even further to the 1830s when US Meteorologist James Pollard Epsy stimulated rain by controlled forest burning. He was given the name – ‘storm king’. [[ref 32](#)]

The Case Orange report states that ‘climate control programs controlled by the military, but approved by governments are silently implemented in order to avoid the worst case scenario (whatever *their* definition may be). The general public is kept in the dark and the possibility of secrecy orders in the name of ‘National Security’ means that certain patents may be confiscated therefore, the public would have no knowledge of its’ composition, so states the report.

It continues, that in Russia and China spraying is legal while in the US spraying is legal according to a public law of July 1977 – Public Law of the US, Law 95 – 79, Title VIII, Sec. 808, July 30, 1977. Codified as 50 USC 1520 under Chapter 32, Chemical and Biological Warfare Program.

This report highlights just one health issue, noted as a weakness in their report by Dr. Coen Vermeeren, known to commercial aviation – Aerotoxic Syndrome which comes from ‘bleed air’ which is air drawn into the cabin from the engines contaminated with hydraulic fluids, engine oils and gases. Dr. Vermeeren suggested that more health issues could have been raised in this report.

In the conclusions of Case Orange, they state that:

1. Manipulation of Climate through modification of cirrus is neither a hoax or a conspiracy theory, the best option considered by decision makers to counter global warming.
2. The US desire to control the weather both nationally and internationally.
3. Technology to organize spraying actions on a global scale is widely available. Both civil and military aviation is used for that purpose. Further, the mix containing metal oxides and chemical components can either be disperse through special designed pods or directly incorporated into the jet fuel.
4. Since the patents are owned by the main defense contractor (Raytheon) for the US Armed Forces or the Department of Defense itself – current climate manipulation programs are organized and directed by the US government.
5. Spraying actions in Europe are only possible with prior approval and intense coordination on top government level and industry on executive level.
6. The general public is intentionally kept unaware of the existence of such projects. [\[ref_33\]](#)

Their recommendations suggest:

- Starting a new investigation from scratch as scientific study is hampered by conspiracy context of contrails.
- Using new nomenclature i.e. weather modification, geoengineering, cloud seeding, etc.
- Artificial cirrus clouds should be classified as a separate cloud genus by the WMO
- Additional scientific research with effects on nature and public health – whatever the outcome the public should be made aware (key).
- Unacceptable that AWACS aircraft fleet under NATO operate under a Luxembourg civil registration without complying with civil aviation regulations. Given the very unfavorable engine emissions ratios of the aircraft.
- Legal case should be brought against industrial group (i.e. Raytheon), rather than a government agency.
- Urges for a serious politician, at any level, to make enquiries to the government for public release of these spraying schemes through aviation making it mandatory that such statement should include the reason why such operations are conducted. [\[ref_34\]](#)

It is interesting to note that one failed House of Representatives Bill - 2977 entitled The Space Preservation Act of 2001 (107th Congress 1st Session – Bill of House of Representatives) proposed and introduced by Mr. Kucinich refers to the Committee on Science, and in addition to the Committees on Armed Services and International Relations. This bill attempted to preserve the cooperative, peaceful uses of space for the benefit of humankind otherwise known as the Space Preservation bill. It went on to specifically mention in Section 7 Definitions (2A ii) “Inflicting death or injury on, or damage or destroying, a person (or the biological life, bodily health, mental health or physical and economic well-being of a person) – through the use of any of the means in the clauses in subparagraph B - including - chemtrails”.

The Act goes on to state that the term “exotic weapons systems” includes, “weapons designed to damage space or natural ecosystems (such as the ionosphere and upper atmosphere - referring also to H.A.A.R.P) or climate, weather, and tectonic systems with the purpose of inducing damage or destruction upon a target population or region on earth or in space.” [\[ref_35\]](#)

Little wonder then that Dr. Stephen Hawking, one of the World’s foremost Scientists, was recently quoted as saying “*people should leave the planet before the ruling elite destroy it.*” in the BBC article, ‘*Humans at risk of lethal own goal*’ by David Shukman (2016). [\[ref_36\]](#)

V. Transparency, Governance and Regulation

A. Transparency

There is no doubt that there are enormous risks and significant uncertainties to the deployment of Geoengineering technologies that not even Scientists or the best ‘computer models’ in the World may predict. This sentiment is shared by The Royal Society in their reports, as well as the NGO – SRMGI (Solar Radiation Management Governance Initiative) formed by The Royal Society, EDF (US) and TWAS (Developing Countries) to ‘open up’ discussions on SRM. (See Royal Society Report on Solar Radiation Management pg. 14).

The long-term objective of SRMGI is to, “build a diverse community of well-informed international stakeholders engaged and able to contribute to these on-going debates.” The Steering Group invited a working group of 27 members from 17 different countries to explore the different governance issues. (Background papers are available on: www.srmgi.org). Their website’s headline: “Join the Global Conversation”.

The report states, “*SRM is a controversial issue that has potentially serious global implications and SRMGI believes that multi-stakeholder discussions, alongside international network building will strengthen humanity’s ability to handle the issue.*” [ref 37]

Since the discussion has been kept strictly within the Scientific Community, Policy decision makers, Governments and the ‘ruling elite’ - it is critical more than ever to ‘raise awareness’ of altering our atmosphere amongst global citizens in order to demand immediate transparency and a global ban.

In 2011 the National Environment Research Council (NERC) co-funded by Sciencewise Expert Resource Center (ERC) published a report entitled, “Evaluation of ‘Experiment Earth?’ Public Dialogue on Geoengineering,” (March 2011). This report was prepared by Collingwood Environmental Planners and was co-authored by Collingwood Environmental Planning Limited (www.cep.co.uk), as well as Atmospheric Scientists from Imperial College.

In this survey, 85 people from areas such as Cornwall, Southampton where met with to introduce the idea of Geoengineering and the various geoengineering technologies being proposed to combat climate change. The technologies introduced were Carbon Dioxide Removal (CDR), Solar Radiation Management (SRM), iron fertilization of the Oceans and others.

The overwhelming response of the participants was that they were ‘fearful’ of SRM strategies. One such participant was quoted in the report as saying, “*Some of the discussion, far from being open-ended, was engineered to justify some of the preferences...I had the feeling that we were being led to a pre-determined conclusion.*” [ref_38]

The survey goes on to highlight the fact that the public was not engaged on the topic of genetically modified foods (GMO) which resulted in a major public backlash. It was therefore highly recommended and ‘good practice in upstream engagement, involving not only the transmission of information from ‘experts’ to the members of the public, but also a process of dialogue between Scientists and the public.’ [ref_39]

Therefore, the argument for *greater transparency* validated by the NERC’s very own report.

Yet, the majority of humanity has been kept purposely in the ‘dark’ on geoengineering and what official documents and research are calling ‘stratospheric aerosol programs’ - the accuracy of such a term being questioned by some brilliant minds in the scientific field.

This is despite numerous articles written by prominent nuclear and astrophysicist scientists denouncing any implementation of such technologies in specialist trade publications. The alteration of our atmosphere has been repeatedly verified by numerous global eyewitness accounts using photography, video, scientific experiments and data collection from around the World. Independently, experiments of contaminated soil, dust and water samples have been provided by numerous scientists and individuals.

Today’s *control man*, is able to circumvent all legal, moral, ethical and democratic processes by directly implementing geoengineering programs without the knowledge or approval of World citizens. The majority of the masses increasingly blinded by the technological revolution and the

myriad of gadgets meant to serve their insatiable appetite for consumerism and universal materialism thwarts the critical attention required in order to question such policies.

The ability to question the decisions being made on behalf of the citizenry has slipped into the abyss, in large part due to the masses being denied the ‘truth’ from mainstream media and broadcast they came to rely on as the ‘bearers of democracy’, as well as a series of deliberate ‘misinformation’ campaigns and strategies. The Media is no longer trusted for delivering non ‘agenda’ or propaganda driven information and news.

At the beginning of 2016, The Forum for Climate Engineering Assessment posted a video on-line by Simon Nicholson (www.dcgeoconsortium.org) calling for an “open” public debate on geoengineering post the recent UN Paris Climate Conference - Conference of Parties 21 (CoP21). Interesting to note that despite the articles, videos and think tanks, scientists, scholarly reports and website slogans requesting an open dialogue not one has come forward to state that geoengineering and the alteration of our atmosphere is on-going.

Yet, in every ‘grand plan’ there is *always* an Achilles heel.

B. Governance

One of the more difficult issues to be addressed concerning geoengineering technologies is the issue of governance. Who decides to control the World’s thermostat, amongst a myriad of other questions arise. The Royal Society working in collaboration with the UK Government (as stated in the 5th Report Session of 2009 – 2010), says, that it is ‘highly undesirable’ to deploy SRM before appropriate governance mechanisms are in place. It continues, ‘governance challenges to be explored and policy processes established as a priority.’

They limit the ‘international’ dialogue to the following groups:

- Scientific community
- Policy Decision Makers
- Commercial interests
- Non-Governmental Organizations

Their report continues, *‘the greatest challenges to the successful deployment of geoengineering may be the social, ethical, legal and political issues associated with governance, rather than scientific and technical issues.* [[ref 40](#)]

The report highlights the risks being:

- Could be deployed by individual nation states (as in NATO countries)
- Corporations (GE, Aerospace, etc.)
- Wealthy individual w/o appropriate regulation or international agreement

In an interview given by Scientist David Keith of Harvard University on BBC HardTalk 2011, he discussed the possibility of spraying aerosols, *"we would ramp it up very slowly watching for ‘ill effects’ and benefits over a decade or two. There is no guarantee to safety.* He continues, *"The technology is evolving more quickly than the ability to govern them."* [[ref 41](#)]

Given the fact that scientists have historically been unable to govern their destructive creations (most notably the Atomic bomb) Dr. Keith’s admission is alarming.

In the interview with Dr. Alan Robock of Rutgers University by Elizabeth Eaves of *The Bulletin of Atomic Science*, Dr. Robock refers to Richard Branson as being an example of a wealthy individual (with a fleet of aircraft) who could potentially deploy ‘stratospheric aerosols’ if so desired.

It is an interesting side note (Author’s observation) that recently Richard Branson launched a non-profit organization called, ‘The B Team’ calling for net-zero emissions by 2050 at the UN Climate Change conference in Paris (2015). Coincidentally, The Royal Society’s report equally mentions a ‘Plan B’ otherwise known as - the utilization of Geoengineering technologies to address ‘catastrophic climate change’.

‘The B Team’ includes Media owners such as Arianna Huffington of Huffington Post, owned by AOL Time Warner Company, as well as Dr. Gro Harlem Brundtland, formerly Director General of the World Health Organization (1998-2003), who was also three times Prime Minister of Norway.

Calling themselves ‘The Elders’; Mr. Branson is the mastermind behind forming this group touting themselves as “Independent Global Leaders”.

In his interview on HARDTalk, Scientist David Keith admits that he is willing to accept funding from individuals such as Mr. Branson, who has committed millions of dollars in investment to his CDR (carbon dioxide removal) technology company.

The Royal Society’s Geoengineering Report refers to what they call a “termination problem”. This means the failure or abrupt cessation of what they have defined as ‘stratospheric aerosol programs’ which as they claim would unleash a rapid and sustained rise in temperature. The Royal Society continues, ‘*SRM methods do nothing to reduce atmospheric concentrations of CO₂ or the rate they increase.*’ [ref 42] They spell out the safety challenges as:

- Possible adverse effect on stratospheric ozone
- Effects on high-altitude tropospheric clouds
- Potential effects on biological productivity

The National Academy of Sciences, ‘Climate Intervention’ study of 2015 states that, “*abrupt termination could lead to significant ecosystem, agriculture and societal impacts that would have not existed had albedo modification never been deployed, but these potential impacts are largely unknown at this time.*” [ref 43]

Yale University’s non-profit organization dedicated to raising awareness on climate change (www.yaleclimateconnections.org) published an article entitled, ‘*Strange Bedfellows? Climate Change Denial and Support for Geoengineering*’ by David Appell. The article states that, “*SRM does nothing to stop Ocean acidification, instead creating a World never seen before, high in carbon dioxide while relatively low in temperature.*” [ref 44]

The article includes Clive Hamilton who wrote, “*Earthmasters: The Dawn of the Age of Climate Engineering,*” who maintains that the ‘*dominant power structures of Society especially the roles of energy mega-corporations who have a great deal to lose (in converting to ‘green’ technology) have a great deal to lose from any shift away from fossil fuels.*” [ref 45]

Hamilton who teaches at Charles Stuart University in Canberra Australia writes, *“These results are consistent with the general argument that conservatives tend to take a more hierarchical view of society, as a natural order whereby some groups are dominant and some are subservient.”* [[ref_46](#)]

The Royal Society’s report is clear to point out that *‘entirely new environmental conditions with impacts on biological systems that are hard to predict and many potential effects will be non-linear and have complex effects throughout our ecosystem.* However, they also acknowledge that, *‘stratospheric aerosols appear to be the most promising and that they can be rapidly developed and implemented.’* [[ref_47](#)]

There is also mention of the ‘slippery slope’ meaning that if there were possible misuse of the technology that this could give rise to conflict(s) and violence - in other words, nuclear war.

The greatest concern of the governance of SRM technologies and the suite of geoengineering technologies being proposed and unleashed already on our planet is that this technology would further aggravate the already disproportionate economic disparities between developed and less developed nations.

In his testimony to the U.S. House Committee on Science and Technology, Dr. Robock clearly writes, *“Geoengineering should only be implemented in response to a planetary emergency. However, there are no governance mechanisms today that would allow such a determination. Governance would also have to establish criteria to determine the end of the emergency and the ramping down of geoengineering. Examples of climate circumstances that would be candidates for the declaration of a planetary emergency would include rapid melting of the Greenland or Antarctic ice sheets, with attendant rapid sea level rise, or a catastrophic increase in severe hurricanes and typhoons. Even so, stratospheric geoengineering should only be implemented if it could be determined that it would address these specific emergencies without causing worse problems .And there may be local means to deal with these specific issues that would not produce the risks of global geoengineering.”*[[ref_48](#)]

Therefore, these conflicts aggravated by the clear disparity between nation states could lead to nuclear war and ‘nuclear winter’ producing global famine among other serious consequences as

mentioned in Dr. Alan Robock's interview in *"Cloud Control: Climatologist Alan Robock on the Effects of Geoengineering and Nuclear War"*.

As a foremost expert on the potential climatic impacts of nuclear explosions, Dr. Robock states, *"by producing smoke that blocks the sun's rays, a nuclear war could cause a nuclear winter cooling the planet catastrophically and causing global famine."* When asked about geoengineering methods, Dr. Robock states, *"If we try to compensate for warming with engineering projects on the only planet known to sustain intelligent life, it's still just too scary."* [[ref_49](#)]

In Dr. Robock's testimony to the U.S. House Committee, he states. *"In light of the importance of this issue, as outlined in Robock (2008b; Supplementary Material 5), I recommend that the U.S., in collaboration with other countries, embark on a well-funded research program to "consider geoengineering's potential benefits, to understand its limitations, and to avoid ill-considered deployment" (as the American Meteorological Society says in Supplementary Material 2). In particular, the American Meteorological Society recommends: 1) Enhanced research on the scientific and technological potential for geoengineering the climate system, including research on intended and unintended environmental responses. 2) Coordinated study of historical, ethical, legal, and social implications of geoengineering that integrates international, interdisciplinary, and intergenerational issues and perspectives and includes lessons from past efforts to modify weather and climate. 3) Development and analysis of policy options to promote transparency and international cooperation in exploring geoengineering options along with restrictions on reckless efforts to manipulate the climate system. I support all these recommendations."* [[ref_50](#)]

Finally, there is mention of the **UN Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques** in his testimony to the House Committee on Science and Technology. He states, *"The current U.N. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques will have to be modified. *It will have to be modified to allow geoengineering that would harm any of the signatories."* [[ref_51](#)]

The prestigious Oxford University where a majority of Prime Ministers in the UK have proudly attended and graduated from has today a school for geoengineering called the Oxford Martin

School - Oxford Geoengineering Programme. In 2009, the Oxford Principles were submitted to the UK House of Commons Science and Technology Select Committee on ‘The Regulation of Geoengineering’ (previously discussed). The principles were authored by Steve Rayner, Tim Kruger, and Julian Savulescu of the Oxford Geoengineering Programme, including Catherine Redgwell of University College London and Nick Pidgeon of the University of Cardiff. The Oxford Principles stipulate on the University programme’s website (www.geoengineering.ox.ac.uk/oxford-principles), that “*any decision with respect to deployment only be taken with robust governance structures already in place in order to ensure social legitimacy.*”

The Committee, as well as the UK government, has endorsed these principles and is the only official national policy statement on geoengineering in the World. They proudly claim that it represents an important step into insuring that geoengineering is managed in a responsible manner. [ref 52]

The Oxford Principles are:

Principle 1: *Geoengineering to be regulated as a public good.*

Principle 2: *Public participation in geoengineering decision-making*

Principle 3: *Disclosure of geoengineering research and open publication of results*

Principle 4: *Independent assessment of impacts*

Principle 5: *Governance before deployment*

The Oxford Principles note that: ‘any decisions with respect to deployment should only be taken with robust governance structures already in place, using existing rules and institutions wherever possible.’ (www.geoengineering.ox.ac.uk/oxford-principles/principles)[ref 53]

These principles were also presented and agreed to at the 2010 Asilomar Conference on Climate Intervention Technologies (aka geoengineering) in California where geoengineers researchers gathered.

In a press release issued on the 11th of September, 2011 entitled, ***‘Oxford Principles’ Provide a Code of Conduct for Geoengineering Research*** available on their website states, *“The need now is to further develop such governance arrangements in an international context and with broad engagement to ensure that such research has a social license to operate.”* One does interpret ‘social license’ as meaning the public’s knowledge and acceptance of geoengineering programs, which still does not exist today.

Oxford Martin’s School, Oxford Geoengineering Programme on their website states, *“It is unclear how governance of climate geoengineering will be taken forward, but there does need to be serious consideration about how research should be conducted and how decisions whether or not to deploy any resulting technology should be made.”* [[ref_54](#)]

An obvious suggestion, is to openly and honestly inform, educate and ‘raise awareness’ of geoengineering technologies, and the current on-going alteration of our atmosphere and planet without any further delay.

For if not, those institutions and agencies risk a substantial ‘backlash’ by citizens (similar to genetically modified organisms GMO) which may result in unwanted social upheaval and unrest.

Given that air, like water, is a natural resource that all living beings and creatures require to live; any alterations to the composition of our atmosphere affecting life on this planet is by its’ very definition’ everyone’s ‘inalienable right’ and therefore concern. The private sector cannot bottle air, as they have done with water, nor deprive humanity of this natural resource which sustains all life forms.

C. Regulation

In the Government Response to the House of Commons Science and Technology Committee 5th Report of Session 2009 – 2010: The Regulation of Geoengineering, the UK Government acknowledges the Committees (now defunct Department of Energy and Climate Change (DECC), with contributions from GO-Science, BIS now BEIS, Defra, FCO, RCUK) recommendations for more *“international collaboration and co-ordination towards developing*

robust international instruments and regulatory frameworks to cover such diverse, complex and potentially ‘planet changing’ technologies.”[\[ref 55\]](#)

However, Government’s response continues, “*the current low level of understanding of the risks and impacts of geoengineering options and the present early development stage of technologies, means that it would be difficult at the present time to formulate effective or appropriate regulatory regimes for geoengineering research and deployment to cover all possibilities that might receive serious attention.*” [\[ref 56\]](#)

The response by the UK Government is that ‘any regulatory framework for geoengineering cannot be uniform.’ They also go on to give a ‘scoring’ system for geoengineering methods whereby those which score on the “low end” should be subject to no additional regulation.

In their report on Geoengineering, the Royal Society scores SRM or Stratospheric Aerosols under the safety category as low. The former Department of Energy and Climate Change identified a ‘*gap in the regulatory framework for geoengineering techniques, especially for SRM techniques.*’[\[ref 57\]](#)

Simultaneously, the UK Government report states that they feel it is important that the public has a clear understanding of science issues and of their impact on their lives. Enter the Media ‘gate keepers’ to ‘control’ and deliver specific ‘key messages’ mandated by the ‘ruling elite’ and the intelligence community - those who control our airwaves, internet and press today.

The UK Department of Energy states that “*Public participation in geoengineering decision making is to be supported, but it needs to spell out in the explanatory text what consultation means and whether, and how, those affected can veto or alter proposed geoengineering tests.*”[\[ref 58\]](#)

The UK Government Response to the House of Commons Science and Technology Committee openly admits, “*We believe that our principal international priority should be to get agreement on a robust global mitigation framework that is backed up by ambitious national targets and actions, rather than raising the issue of geoengineering.*” [\[ref 59\]](#)

The InterAcademy Council (IAC) is a multinational organization based in the Netherlands. It states on their website that they, “*produce reports on scientific, technological and health issues related to the great global challenges of our time, providing knowledge and advice to national governments and international organizations.*” Notable members include: The Royal Society, The U.S National Academy of Sciences, TWAS (the World Academy of Sciences), IAP (a global network of science academies) and more. Therefore, as we have seen earlier from the SRMGI initiative on the governance of geoengineering, the same organizations are mentioned here. Ultimately, the IAC is an ‘umbrella’ or ‘over-arching’ organization for national science academies from around the World.

Under its’ heading of ‘IAC in Brief’ it states that it released its’ first report in 2004 entitled, ‘*Inventing a Better Future: A Strategy for Building Worldwide Capacities in Science and Technology.*’ Within the last decade, it has published reports, as well as a review of the Intergovernmental Panel on Climate Change (IPCC) and together with the IAP jointly published a report on Responsible Conduct in the Global Research Enterprise.

Incidentally, this report begins with a quote by the Indian Physician Vāgbhaṭa (6th century A.D.) as quoted, “*All creatures seek happiness in whatever they do; but happiness cannot be had without righteous conduct. Therefore, righteous conduct is obligatory for all.*”

VI. The Media ‘Gate Keepers’

The 1976 Academy Award winning movie **Network** (starring Faye Dunaway, William Holden, Peter Finch and Robert Duvall) portrays a television station struggling with poor ratings. Finch, who plays ‘Howard Beale’, a middle – aged anchor- man, is about to lose his job and intends to end his life on his last show. “Diana” (Faye Dunaway), is a prominent network executive who decides to use Howard’s midlife crisis to the network’s advantage. They decide to turn his “final” program into pure entertainment.

In one of the most memorable scenes, Howard Beale goes on to attack television viewers on their lack of interest in books and therefore, boredom. The only truth the audience knows is admittedly coming out of ‘a tube’. He sarcastically likens the television to the 'gospel'. Vehemently he tells the live audience, *‘woe to us if it [network] ever falls into the hands of the wrong people. What will happen if a network should fall into a powerful company’s hands who becomes owner of the most powerful propaganda weapon in a Godless World?’* [\[ref 60\]](#) He reprimands viewers searching for the ‘truth’, *‘to seek God, a guru or themselves’* but, certainly *not* the media.

Fast forward 40 years and our television networks today have indeed fallen into the hands of powerful Corporations, owned by a handful of ‘ruling elites’. Corporation owned networks are delivering their ‘agenda’ and what *they* want viewers to believe, not what viewers *need* to know. Misinformation is the ‘rule of the day’ and offered up to unquestioning masses indiscriminately.

The topic of geoengineering, climate engineering and stratospheric aerosol programs therefore has been largely kept out of the general public’s awareness and vocabulary due to a lack of visible reporting by global mainstream media and press outlets. In a recent Gallup poll (U.S.) however, less than 30% of Americans surveyed trust the news they receive. Little wonder then that the media has been dubbed recently as, *‘weapons of mass deception’*.

Supporting the ‘agenda’ driven information, but much less visible by all accounts is the intelligence community. One need only look back historically to the 1950’s and an infamous

campaign code named - 'Operation Mockingbird'. This campaign would later come under intense investigation by Senator Frank Church (D-Idaho) of the U.S. Senate in 1975. It is important to have knowledge of this historical investigation to understand more fully our global media landscape today.

The campaign 'Operation Mockingbird,' was launched by the United States Intelligence (CIA) and was created by Cord Meyer and Allen W. Dulles – the first civilian and longest serving Director of the CIA. Operation Mockingbird was responsible for arranging 'assets' amongst American and foreign media. These 'assets' included leading journalists, editors, reporters and owners of major newspapers and broadcast media who had agreed to prevent the dissemination of critical information to the 'masses'. These entities had little choice but to 'toe the line,' and deliver the approved 'agenda' - orders of the intelligence community.

In 1975 an investigation into 'Operation Mockingbird' by the Senate Select Committee was launched. The Committee found the CIA guilty of persuading American and foreign media as 'gate keepers' by preventing the dissemination of *critical* information from being published and 'reaching the masses'. Philip Graham, then owner of *The Washington Post* in the 1950's, was one of the first to be recruited and to run the project within the 'industry and develop a network of assets'; CBS was another example of a mainstream broadcast entangled in the deception.

At the end of the investigation with a 'guilty' verdict, George H.W. Bush Sr., then Head of the CIA (from 1976 – 1977) informed the Senate Select Committee that there was nothing more to worry about. The 'assets' had all been taken care of. Or had they?

Given this historical knowledge, it would certainly be naïve to believe that our media and press are *not* experiencing similar situations today. They have ceased to be 'defenders of the truth'. Howard Beale's rant in the movie **Network** ringing ever more true today.

The need for 'control' of the masses through 'misinformation' and the prevention of critical information has remained unchanged. Yet for many questioning and educated adults the 'wool cannot be pulled over their eyes'. One such example was the recent Brexit referendum in the United Kingdom when a slew of 'fearmongering' campaigns took over the international broadsheets, airwaves and mainstream global news.

The PR strategy drawn up by communication advisors to the ‘ruling elite’ and Policy decision makers backfired miserably, as the majority of citizens went to polling stations to vote ‘Leave’. Despite the negative and pessimistic forecasts, warnings and fear unleashed by US/UK Spy Chiefs, The Bank of England’s Head Mark Carney (who was seriously reprimanded for becoming involved in the fray), and even US President Obama’s surprise visit, whereby he stated that the UK would end up at the ‘back of the queue’, the overwhelming vote to “leave” the European Union was hailed on the 23rd of June 2016.

Brexit demonstrated that the ‘control of the media’ resulted in a major backlash which the ruling elites and Leaders may have not anticipated. Whether their new PM Mrs. Theresa May and the British Parliament uphold their citizens vote in invoking article 58 of the Treaty on European Union is another story.

The fact is that the control of the media today lies in the hands of just under a dozen Corporations who own all media, cable & internet, print and radio broadcast in the United States alone. The US Corporations who own the majority of the Media are: Clear Channel, CBS Corporation, Comcast Corporation, Gannett Co., News Corp. Time Warner, Inc., Tribune Company, Viacom, Walt Disney Company, Washington Post Co. (source: www.FreePress.net)

Less than 10 corporations own all Cable and Internet companies and only a half-dozen Corporations own print (broadsheets and newspapers). How did this happen?

In 1983, Hollywood Actor turned U.S. President Ronald Reagan took the decision to deregulate the US networks. Prior to this decision, there were 53 corporations in the United States in control of all networks. The non-profit organization Free Press, highlights that media moguls have monopolies in markets throughout the United States, owning both television networks and radio stations in one county thereby ‘depriving communities of differing points of view.’ [[ref_61](#)]

Given that less than a dozen corporations in the US are in control of the Media and responsible for all messaging, content and information disseminated across the networks, airwaves and internet to approximately 300 million US citizens – one can rest assured that we are receiving the messages and content these corporations, as well as the intelligence community *want* us to hear, and believe.

Across the Pond in Great Britain the matter is on par with the situation in the U.S. Media Reform Coalition website states, “*Britain has one of the most concentrated media environments in the World.*”

The Journal of Media Law echoed this sentiment stating, “*Where a few firms dominate the media landscape they exercise considerable control...there is now a convincing body of evidence to suggest that particular corporate or political affiliations can lead to media bias or the suppression of information.*” [\[ref 62\]](#)

Monopoly control therefore, challenges the health of democratic nations by suppressing vital and critical information to its citizens and no more evident is this truth than with regards to geoengineering, weather modification and altering the atmosphere.

Given this information, it shouldn't come as a surprise then that there are already well-known journalists who have written books and contributed articles in *favor* of ‘geoengineering’ recently.

Today's ‘assets’ are able to build a respectable ‘case’ in favor of geoengineering in a manner which is both validated (being that it comes from a “reliable” source) and written in a manner which presents the difficulty of adopting such technologies, and the “necessity” of examining them.

Two such journalists who recently unveiled a book and article in favor of geoengineering are: Oliver Morton, Briefings Editor of *The Economist* and his new book, ‘***The Planet Remade: How Geoengineering Can Change the World,***’ (November 2015) and Thomas Kostigen, a *New York Times* best-selling author and journalist, who contributed a column to *The Washington Post* for their ‘***In Theory***’ column entitled, “***If We’re Going to Fix Climate Change, We’re Going to Have to Get Creative,***’ (Jan. 7. 2016).

Mr. Kostigen has called on ‘humans to innovate and create a modified World that is safe for all.’[\[ref 63\]](#) Once again, the historical ‘darling’ of the intelligence community - *The Washington Post* is front and center stage.

It's also interesting to note that Mr. Kostigen has begun to infiltrate UK Financial trade publications as Editor-at-Large of both *Financial Advisor* and *Private Wealth Magazine*. One need only read his article in the UK financial trade publication - *Financial Advisor* entitled, "Invest in Weather" (2014) as proof of the press and media assisting this specific group of geoengineers with funding for geoengineering technologies.

In his contributed piece, Mr. Kostigen calls for a global impact investment fund citing the World Meteorological Organization requiring more 'accurate technologies' and climate modeling that are in dire need of funding. He ends his short piece with, "The payoffs would be enormous. Someone should start one now." [\[ref 64\]](#)

Ross Andersen, Editor of *The Atlantic* one of America's oldest magazines and now based in Washington D.C., interviewed Oliver Morton, Briefings Editor of the prominent UK publication *The Economist*, on his new book entitled, "*The Planet Remade*" (Princeton Press Nov. 2015).

In this published interview, Mr. Morton states that, geoengineering technologies are 'notional technologies' denying any current deployment of these technologies, as specifically mandated by those in charge. This 'key message' continues neatly a PR campaign driven by manipulation and misinformation of the masses.

Shortly after the publication of his book, Mr. Morton together with geoengineer Scientist and enthusiast, Ken Caldeira began roadshows in California touting his new book. Not surprising then, that Mr. Caldeira currently has several technologies which he is seeking funding for from Wall Street. That much more ideal to have a seasoned Editor, of an influential financial news magazine (50% owned by the English branch of Rothschild and Agnelli family) as a celebrated endorser. It appears that Mr. Morton has also been invited as Speaker at next year's 'New Scientist Live' conference in London, England 28th September - 1st October 2017) at the ExCeL London, Royal Victoria Dock, Newham Borough . The subheading under Mr. Morton's book title reads, "It's time we thought through our ability to hack the planet."

Given these examples it is possible to believe that these journalists and editors, amongst others, are being used as "assets" to communicate a specific propaganda and agenda; and that similar to Operation Mockingbird are acting as 'gate keepers' in preventing critical information to citizens.

Given that these two individuals are financial journalists, the obvious PR strategy here is to seek fresh funding from Wall Street, global Financiers, as well as the private sector. It is Wall Street and the private sector who will continue to finance the advancement of geoengineering technologies, alongside government and tax-payer's money.

Where there is money to be made, regardless of the dangers or consequences, there will always be Wall Street, global Financiers assisting Policy decision makers in geoengineering the only Planet known with intelligent life. The 'bottom line' is profit.

Coinciding with the timing of the publication of the National Academy of Science study entitled, "*Climate Intervention: Reflecting Sunlight to Cool Earth*," Admiral David Titley (one of the Committee Members on the National Academy of Science) appeared in an article published for Forbes Magazine.

The article entitled, "*Four Reasons to Study a Bad Idea: Geoengineering*," by Jeff McMahon (Feb. 2015) features Admiral Titley, a former head of the US Navy's Oceanography command, who gives several reasons why we need to study geoengineering. In this interview, Mr. Titley, now at Pennsylvania State Center for Solutions to Weather and Climate Risk, calls SRM "Reflecting sunlight – 'like spraying perfume on trash. We're not actually fixing the problem - we're trying to pretend it's not there.'" [[ref_65](#)]

One of the 'key messages' here is 'climate intervention' used both in the article and the study published by the NAS. Their desire - that the public believe that they are 'intervening' on behalf of humanity. It is a subtle way of 'spinning' a message in the media or press in order to manipulate the general public. The aim is simple: insure that the masses believe that geoengineering technologies are 'intervening' for the 'greater good' of humanity and the planet. Never mind, that the majority of unsuspecting citizens are not even apprised of what these technologies are made up of, let alone knowledgeable of the serious health *risks* and catastrophic environmental consequences, not even known by the scientists themselves.

Denying the public the truth about geoengineering programs and preventing it from mainstream media (owned by a handful of wealthy individuals), ultimately denies citizens the ability to come to educated conclusions about these technologies and their effects' on the environment and

public health. This strategy demonstrates to many a potential ‘cover – up’ and an unwillingness to be ‘up front’ with their citizens. They are then able to bypass national laws and international treaties which were specifically created for the protection and legal rights of the citizenry.

Geoengineers and financial journalists are strange ‘bedfellows’ and a PR strategy not likely to succeed.

Due to this stranglehold of today’s major media outlets, networks, and the press it is abundantly clear to many that the ‘truth’ of the actual deployment of Geoengineering technologies and SRM (or ‘albedo modification’) has been largely censored despite numerous attempts by some concerned journalists, broadcast veterans and editors to bring this ‘story’ to the light.

By now, it should be very clear as to why the average World citizen has never heard of the term Geoengineering, nor is knowledgeable of what ‘global dimming’ or even solar radiation management means. Furthermore, many citizens have no understanding of the serious health consequences and safety risks associated with aerosol patents ‘raining down’ upon civilization.

What we do know, is that a specific ‘group’ *does not* want us to be informed and that ‘misinformation’ and public ridicule is the rule of the day. Fortunately, this ‘group’ of individuals (agencies and institutions) does not include the scientists, scholars, scientific academies, NGO’s such as SRMGI, Oxford Principles whose written statements recommend a *widespread public debate* and ‘social license’ prior to deployment. As John Shepherd, Chair of The Royal Society’s reports on Geoengineering and Governance of SRM reassures in his testimony to the U.S. House Committee on Science and Technology, “***we should have widespread public debate and widespread engagement.***”

Given what we do know today, the movie *Network* seems to underscore our very understanding of today’s ‘control’ of the media and the prevention of critical information from being disseminated to the masses. Our Policy decision makers supported by the ‘ruling elite’, the intelligence community and a minority of ‘self-delusional’ scientists are reducing our once democratic nations into an abysmal, oppressed reflection of a totalitarian regime; and ‘*the cleverest totalitarian system is where citizens do not even realize they live under a dictatorship*’.

[\[ref_66\]](#)

The historical knowledge of 'Operation Mockingbird' combined with the deregulation of the Networks, and the ownership of the media by only a handful of powerful Corporations (and therefore 'ruling elites'), demonstrates why the media can no longer be trusted. Rather, as Howard Beale sarcastically exclaimed in the movie *Network*, they have become and *are* presently an important 'weapon', a propaganda machine in our increasingly Godless society.

VII. Weather Derivatives – The Economics of Weather

In June of 2016, the leading financial broadsheet in the UK (owned by The Pearson Group) *The Financial Times* ran a front page story whose headline read, “*Weather – tracker offers a rare ray of sunshine for the hedge fund industry,*” by Lindsay Fortado and Mary Childs. The article begins by highlighting the loss of approximately USD 15bn in assets in the hedge fund industry in the first quarter of 2016. However, one fund named ‘Cumulus’ (named after a cloud) seems to have ‘weathered all odds’ based on a weather – based investment strategy.

Launched in 2006 by Peter Brewer, an expert in weather derivatives, the fund has returned 970% to investors since its inception. It now manages USD 2.3bn with its’ core strategy being weather arbitrage. They employ traders and meteorologists to look for ‘*discrepancies in weather predictions and find arbitrage opportunities. It returned more than 67% in its first year.*’ [\[ref 67\]](#) For those familiar with hedge funds, these are extremely attractive ‘double digit’ returns.

The article continues that the highly secretive team maintains a low profile and according to the FT does not have a website. One investor is quoted in the piece as saying, “*They used to come up with better predictions than the guys at the Met office. We used to kid that we could call the guys at Cumulus to ask if it would rain this weekend, because they would always know.*” [\[ref 68\]](#)

It is difficult to say whether investment teams really do have a special ‘knack’ for predicting the weather or if they have knowledge and therefore possible investment in geoengineering technologies in particular. This may be the reason why they give investors the ‘appearance’ that they can predict the weather better than those trained in the meteorological field. It was William Daley (former US Commerce Secretary) who said in 1998 that ‘*Weather is not just an environmental issue; it is a major economic factor*’.

The concept of weather as a tradeable commodity took place for the first time in the 1990s. Weather derivatives are a form of a weather commodity. In 1997 the first OTC (over the counter) weather derivative was placed by Enron to hedge against the effects that unseasonable

temperatures could have on gas sales. Shortly after, the industry had grown to USD 8bn in under a few years.

Then 1999, the Weather Risk Management Association (WRMA) was formed. By 2011, the WRMA stated that the value of trades was approximately 11billion USD. Weather derivatives cover low risk, high probability events. While insurance covers high risk, low probability events.

While it is not the intention of this book to go into further detail of the weather derivatives industry as an investment strategy, the need to understand whether investment teams have prior knowledge of geoengineering technologies not privy to the public, is to be highlighted.

This would further demonstrate that the discussion surrounding geoengineering technologies is limited to a 'privileged few,' while the majority of law-abiding citizens are denied critical public health and environmental information.

VIII. Special Interests and Climate Change

Geoengineers have agreed to place blame on 'climate change' directly on World Leader's and society's inability to reduce greenhouse gas emissions. Yet, it is well known that the 'well-oiled' and powerful corporate lobby machines, on behalf of 'Big Oil', the automobile industry, et. al. has squashed any attempts to move away from fossil fuels. Let's explore another interesting documentary you may not have heard of up until now.

'Who killed the Electric Car' by Chris Paine is the true account of GM's invention of the first electric, clean energy car in the 1990s dubbed the "EV1". The State of California had passed a Zero Emissions Mandate calling on all 7 automobile companies to offer electric vehicles to clear up California's smoggy skies; the mandate was ultimately seen by the automobile industry and 'Big Oil' as a 'profit barrier' and therefore, eventually overturned by lawsuits originating from both GM and DaimlerChrysler. The automotive 'clique' was successful in forcing California to abandon its' clean energy goals.

Thereafter, GM's EV1 electric cars were systematically recalled and 'recycled' (i.e. destroyed) due to 'Big Oil's influence, the automobile industry and a lack of commitment by then US President- George H. W. Bush Sr. (1989 – 1993). Fast forward to 2012 and Pulitzer Prize Author Steven Coll's "*Private Empire – Exxon Mobil and American Power*" revealing the tremendous power, greed and fear this corporation generates due to their dealings and 'handling' of Nation states, Policy decision makers and their overriding interest in shareholder value.

Climate change and the ability to mitigate GHG has everything to do with the truthful fact that 'special interests' such as Big Oil and automobile companies, do not want to take a 'hit' on their balance sheets. They have kept our society in bondage for *decades* refusing to allow electric powered vehicles to take precedence in the 'best interest' of our environment and public health.

Ironically, Bill 32 was recently signed by Governor Jerry Brown of California (8th September 2016) requiring statewide emissions to be cut by 40% in California under **1990s** levels. Given

this recent legislation, we have Big Oil, the automobile companies and the Bush administration to thank for the loss of nearly three decades of what would have been - clean energy vehicles.

Special interests therefore dominate Capitol Hill in Washington D.C. The powerful lobbyists and their 'pay for play' tactics continues to demonstrate why the U.S. for the first time in history has been defined as an 'oligarchy'. This is based on a recent Princeton/Northwestern study.

The article "*America is an Oligarchy, not a Democracy or a Republic, University Study Finds,*" by Cheryl Chumley of the Washington Times ran on April 24, 2014. In '*Testing Theories of American Politics: Elites, Interest Groups and Average Citizens,*' by Professors Gilens and Page, (Princeton and Northwestern Universities), they compared '*1,779 different U.S. policies that were put in place by politicians between 1981 and 2002 to the type of policies preferred by the average and wealthy American, or special interest groups. Researchers then concluded that U.S. policies are formed more by special interest groups than by politicians properly representing the will of the general people, including the lower-income class,* reported The Washington Times.' [\[ref_69\]](#)

The Professors found, "*Multivariate analysis indicates that economic elites and organized groups representing business interests have substantial independent impacts on U.S. government policy, while average citizens and mass-based interest groups have little or no independent influence. The results provide substantial support for theories of Economic-Elite Domination and for theories of Biased Pluralism.*" [\[ref_70\]](#)

Therefore, one of the many reasons why the U.S. Election of 2016 is so very critical. The Nation once hailed as a true 'democracy' and Republic is at a 'tipping' point.

IX. International Treaties, U.S. Laws and Magna Carta

In 1992, 172 Nations convened in Rio de Janeiro for the Earth Summit attended by a majority of Heads of State and government. It was in Rio, that the UN's Convention on Biological Diversity would be launched (www.cbd.int). The CBD is a significant treaty with regards to geoengineering.

A short history as from the CBD's website follows:

"The Convention was opened for signature on 5 June 1992 at the United Nations Conference on Environment and Development (the Rio "Earth Summit"). It remained open for signature until 4 June 1993, by which time it had received 168 signatures. The Convention entered into force on 29th December 1993, which was 90 days after the 30th ratification. The first session of the Conference of the Parties was scheduled for 28 November – 9 December 1994 in the Bahamas.

The Convention on Biological Diversity was inspired by the world community's growing commitment to sustainable development. It represents a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.

The Convention on Biological Diversity (CBD) is one of the most broadly subscribed international environmental treaties in the world. It currently has 193 Parties—192 Countries and the European Union — who have committed themselves to its three main goals: the conservation of biodiversity, the sustainable use of its components and the equitable sharing of the benefits arising out of the utilization of genetic resources."

In 2010 the Convention on Bio-Diversity adopted decision X/33 at the tenth meeting of the Conference of Parties. It highlights in paragraph 8 (w) and (x), a specific section on climate – related geo-engineering and its impacts on the achievement of the CBD's objectives. (See Appendix for exact wording of X/33 paragraphs 8).

In his foreword regarding X/33, Braulio Ferreira de Souza Dias, Executive Secretary Convention on Biological Diversity, explains:

Human-driven climate change is becoming an increasingly important cause of biodiversity loss and degradation of ecosystem services. With the relatively limited action to date to reduce greenhouse gas emissions, increasing attention has been recently given to additional options that might lessen the severity of future impacts, through geoengineering. There is a rapidly growing scientific literature on this topic, with recent overview reports published by, for example, the Royal Society, the US Government Accountability Office, and an Expert Meeting of the Intergovernmental Panel on Climate Change.

However, those documents did not specifically consider geoengineering from a biodiversity perspective. The Conference of the Parties (COP) of the Convention on Biological Diversity (CBD) first turned its attention to geoengineering at its ninth meeting in 2008, in the context of ocean fertilization. The COP then requested Parties to ensure that ocean fertilization activities do not take place until there is an adequate scientific basis on which to justify such activities.

In response to this request, the Secretariat prepared a synthesis and analysis of the impacts of ocean fertilization on marine biodiversity, which was published as CBD Technical Series 45. At its tenth meeting in 2010, geoengineering was considered by the COP more generally. Decision X/33, which includes a section on climate-related geoengineering, called for studies on the possible impacts of geoengineering techniques on biodiversity and associated social, economic and cultural considerations, and on gaps in the regulatory mechanisms for climate-related geoengineering relevant to the CBD.”
[\[ref_71\]](#)

Additional documents on geoengineering can be found on the CBD’s website including: “Geoengineering in Relation to the Convention on Biological Diversity: Technical and Regulatory Matters - Part I. Impacts of Climate-Related Geoengineering on Biological Diversity Part II. The Regulatory Framework for Climate-Related Geoengineering

Relevant to the Convention on Biological Diversity (CBD Technical Series No. 66 – September 2012) available to the public.

Decision X/33, tenth Conference of the Parties calls for precaution in the absence of an adequate scientific basis on which to justify geoengineering activities. It calls for the proper consideration for the risk to the environment and biodiversity, including the social, cultural and economic costs.

In addition to decision X/33, Article 14 of the Convention on Bio-Diversity includes provisions on environmental impact assessment (EIA) of proposed projects, as well as strategic assessment of programmes. To assist Parties of the CBD in this area, a set of voluntary guidelines were developed:

In Article 14 paragraph (c) includes further provisions for “activities which are likely to have significant adverse effects on the biodiversity of other States or areas beyond the limits of national jurisdiction.” [\[ref 72\]](#)

Article 14 advises the need of notification, exchange of information and consultation, as well as readiness for emergency responses given the large scale of geoengineering interventions. To date, the Convention has not developed further guidance in this area. *Issues of liability and redress, including restoration and compensation for damage to biodiversity caused by activities under the jurisdiction of other States, are still under debate.*

Additional treaties such as the London Convention/London Protocol, and Article 206 of the UN Convention on Law of the Sea (UNCLOS) which requires States to assess the potential effects of activities taking place at sea (i.e. iron fertilization) are also worthy of legal consideration.

The U.S. National Academy of Science in their 2015 published report entitled, “Climate Intervention: Reflecting Sunlight to Cool Earth,” is quick to point out that the U.S. are signatories to the CBD, but not a ‘party’. The NAS also mentions that X/33 is the first UN body decision to address 'climate related geoengineering legal (writ) research'.

The UN Council on Biodiversity's - '*Decade of Bio-Diversity*' (2011 – 2020 inaugurated in Japan) has us asking why hasn't the UN, Governments and environmental protection agencies not intervened in the on-going alteration of our atmosphere or as defined by the scientists 'stratospheric aerosol programs' taking place internationally and documented by World citizens given decision X/33 and Article 14 of the Convention? Why has the CBD's moratorium been grossly disregarded? Given that bio-diversity is the 'web of life' which we are intricately dependent upon, it is a serious disappointment to notice the ineffectiveness of the U.N.'s conventions and international treaties.

Given that the US is responsible for paying nearly a quarter of the UN's budget thereby dictating UN policy could this be a possible reason why U.N. sponsored moratoriums have had little effect in protecting bio-diversity and ecosystems globally? The fact remains that many NGO's, such as the United Nations are often construed as, "partisan led/elite subsections" of society.

Either way, we are clearly at a 'tipping point' with significant declines of species including drastic declines of amphibians, bird species, overfishing; including our coral reefs that are bleached and dying. Deforestation is on the rise, pollution, habitat loss and climate change are among the long list of culprits.

Protecting biodiversity is every individual's concern. The NAS states that they are signatories, but not 'party' to the Convention on Biodiversity. Yet, looking back at the Rio Earth Summit and the hypocrisy of telling a nation not to cut down their forests, while U.S. automobile drivers continue driving behemoth fossil-fuel drenched SUV's is a contradiction in terms.

In the same light, altering our atmosphere is in direct conflict with international treaties and national laws which must be reviewed by international legal experts. The simple truth is this: if we do not protect bio-diversity, then there will be no life left on Earth. A World with declining natural populations demonstrates our 'moral failure' and inability to seriously address these pressing issues.

What is not needed is another treaty or convention, protocol or legislation since they are consistently bypassed nor respected. What we need is *action*. Action by environmental agencies and institutions responsible for protecting our environment, public health and safety. Actions

speak louder than words; it may be time for a new institution to be established in order to preserve our freedom and justice.

Prior to the UN's Council on Bio-Diversity creation, another important Convention came into force - **The UN Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques**, otherwise known as **ENMOD** opened for signatures in Geneva in 1977. Its' aim was to prohibit techniques that could have widespread, long lasting or severe effects on the environment. The treaty entered into force on the 5th of October, 1978. (See Appendix for a copy of the factsheet on ENMOD as given by the United Nations Office for Disarmament Affairs.)

What is interesting to note from this 'factsheet' is that in 2013 the 10 affirmative responses required to convene a Third Review Conference (ENMOD implementation review) needed was not reached. The first review of ENMOD took place in 1984 and the second review in 1992. Since 1992 therefore, there has been no review of the implementation of ENMOD as outlined on the UN's factsheet for over 25 years.

One can only wonder whether this be due to the fact that Geoengineering, 'the large scale intervention into the Earth's climate system' is currently underway, and that by convening a third review would be in direct violation of this treaty. As Dr. Alan Robock states (and mentioned previously) in his public testimony to the House Committee on Science and Technology hearing, "*ENMOD will have to be modified to allow geoengineering that would harm any of the signatories.*" (Source: Testimony to House Committee on Science and Technology - 2009).

How could it be then that such an important review of this Convention was sidestepped? Surely, our governments would be interested in reviewing the implementation of this convention if only to modify the convention based on the suggestions made by Dr. Alan Robock, in his expert testimony given?

Dr. Robock suggested, "*the U.N. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques prohibits geoengineering if it will have negative effects on any of the 85 signatories to the convention (which includes the U.S.) International governance mechanisms, probably through the United Nations, would have to be established to*

set the rules for testing, deployment, and halting of any geoengineering. Given the different interests in the world, and the current difficulty of negotiating mitigation, it is not clear to me how easy this would be. And any abrogation of such agreements would produce the potential for conflict.” [\[ref 73\]](#) He advises that the Convention would have to be modified.

One would assume that this may be the very reason the third review of ENMOD never took place. Given that the rules for testing, deployment and halting of ‘geoengineering’ would be shared with the 85 signatories requiring modification to the text, and given that there are Countries involved in the alteration of our atmosphere, this is perhaps one significant reason why the third review has not taken place.

As noted in a previous chapter, there is an international coalition of Scientists sharing comparisons of climate modeling of which the number of countries participating has been noted as just 13. For a full version of the ENMOD Treaty and signatories, parties please see Appendix B. However, it is important to highlight here the first two articles of this international treaty as follows for consideration:

Article

I

1. Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.
2. Each State Party to this Convention undertakes not to assist, encourage or induce any State, group of States or international organization to engage in activities contrary to the provisions of paragraph 1 of this article.

Article

II

As used in Article I, the term "environmental modification techniques" refers to any technique for changing -- through the deliberate manipulation of natural processes -- the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

In 2001, the UN General Assembly declared **November 6th** of each year as the **International Day for Preventing the Exploitation of the Environment in War and Armed Conflict** (A/RES/56/4).

Another significant international treaty with regards to ‘iron fertilization’ geoengineering activities is the **London Protocol** signed in 1996 which “modernized” the London Convention of 1972. Information of this treaty may be found on the International Maritime Organization’s website: (www.imo.org)

Their website states: The "*Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972*", the "*London Convention*" for short, is one of the first global conventions to protect the marine environment from human activities and has been in force since 1975. Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter. Currently, 87 States are Parties to this Convention." [[ref_74](#)]

In 1996, the "London Protocol" was agreed to further modernize the Convention and, eventually, replace it. Under the Protocol all dumping is prohibited, except for possibly acceptable wastes on the so-called "reverse list". The Protocol entered into force on the 24th of March 2006 and there are currently 47 Parties to the Protocol. (A copy of the full treaty may be found in Appendix).

The Vienna Convention on the Protection of the Ozone (Vienna, 25 March 1985) and the Montreal Protocol on Substances that Deplete the Ozone Layer (16 September 1987) are two international treaties which may be cause of serious legal concern by Nation states deliberating altering our atmosphere.

In an introductory note found the on the U.N.’s Audiovisual Library of International Law (<http://legal.un.org/avl/ha/vcpol/vcpol.html>) by Edith Brown Weiss, Francis Cabell Brown Professor of International Law at Georgetown University Law Center states, “*The United Nations Environment Programme (UNEP) concluded a World Plan of Action on the Ozone Layer, which called for intensive international research and monitoring of the ozone layer, and*

in 1981, UNEP's Governing Council authorized UNEP to draft a global framework convention on stratospheric ozone protection.

The Vienna Convention, concluded in 1985, is a framework agreement in which States agree to cooperate in relevant research and scientific assessments of the ozone problem, to exchange information, and to adopt "appropriate measures" to prevent activities that harm the ozone layer. The obligations are general and contain no specific limits on chemicals that deplete the ozone layer." [ref 75]

It should be noted that a member State must be party to the Vienna Convention in order to also become party to the Montreal Protocol. The full text of the treaty may be found at: <http://ozone.unep.org/pdfs/viennaconvention2002.pdf>

The NAS's research study, 'Climate Intervention' again mentions, "*the Vienna Convention and Montreal Protocol agreements are to phase out the production and consumption of ozone-depleting substances, but albedo modification techniques that involve injection of aerosols into the stratosphere also might be considered activities that may have adverse effects on ozone, and could therefore be subject to the Convention as more information becomes available.*"[ref 76]

Clearly a legal challenge worthy of expert consideration.

The World Meteorological Organization based in Geneva, Switzerland is the official United Nations Authoritative voice on weather, climate and water. In 2007, the WMO published a statement that included, "*Guidelines for the Planning of Weather Modification Activities*". The Statement acknowledged that the modern technology of weather modification began in the 1940's and is considered an 'emerging technology' today. Recently, the Meeting of the Expert Team on Weather Modification met in March 2015 in Phisanulsk, Thailand. This year, the WMO issued an Executive Summary of the WMO Statement on Weather Modification based on the meeting of the previous year.

The Executive Summary states that over 50 nations are operating hundreds of weather modification projects, especially in arid and semi-arid regions all over the World. The draft

summary continues in clause 1.4 that “*With so many countries working in this field international collaboration to conduct research, share results, and developed scientific expertise is essential to enhance the scientific basis of this work globally.*” [[ref 77](#)]

Surprisingly, the summary states that there is no significant impact on human health or on the environment of silver iodide used in past weather modifications. Silver iodide has been used to seed clouds in order to augment precipitation. Silver iodide under the EPA Clean Water Act is considered a hazardous substance, priority pollutant and as a toxic pollutant. Hence, one would intelligently conclude that the WMO may be viewed as misleading in their statements; and that by such statements they support weather modification programs while denying real and significant adverse effects on human populations and the environment.

Additionally, it has been noted by the CDC (Centers for Disease Control and Prevention), that “crops grown on soils with elevated silver concentrations or exposed to high ambient atmospheric concentration are likely to become enriched with silver (Ragaini et al. 1977; Ward et al., 1979).” [[ref 78](#)]

In 2014, Rosalind Peterson, formerly with the US Department of Food and Agriculture and Founder of the non-profit organization ‘Agriculture Defense Coalition’ raising awareness on geoengineering spoke at the United Nations. In this UN Webcast, which can be viewed on YouTube, Ms. Peterson explains in very clear and layman’s terms the fact that weather modification programs have been in existence for over a decade. Such programs are changing micro-climates, affecting agriculture; she warns that pollinators may not survive which would affect our agriculture and food supply.

She points to international corporations modifying our weather, and that the chemicals raining down from airplanes are affecting our natural weather patterns. She warns that without the process of photosynthesis required for plants, this impact will be devastating on the World’s global crop production.

She explains the difference between ‘manmade clouds’ bursting huge plumes of chemicals into the atmosphere and therefore, the air we breathe. These chemicals can stay up in our atmosphere for more than a year. She confirms that many of the clouds we observe are not naturally occurring cloud formations.

In her testimony, Ms. Peterson explains how the U.S. military launch canisters into the atmosphere to experiment with our ionosphere. The canisters are sent up on rockets which can produce colorful auroras. None of these programs she emphasizes have agricultural oversight and more importantly, no public oversight. Chemicals are now in our drinking water. Trees are dying because their roots cannot absorb the necessary nutrients from the soil as the aluminum and heavy metals block their roots. Many people of the World have witnessed that their once lush gardens, trees, fresh fruits and vegetable gardens are sick and in the worst case scenario, dying.

Those in control are blaming the die off on drought conditions as reported by the media gate keepers, but this has already been challenged by leading biologists and authorities in forestry. The direct alteration of our atmosphere is creating more mildews, fungus, pests and molds which are proliferating. There is also an increase of harmful UV radiation.

Ms. Peterson warned the UN staff in 2014, that if we do not face the destruction we are doing to our planet, and our moral obligation to our children and future generations, then we should anticipate dire and catastrophic consequences which will affect human populations globally; this includes all creatures who inhabit our planet known as ‘home’. Sadly, reviewing this video one is disappointed to note that the very UN individuals attending Ms. Peterson’s discussion appear disinterested, bewildered not understanding of the critical ‘urgency’ of her message; some even appear bored. What then will it take to wake people up?

Gandhi once said, *‘There is untruth, violence, hatred and distrust in the air.’* While he meant this with reference to Britain’s colonialism of India, one can attribute his very saying to geoengineering technologies today and the deliberate alteration of our atmosphere being unleashed on humanity and our environment globally.

It is equally interesting to note that when visiting local libraries, one cannot find books on geoengineering or climate engineering. The Librarians themselves have never heard of the subject. At the local book store, you will find the same. Even at the Royal Society's Summer fair where they open their doors annually to children and enthusiasts of Science, there is no mention or exhibit of geoengineering, climate engineering, solar radiation management or albedo modification to be found.

Likewise, these terms cannot be found in the 5th and 7th of editions of Oxford's Dictionary of Science, and separately Oxford's Dictionary of Physics. Yet, Oxford has an entire school programme and 'principles' dedicated to the study of geoengineering.

U.S. National laws which should also be explored with regards to geoengineering are: 1) the Weather Modification Reporting Act; 2) National Weather Modification Policy Act; 3) Clean Air Act; 4) National Environmental Policy Act (NEPA).

Of particular legal interest is Title VI, of the 1990 amendments to the Clear Air Act. This amendment gave the EPA the authority to demand the phasing out of the production and consumption of ozone-depleting substances in accordance with International treaties mentioned previously notably the Montreal Protocol. Therefore, it was noted that solar radiation management (aka albedo modification) and contaminants being sprayed into the stratosphere would have a likely impact on the ozone and would therefore have to be reviewed.

The NAS's report also mentions the necessity of an Environmental Impact Statement (EIS) under NEPA. It states, *"In the case of research involving field experiments, the National Environmental Policy Act may require an Environmental Impact Assessment, unless the proposed project fits into a category excused from such assessment. If an assessment is required and prepared, the public will have ample notice and opportunity for comment"* (Morgan et al., 2013). [[ref 79](#)]

Historically, it's perhaps interesting to review "The Great Charter" otherwise known as 'Magna Carta'. It was signed by King John and sealed at Runnymede, UK in 1215. The Charter would insure that on that date ruling monarchs would not enjoy 'absolute' power again. It insured rather

that the Monarchy and subsequently, Leaders of the Western World, are not 'above the law', but are in fact on par with common citizens, in terms of the application of laws.

After the signing of The Great Charter at Runnymede, a century later, Great Britain's parliament came into being. The US being a former 'colony' of Great Britain shares Magna Carta as its' foundation for 'freedom under law'. Therefore, our Constitutional laws and Bill of Rights being prime examples of this historical charter. Numerous American monuments grace the historical site of Magna Carta's signing; known still today as the 'birthplace' of modern democracy.

In fact, one of the most notable monuments is a neo-classical rotunda which was erected by the American Bar Association in 1957. The Rotunda decorated with stars is inscribed, 'Magna Carta symbol of freedom under law'.

Another monument in memoriam of the assassination of John F. Kennedy, promotes the notion of America 'the Land of the Free' where Her Majesty the Queen Elizabeth II stated that Magna Carta was 'part of the heritage which the people of the United States of America share with Great Britain.'

Given the evidence presented here, it is hard to imagine that we recently celebrated 800 years of Magna Carta (15th of June 1215) - "The Great Charter" responsible for our Constitution and laws guaranteeing the rights and liberties of millions of citizens. We have entrusted individuals elected to public office to *ensure* that 'justice and liberty' is for all and *not* for the privileged few.

X. Seeking the Truth – Introducing the Carnicom Institute

On a crisp, cool morning in Santa Fe, New Mexico, Clifford Carnicom stepped out of his mobile camper along with his fiancé Carol and looked up at the sky. Instinctively, he knew that something was changing, something was very wrong. It was the 14th of February 1999, Valentine's day.

Two weeks prior to observing the skies above Santa Fe, New Mexico, Clifford Carnicom had paid a visit to a client - a retired Air Force Pilot Veteran. Mr. Carnicom, a computer technician and consultant, drove down the driveway of his client's property when he saw an awesome 'blitz' of lines appearing above the horizon. Instinctively, he knew that what he was witnessing was new and important. He quickly drove back to his client's front door, beckoning him to come out to show him the strange and curious crisscross shape formations. Together, they stood watching and questioning.

The internet was just coming into vogue in those days and so Clifford Carnicom decided to take 3 photographs on that fateful morning which he would later post for humanity on the Carnicom Institute website. Little did he realize that eventually thousands of other citizens would be doing the exact same thing. These photographs including his scientific research papers, analyses and other documents can be viewed and downloaded at: www.carnicominstitute.org.

Coinciding with these revelations was a Canadian journalist, by the name of William Thomas who appeared on a radio station called 'Coast-to-Coast'. Mr. Thomas was raising awareness about recent visible alterations of the sky. Clifford had by chance been listening to the radio broadcast and would notice these very same trails in the skies only 2 months later. This was the official beginning of the 'anti-geoengineering' movement and the visible documentation of the alteration of the atmosphere.

Many individuals began paying closer attention and demanding answers from their local agencies and national environmental agencies empowered to protect the natural environment and

public health. Their efforts seemed all in vein, as replies with outright denials that anything unusual was occurring other than normal commercial aircraft 'contrails' became the norm.

From that fateful day in 1999, Clifford Carnicom's life would take on new meaning. His primary concern: 'seeking the truth' and reporting on that truth utilizing reliable and comprehensive scientific methods, plain eyesight and gut intuition. Despite nearly 2 decades worth of denials by local, as well as National agencies, the assault on our atmosphere continues with unknown risks and consequences for the environment; not to mention major public health concerns globally.

Since 1999, Clifford Carnicom has created one of the most extensive and comprehensive scientific research and proprietary database available on-line for humanity. In the early years, he attracted many an interesting visitor including: U.S. Defense Corporations, the U.S. Department of Defense, the Environmental Protection Agency (EPA), Commercial Aviation companies such as Boeing, Universities and many more. Given this knowledge, it is perhaps best to take a more in-depth look behind the brilliant mind and public service focused citizen.

Clifford Carnicom grew up in a military family. His Father was a career Naval officer and as a young child, that meant Clifford understood the 'need for order'. His upbringing would instill in him some very noble beliefs; one of which was the importance of public service on an individual basis. This would appeal to him the most.

Prior to his career in public service, Clifford would earn a Bachelor of Science degree - Cum Laude from the Civil Engineering Department at California State University at Fresno, California in the field of Surveying and Photogrammetry. His post-graduate studies were conducted at The Ohio State University and Washington University under the endorsement of the U.S. Department of Defense. Clifford also earned an Associate of Sciences degree and a Forest Engineering vocational degree from the College of the Redwoods in Eureka, California.

His additional studies were completed at Mesa Community College, St. Louis Community College, Humboldt State University and the University of California San Diego. His education encompasses a wide variety of disciplines, including geodetic science (the science of accurately measuring and understanding the Earth's geometric shape, gravity field and satellite dynamics),

advanced mathematics, engineering, statistics, physical sciences, computer science and the life, environmental and biological sciences.

After university, Clifford decided to continue in his Father's footsteps of public service by becoming a Federal employee for the United States Government Department of Defense, The Bureau of Land Management and the United States Forest Service. In total, his 15 years of public service combined with his University degrees (earned with honors) would serve him well for his true 'mission' in life and more noble pursuits for humanity.

As a Federal employee, Clifford worked as a technical research scientist acting in a professional capacity supporting analysis and development of major Department of Defense physical and weapons modeling systems, with extensive computer programming and system application development experience. He held a Top Secret/SCI clearance. He was also appointed for and completed two years of intensive graduate level studies in mathematics, statistics, computer science, and geodesy under the guidance of the Department of Defense.

Among his many accolades, Clifford would be named the 'Defense Mapping Agency Aerospace Center Employee of the Year, Supervisor of the Year, Department of Defense Best Presentation Award for his communication skills; he also received the Geodetic Sciences Departmental Award for outstanding technical, managerial and cost effective performance.

He would provide the US Defense research industry with original solutions to system development and modeling problems, including application of higher mathematics, statistics, computer programming, information management, task scheduling, product development, and computer graphics.

Today, Clifford Carnicom is most well-known for his not-for-profit research and educational organization devoted to raising awareness of environmental and health issues. As President and Founder, Carnicom Institute makes available over 350 research documents and analyses, the majority of research is related to the topic of geoengineering with documented photographs, data and scientifically proven experiments.

Clifford's comprehensive research and proven scientific analyses demonstrates that harm and damage to the environment is real. From the very onset, he sought local and national agencies to investigate these occurrences, like many other well-meaning and concerned citizens.

In his research entitled, 'Official Responses', Clifford Carnicom posted a legitimate sample which was sent by recorded delivery to the United States Environmental Protection Agency. Clifford Carnicom received standard letters of denial and in the case of the EPA, the mention that they do not investigate unsolicited samples sent to them was noted. Clifford Carnicom sent the EPA an unusual sample composed of a network of sub-micron filaments. The EPA refused to acknowledge receipt of this sample. It would be over a year later, and by a Freedom of Information Act request, that the EPA finally returned the sample in question stating they had no obligation to investigate.

Difficult to imagine that the 'environmental movement' born after the publication of Rachel Carson's poignant book '*Silent Spring*', and thereby the basis for the creation of the EPA on the 2nd of December, 1970 under Richard Nixon would state, (in a copy of the referenced letter available on the Carnicom Institute), "*that it does not test or otherwise analyze unsolicited substances of matter or material.*" [[ref_80](#)]

In this case, the fibrous sample mailed by registered letter to the EPA posed a potentially serious National health concern which should have been addressed at the highest levels by those responsible for protecting the public health of U.S. citizens, including the protection of the environment nationally. To date, the fibrous sample which Clifford Carnicom mailed to the EPA has not been analyzed.

Instead, like the thousands of other concerned individuals who sent letters demanding similar explanations to the alterations of the atmosphere, some providing evidence of samples, not one would receive the proper 'redress' he or she would come to hope for, from an agency meant to serve in the interests of the public and the environment.

In 2005, Clifford Carnicom made the decision to reach another segment of society visually and began to write a documentary entitled, '[Aerosol Crimes](#)'. With a very minimal budget and without any collaborators (except his wife Carol) he set off with his \$60 VHS recorder and other

equipment worth only \$400 to make a documentary which would hopefully appeal to humanity. It would take him little over a year to produce the documentary which he deemed 'difficult' knowing that the issue wouldn't be resolved quickly. The original feature was 1hour and 40 minutes, but for some film executives this was considered too long for the general public's attention span programmed to sound bytes.

At a conference in California (2008), some film executives walked up to Clifford Carnicom after his presentation and asked whether they could shorten his documentary; they wouldn't require any formal recognition for the task. Clifford Carnicom accepted and in turn, they reduced the video to 45 minutes (abridged version), adopted a British narrator and gave it a new title, '[Cloud Cover](#)'.

Clifford Carnicom was therefore the pioneer in producing both *Aerosol Crimes and Cloud Cover* highlighting the changes to our atmosphere. The documentaries would be viewed by thousands of people around the World and would set the stage for further documentaries and videos on the subject including, '*Why in the World Are They Spraying*' and '*Overcast*'. Carnicom's initiatives have now spawned other anti-geoengineering organizations, including the well-known California based [Geoengineeringwatch.org](#), as well as the French non-profit – Ciel Voilé to name a few.

A notable personality who appeared in Clifford Carnicom's documentaries was Naturopath Doctor - Gwen Scott. Prior to becoming a 'holistic' Doctor, Scott was CNN's international broadcast and co-anchor of "The International Hour". She would spend nearly 30 years in televised broadcast news and would receive the prestigious Gold Medal from the International Television and Film Festival. Sadly, there are not many videos of CNN's International Hour available on-line today; a forgotten by-gone era when a once dashing Ted Turner took news broadcasting to another level by airing non-stop 24 hours a day, 7 days a week, 365 days of the year.

In the documentary, Gwen Scott discusses off camera (due to a gardening leave stipulation) that she had tried for years to raise the subject of geoengineering and the alteration of the atmosphere amongst her colleagues at CNN and other broadcast networks. She had apparently even been to

see the ‘boss’ regarding the revelations of the alteration of the atmosphere. Given her solid connections and visible role, she found several colleagues and peers willing to take the story on.

Yet the Media gate-keepers, controlled by the ‘ruling elite’ and intelligence community, would ensure that all her efforts to promote any coverage of the alteration of our atmosphere would be blocked. She would never understand where the gauntlet would come down, so she continued to raise awareness of geoengineering activities independently, as well as provide natural remedies to those concerned about their health. Sadly, Gwen Scott passed away in 2015.

When visiting the Carnicom Institute for the very first time, there is a wealth of research material and data freely available for humanity. Perhaps, the research of most benefit to individuals is to be found under the foundational category where over 60 papers are available, says Clifford Carnicom. They cover three major themes including: environmental issues, health issues and social aspects of populism, the media and social institutions.

One such article which is especially worthy of consideration by the scientific community, as well as concerned citizens is entitled, ‘*A Clash of Evidence: The Realities of Solar Radiation Management*’. In this paper, Clifford Carnicom questions the validity of public perception of stated geoengineering projects versus their actual deployment.

Carnicom starts from the outset by clarifying that, “*Before going further, however, it will be beneficial to provide a brief historical context for the issues and the language involved. There is a track record of controversy and confusion, information and misinformation, official responses and denials, organization and disorganization, research and speculation, and authorities and personalities that now span close to two decades. Unfortunately, the progress of society coming to terms and truthfulness with the deliberate modification of the atmosphere, and ultimately the planet itself, has been slow.*” [[ref_81](#)]

He continues, “*What the public was ‘given’, therefore, was an unsubstantiated agenda, ill-defined language of popular attraction, and a host of ready-made and supported ‘detractors’ that raised a commotion, provided distraction and dispute; all of these set the stage to successfully avoid journalistic integrity, scientific investigation, and accountability by public*

representatives. The obstacles were all provided at little cost, but at great expense to the needs and interests of the public.” [ref_82]

Carnicom challenges those well-versed in the ‘effects’ of aerosol induced clouds by claiming the opposite that, “**High, thin clouds, including those that originate from an introduced aerosol base, do not cool the planet; they heat it up.**” [ref_83] He substantiates this statement by the reports from the IPCC (1999) and NASA’s Clouds and Radiation Factsheet (2016). A considerable ‘red herring’, he notes.

Clifford Carnicom further supports his thesis by highlighting a research paper written by Edward Teller (the hydrogen bomb scientist previously mentioned) entitled, “*Global Warming and Ice Ages: Prospects for Physics-Based Modulation of Global Climate Change,*” which according to Clifford Carnicom was used as the ‘holy grail’ proving that geoengineering programs have been and continue to be in deployment.

He admonishes such enthusiastic activists by stating that Teller’s scientific recommendations specifically state for such experiments to take place in the stratosphere and not in the general atmosphere (known as the troposphere) where commercial planes fly. He states, “Teller proposes to introduce the “scatterers” into three different locations to artificially cool the earth:

1. *Into the middle of the stratosphere (NOT the troposphere). The stratosphere is in the upper atmosphere, and the troposphere is the lower atmosphere. A significant difference that is highlighted in his paper.*

2. *In orbit, in SPACE, approximately 4000 miles above the earth.*

3. *Deep in SPACE, approximately 400,000 miles from the center of the earth.*

An obvious pattern of diverting the heat to locations distant from the earth should be apparent to us; it is one that has not been disclosed sufficiently within the current discussions taking place with respect to both geoengineering and climate control.

The reason the materials are proposed to be so distant from the earth is two-fold; Most of the materials considered will absorb heat and it is desired to have the captured heat radiate into space; not into the earth and its lower atmosphere.

The principles of the approach should not be difficult to grasp here, but they most certainly have been misrepresented in most discussions that are taking place with respect to current and active geoengineering (and bioengineering) operations.

*The Teller paper never explained the physics or consequences of introducing massive amounts of specific aerosol types into the lower atmosphere. **The reason for this is simple; the paper was never intended to explain it because this act is not a viable way to cool down the earth.*** [\[ref 84\]](#)

This study is worthy of concerned citizens and activists review as it poses a number of thought-provoking questions, as well as observations requiring consideration.

Recently, a journalist of a prominent U.S. financial news magazine contacted Clifford Carnicom to ask for his opinion of a recent study, a peer reviewed piece by UC Irvine and Carnegie Institute. It appears that the study went to great lengths to engage experts from around the World to support their preferred theories of contrails, as well as the supposed ‘normalcy’ of soil, dust and water samples; stating that the heavy metal toxins found are of natural origin.

The report authored by Christine Shearer, Mick West, Ken Caldeira and Steven J. Davis entitled ‘*Quantifying Expert Consensus Against the Existence of a Secret Large Scale Atmospheric Spraying Program,*’ states in its introduction, “*The existence of actual research programs that involve spraying or dispersing material in the atmosphere is seen, by some, as evidence in favor of SLAP theory.*” [\[ref 85\]](#)

Clifford Carnicom shares his review of this peer reviewed study by UC Irvine and Carnegie Institute. He begins by saying that, “*The research paper does not represent honest scientific work, rather is it another example of a manipulation ploy to steer public attention towards ridicule.*” [Carnicom Response to UC - Carnegie Report.](#)

Similar to labeling citizens concerned with the on-going alteration of our atmosphere and geoengineering experiments as ‘conspiracy theorists’, these authors have adopted what Clifford Carnicom calls a ‘*cheap ruse*’ in their newly created acronym SLAP. He goes on to highlight the use of such words as ‘thought and likely’ which appear in the study instead of ‘observation and evidence’, manifesting an intent to establish a scientific method. Clifford Carnicom dismisses the research as simply a ploy to influence public behavior and opinion.

Nearly half of the peer reviewed experts come from national agencies including NASA and NOAA. Given this information, it appears that the authors of the study may have overlooked a ‘geoengineering experiment’ which took place in 2012 off the coast of Canada, as reported in UK broadsheet - The Guardian.

The article written by The Guardian’s Martin Lukacs (15 Oct. 2012) entitled, “*World’s biggest geoengineering experiment violates UN rules,*” highlights how a business man Russ George of Planktos Inc. decided to give iron-fertilization (a geoengineering technology to increase ‘algae blooms’ to absorb more CO₂ from the atmosphere) a go off one of the most pristine and diverse ecosystems of Haida Gwaii of Canada. This was shortly after deceiving local indigenous peoples into believing that the experiment would increase salmon production.

Russ George told the Guardian’s Lukacs in 2012, that ‘*his team of unidentified scientists had been monitoring the results of the biggest ever geoengineering experiment with equipment loaned from US agencies like NASA and the National Ocean and Atmospheric Administration.*’ Mr. George added that the two Moratoria on Geoengineering (the Council on Bio Diversity and London Convention) are “mythology”. [[ref 86](#)]

International watchdog ETC Group’s Silvia Ribeiro was credited with first discovering the ‘existence of the scheme’. (www.etcgroup.org)

The recent UC Irvine – Carnegie Institute peer reviewed study is therefore further evidence to the anti-geoengineering movement of tactics to disqualify, confuse, manipulate and ridicule citizens; thereby preventing the critical flow of information to the masses as Clifford Carnicom notes.

Unwittingly, the peer-reviewed study seems to have had the exact *opposite* effect or intent; it has further fueled growing public *distrust* of policy decision makers, social institutions and ‘ruling elites’.

What continues to be confusing for many concerned citizens is the stated will of the majority of scholarly geoengineering scientists’ and their publicly available research, including international NGO’s, academic research (e.g. The Royal Society’s report on Geoengineering), expert testimony to Congress and Parliament, as well as SRMGI research and the ‘Oxford Principles’ all calling for greater public engagement and debate.

Again, it was John Shepherd, Chair of The Royal Society’s reports on Geoengineering and Governance of SRM in 2009 who reassuringly said, “*we need widespread public debate and widespread engagement,*” before the U.S. House Committee. Therefore, a communications strategy which is in direct conflict with the stated will for ‘widespread public engagement’ by *the* foremost Scientists on Geoengineering, is confusing; according to Clifford Carnicom branding concerned citizens as ‘conspiracy or SLAP theorists’, has no basis in *true* academic scientific research.

For Clifford Carnicom, his dedication to public service on an individual basis, in educating humanity about public health concerns and environmental consequences, remains his guiding principle.

XI. Lives Cut Short

On the 28th of April, 2016, The Evening Standard's front cover read, *"1000 Londoners Killed in 4 months by The Capital's Toxic Air,"* by Nicholas Cecil with a photo of protestors scaling Nelson's Column to place a face mask over his head. The subheading read, *"The Death Toll from tiny particulate pollution in London has soared above 1,000 in less than 4 months this year, shock figures report."*

What the article failed to mention is that the toxic air blamed for the 1000 deaths could be associated with alterations to our atmosphere otherwise known as solar radiation management. It is known that when the air is polluted death rates increase.

The Department for the Environment, Food and Rural affairs was quoted in the article as saying, *"Improving air quality is a priority for this government."* [ref 87] Interesting then to recall geoengineer enthusiast David Keith's prediction in his interview on talk show 'Colbert' where he mentions that every year approximately 1million people die from air pollution and that by geoengineering the climate (i.e. solar radiation management) would add another 1% (i.e. 10,000 more lives). As mentioned earlier, Dr. Keith also appeared on the BBC HARDTalk saying, *"they would ramp up slowly watching for 'ill effects' and benefits over a decade or two; there is no guarantee to safety."* [ref 88]

The UK's Daily Mail, 22nd of February 2015 also featured an article entitled - *"Passengers lives are at risk from toxic fumes in cabin, coroner investigating death of British Airways Pilot tells airline chief,"* by Ben Spencer and Andy Dolan. The investigation was launched in order to look into the death of 43year old Richard Westgate of Dorset.

Mr. Westgate had died in his hotel room in the Netherlands. The coroner states that the official recognition of Aerotoxic syndrome linked to memory loss, tremors, lethargy and even death was the cause. The term Aerotoxic Syndrome was coined in 1999 and previously mentioned in the Case Orange Report. The anonymous report warned that many others would succumb should

they not address death by toxic fumes. Not surprisingly, two government inquiries have dismissed any risks to Pilots and frequent air travelers as ‘minimal’.

The article continues with, “Frank Cannon of Cannons Law Practice, who is representing Mr. Westgate’s family, as saying that he has been approached by more than 50 former airline staff and two frequent fliers, and is preparing legal claims against a number of airlines. *‘It seems there is a mixture of crass ignorance and a cover-up,’* he said last night. *“The airlines have known about this for a long time – we have seen staff who have been reporting this since 2000.”* [[ref 89](#)]

An interesting statement since the documented and visible alterations of the atmosphere by concerned citizens began in the U.S. around 1998 – 99. As stated in the Case Orange report and Dr. J. Marvin Herndon’s now retracted whitepapers, frequent flyers, pilots and flight attendants are most at *risk* due to the on-going alterations to our atmosphere.

Previously in UK’s broadsheet, The Telegraph on the 21st of February 2015, ran another article entitled, *“They Can’t Keep Brushing This Under the Carpet, Says Victim of Aerotoxic Syndrome,”* by Camilla Turner.

Dee Passon a Flight Attendant felt vindicated by the Coroner Payne’s report into Richard Westgate’s death. She states, *“Passengers and cabin crew are suffering terribly. Now there are a lot of people pushing for the truth to come out.”* [[ref 90](#)]

The coroner noted lymphocytic myocarditis as a cause of death for Mr. Westgate. This condition is the inflammation of the heart muscle which may be instigated by toxins. So, how would the relatives of Mr. Westgate have determined that their son may have potentially died from contaminants also resulting from the alteration to the atmosphere?

“Over the next 12 years, my health steadily declined. My doctor couldn’t understand why, it was a total mystery,” Ms. Passon continued, *“My symptoms included migraines, joint pains, muscle pains, constant gastro-intestinal problems, diarrhea and vomiting. My brain was affected, too. I became dyslexic and my memory became worse.”* [[ref 91](#)]

Similarly, in the US, an American Airlines pilot became ill in-flight and the co-pilot had to make an emergency landing with 147 passengers and crew on board. The article by the Guardian entitled, “*American Airlines Pilot Dies During Flight from Phoenix to Boston*,” by Ellen Brait (6 October 2015) states that the pilot’s medical emergency was not disclosed and then blamed on a massive heart attack. It is medically known by Doctors that aluminum in the bloodstream can cause heart failure.

The article also noted that Steve Wallace, at the helm of the FAA (Federal Aviation Association) from 2000 – 2008, said it was rare for a pilot to become incapacitated. One can only wonder whether these two pilots and other cabin crew, including passengers who have also died in-flight or thereafter, is a result of exposure from the contaminants used to alter our atmosphere which are dispersed at the same height as commercial airline flights.

We should expect to hear more reports of further deaths of Pilots, Flight Attendants, and frequent air travelers, in the foreseeable future as stated by Neurosurgeons and Scientists.

In a broadcast interview published on YouTube, a prominent Neurosurgeon, Dr. Russell Blaylock provides his views on the severe neurological effects on human populations. He warns of a sudden rise of mortality due to the on-going alterations of our atmosphere; a medical catastrophe worldwide unfolding.

In a radio talk show (YouTube) he emphasizes that this is a medical catastrophe unfolding worldwide, highlighting the immediate danger to pregnant women and developing baby. Dr. Blaylock mentions that a child’s brain may be chronically inflamed for years. He describes how nano-sized particulates penetrate the skin and enter the brain in high concentrations thereby creating more inflammation. He states that aluminum, barium and strontium which have been found in rain and soil samples have pathological effects on human tissue and devastating consequences.

- Aluminum toxicity is known to be responsible for:
- ADHA – Attention Deficit Hyperactivity Disorder
- Alzheimer’s

- Amyotrophic Lateral Sclerosis
- Anemia – Aluminum toxicity decreases the number of red blood cells needed to transport oxygen
- Autism
- Bone diseases
- Brain diseases and disorders
- Hemolysis – the breakdown of red blood cells.
- Leukocytosis – white blood cells above the normal range in blood.
- Porphyria – severe abdominal pain effecting the nervous system
- Colitis
- Dental Cavities
- Hypoparathyroidism
- Impaired iron absorption
- Kidney dysfunction
- Liver dysfunction
- Nervous systems issues including: difficulty with voluntary and involuntary functions
- Neuromuscular disorders
- Osteomalacia
- Parkinson’s disease
- Ulcers

He further highlights the massive fish kills across the planet, global tree die-off and birds dying on a scale never seen before. He also points out that those in ‘control’ continue to divert public attention away from those who attempt to bring the ‘truth’ to the light. Anyone seen to challenge the “mass Media of deception” concerning geoengineering, climate engineering and weather modification are labeled ‘conspiracy theorists’. For many, the fear of reprisals and even death, have kept educated and well-versed knowledgeable individuals, even the Scientists themselves, from revealing the truth.

Numerous Doctors, both medicinal and naturopath, have spoken out about the critical and life-threatening issues of altering our atmosphere, as the public health catastrophe continues to unfold.

XII. The Need for Widespread Public Debate

Given the academic scholarly research, government documents and testimony presented throughout these pages the following recommendations should be actively pursued:

1. Immediate widespread public debate and engagement as recommended by scholars and preeminent scientists, scientific academy research statements (The Royal Society), testimony to U.S. government by Dr. John Shepherd, including the Oxford Principles, NGO's statements, etc.
2. The need for a global agency to provide an immediate environmental impact statement or assessment (EIS/EIA) is paramount given the on-going and visible alterations of the atmosphere
3. A brand new scientific investigation from "scratch" into geoengineering technologies and impacts on public health and the environment to be launched
4. A congressional and parliamentary investigation into the 'control' of mainstream media and the prevention and dissemination of critical information to citizens
5. National agencies and institutions such as the EPA to respond to concerned citizen's requests; including addressing fibrous samples previously sent which could be cause for widespread and significant public health concerns
6. That equal consideration be given to public health and biology, as with the environment
7. A review of international moratoriums including Convention on Bio-Diversity, Vienna Convention on the Protection of the Ozone (1985), Montreal Protocol, London Convention equally, U.S. national laws which have been violated
8. An immediate ban of all geoengineering activities and alteration of our atmosphere until World citizens are educated, informed and knowledgeable of how these technologies may affect their lives and health
9. Legal review of Aerotoxic Syndrome by civil aviation authorities, airlines and agencies

Geoengineering the only planet with intelligent life is *'barking mad'* as Professor Pierrehumbert, Halley Professor of Physics at Oxford University noted.

A communications strategy employed in a deliberate manner to manipulate, prevent dissemination of information to the masses, create misinformation and designs of influence, increasing confusion, creates a tangled web of lies and deceit which can only further justify citizens' distrust of those elected to govern, including their national agencies, social institutions, and above all today's ruling elites.

Pope Francis writing in his second Encyclical letter, "Laudato Si: On Care for Our Common Home," wrote, "*The establishment of a legal framework which can set clear boundaries and ensure the protection of ecosystems has become indispensable. Otherwise the new power structures based on the techno-economic paradigm may overwhelm not only our politics but also our freedom and justice.*" [\[ref_92\]](#)

For this is a considerable 'tipping point'. Not only is our very 'freedom and justice' hanging in a delicate balance, but our planet is on the verge of a major environmental catastrophe.

The Geoengineering debate must engage the public without further delay; geoengineering our planet affects everyone concerned, as echoed by the scientists of The Royal Society. It should not be limited solely to: Policy decision makers; the Scientists themselves, Corporate interests, the 'ruling elites' and NGO's. Those who have called for the public's participation and need for a 'social license' must prevail without further delay over those seeking to deny information and ridicule.

The need for transparency, governance and regulation of geoengineering technologies is paramount as it affects every living being and creature on this planet; the public must have therefore shared oversight.

Congressional and Parliamentary investigations which include the public, must be convened to further investigate not only the prevention of critical information reaching the masses via mainstream media, but the deliberate circumvention of our Constitutional laws and legislative protocols, as handed down to us from Magna Carta (1215).

Those who are responsible for altering our atmosphere and unleashing powerful contaminants responsible for an array of life-altering illnesses and deaths of human populations, animals, livestock, contamination of waters, agriculture, forestry indiscriminately must be held accountable and brought to justice.

Those with the 'smoking gun' and 'whistleblowers' must step forward and be courageous for the sake of humanity. There is no greater sacrifice than to do what is 'right' and true in this lifetime.

It is evident that the Conference in Paris on Climate Change (CoP21 2015) where 150 Leaders from around the World convened to address Climate Change did little to challenge geoengineering technologies from being deployed without the public's knowledge and consent.

Collectively the World's population must demand the UN Convention of Bio-Diversity, ENMOD, and UNFCCC, Vienna Convention and Montreal Protocol to strictly enforce their global moratorium on all geoengineering technologies, starting with what the scientific community has defined as SRM methods and specifically 'stratospheric aerosol injections'.

People from every background, religious beliefs, race and professionals of every sector must demand the truth from their elected officials. Most importantly, we must have agricultural and forestry authorities globally verify soil, water and air contamination. We must find alternative ways to secure future global food output and water supplies given these revelations.

Now that Geoengineering and alterations to our atmosphere have been visually documented both by the Scientific community dedicated to exposing the issue and by World citizens, we must ask ourselves whether 'organic' (bio) farming is a truth and reality anymore? What does this mean for 'organic' farmers, farming and the super markets who purchase and sell 'organic' foods to their customers?

The fact remains, if we do not stop 'fixing our skies' then our true God given celestial heavens will be lost forever for future generations. To stand by and not act and accept the assault on our atmosphere as 'status quo' or 'out of our hands' demonstrates a complete moral failure to future generations. It is morally wrong to destroy nature, to destroy our natural food supply chain, to contaminate our water sources, as well as the very air we breathe, which sustains all life.

Yet the undisputable truth is this, ‘*evil is done in the disguise of darkness and secrecy*’. Collectively, we have a responsibility to bring each geoengineering activity to the “light”, in order to understand their impacts on the environment as well as human populations that not even the foremost scientists claim to understand.

Geoengineering and Solar Radiation Management is ‘unproven and untested’. These technologies are not ‘notional’ nor are they intervening on behalf of our World in any imaginable or ‘noble’ way.

It is time that Policy decision makers stand up and challenge the very individuals who have taken the decision(s) to deploy these technologies without having gone through proper legislative protocol and without having requested the approval of its’ citizens.

Citizens share an ‘inalienable birthright’ to be part of any conversations or debates concerning geoengineering technologies, atmospheric testing, altering our atmosphere, solar radiation management including discussions on transparency, governance and regulation; which affects the public’s health and the environment in which we all live and benefit from.

Ridiculing ‘law abiding’ and tax paying citizens with pejoratives such as ‘conspiracy theorists’ is considered by many counterintuitive. Such tactics along with newly defined acronyms are losing ‘steam’ given that such terminology has now entered major scientific academic research where it does not belong.

These tactics have had the exact *opposite* effect in further fueling public distrust. Furthermore, these strategies directly conflict with preeminent scholars and scientists calling for ‘widespread public debate and moreover, calls for a social license’.

If we fail to take a stand and address the serious implications of altering our atmosphere without humanity’s knowledge or consent, by turning a ‘blind eye’, denial or fear then we should prepare ourselves for the dire and catastrophic consequences which will be unleashed upon our civilization as never witnessed before and with devastating outcomes.

Let us also remind ourselves, that we collectively have a moral responsibility and duty towards this generation, and future generations to come; that our spiritual connection to the natural World (which man is intrinsically a part of) is on the verge of 'catastrophic collapse' with record declines of species.

Living in a World without nature, its' beauty, its' peacefulness and above all the immense inspiration and wonder it provides humanity is quite frankly - unfathomable.

In the 1963 CBS television series C.B.S. Reports, presenting, "The Silent Spring of Rachel Carson", Ms. Carson reiterated, "*Man's attitude toward nature is today critically important simply because we have now acquired a fateful power to alter and destroy nature. But man, is a part of nature and his war against nature is inevitably a war against himself.*" [\[ref 93\]](#)

We must therefore prove 'our maturity and mastery not over nature, but of ourselves,' as Carson implored.

Profound words of wisdom ringing ever the more urgently today for all concerned citizens and the geoengineers scientists of today and the future.

-End-

*There is nothing concealed that will not be revealed, nor secret that will not be known.
Therefore, whatever you have said in the darkness will be heard in the light, and what you have
whispered behind closed doors will be proclaimed on the housetops.*

(Luke 12:2)

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Appendix A: Council on Bio-Diversity's current boilerplate (Notes to Editors):

Opened for signature at the Earth Summit in Rio de Janeiro in 1992 and entered into force in December 1993. The Convention on Biological Diversity is an international treaty for the conservation of biodiversity, the sustainable use of the components of biodiversity and the equitable sharing of the benefits derived from the use of genetic resources. With 196 Parties up to now, the Convention has near universal participation among countries. The Convention seeks to address all threats to biodiversity and ecosystem services, including threats from climate change, through scientific assessments, the development of tools, incentives and processes, the transfer of technologies and good practices and the full and active involvement of relevant stakeholders including indigenous peoples and local communities, youth, NGOs, women and the business community. The Cartagena Protocol on Biosafety and the Nagoya Protocol on Access and Benefit Sharing are supplementary agreements to the Convention. The Cartagena Protocol, which entered into force on 11 September 2003, seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology. To date, 170 Parties have ratified the Cartagena Protocol. The Nagoya Protocol aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies. It entered into force on 12 October 2014 and to date has been ratified by 68 Parties. For more information, visit: www.cbd.int.

Appendix B: ENMOD – Text of Treaty

The States Parties to this Convention,

Guided by the interest of consolidating peace, and wishing to contribute to the cause of halting the arms race, and of bringing about general and complete disarmament under strict and effective international control, and of saving mankind from the danger of using new means of warfare,

Determined to continue negotiations with a view to achieving effective progress towards further measures in the field of disarmament,

Recognizing that scientific and technical advances may open new possibilities with respect to modification of the environment,

Recalling the Declaration of the United Nations Conference on the Human Environment adopted at Stockholm on 16 June 1972,

Realizing that the use of environmental modification techniques for peaceful purposes could improve the interrelationship of man and nature and contribute to the preservation and improvement of the environment for the benefit of present and future generations,

Recognizing, however, that military or any other hostile use of such techniques could have effects extremely harmful to human welfare,

Desiring to prohibit effectively military or any other hostile use of environmental modification techniques in order to eliminate the dangers to mankind from such use, and affirming their willingness to work towards the achievement of this objective,

Desiring also to contribute to the strengthening of trust among nations and to the further

improvement of the international situation in accordance with the purposes and principles of the Charter of the United Nations,

Have agreed as follows:

Article I

1. Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.
2. Each State Party to this Convention undertakes not to assist, encourage or induce any State, group of States or international organization to engage in activities contrary to the provisions of paragraph 1 of this article.

Article II

As used in Article I, the term "environmental modification techniques" refers to any technique for changing -- through the deliberate manipulation of natural processes -- the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

Article III

1. The provisions of this Convention shall not hinder the use of environmental modification techniques for peaceful purposes and shall be without prejudice to the generally recognized principles and applicable rules of international law concerning such use.
2. The States Parties to this Convention undertake to facilitate, and have the right to participate in, the fullest possible exchange of scientific and technological information on the use of environmental modification techniques for peaceful purposes. States Parties in a position to do so shall contribute, alone or together with other States or international

organizations, to international economic and scientific co-operation in the preservation, improvement, and peaceful utilization of the environment, with due consideration for the needs of the developing areas of the world.

Article IV

Each State Party to this Convention undertakes to take any measures it considers necessary in accordance with its constitutional processes to prohibit and prevent any activity in violation of the provisions of the Convention anywhere under its jurisdiction or control.

Article V

1. The States Parties to this Convention undertake to consult one another and to cooperate in solving any problems which may arise in relation to the objectives of, or in the application of the provisions of, the Convention. Consultation and cooperation pursuant to this article may also be undertaken through appropriate international procedures within the framework of the United Nations and in accordance with its Charter. These international procedures may include the services of appropriate international organizations, as well as of a Consultative Committee of Experts as provided for in paragraph 2 of this article.

2. For the purposes set forth in paragraph 1 of this article, the Depositary shall, within one month of the receipt of a request from any State Party to this Convention, convene a Consultative Committee of Experts. Any State Party may appoint an expert to the Committee whose functions and rules of procedure are set out in the annex, which constitutes an integral part of this Convention. The Committee shall transmit to the Depositary a summary of its findings of fact, incorporating all views and information presented to the Committee during its proceedings. The Depositary shall distribute the summary to all States Parties.

3. Any State Party to this Convention which has reason to believe that any other State Party is acting in breach of obligations deriving from the provisions of the Convention

may lodge a complaint with the Security Council of the United Nations. Such a complaint should include all relevant information as well as all possible evidence supporting its validity.

4. Each State Party to this Convention undertakes to cooperate in carrying out any investigation which the Security Council may initiate, in accordance with the provisions of the Charter of the United Nations, on the basis of the complaint received by the Council. The Security Council shall inform the States Parties of the results of the investigation.

5. Each State Party to this Convention undertakes to provide or support assistance, in accordance with the provisions of the Charter of the United Nations, to any State Party which so requests, if the Security Council decides that such Party has been harmed or is likely to be harmed as a result of violation of the Convention.

Article VI

1. Any State Party to this Convention may propose amendments to the Convention. The text of any proposed amendment shall be submitted to the Depositary who shall promptly circulate it to all States Parties.

2. An amendment shall enter into force for all States Parties to this Convention which have accepted it, upon the deposit with the Depositary of instruments of acceptance by a majority of States Parties. Thereafter it shall enter into force for any remaining State Party on the date of deposit of its instrument of acceptance.

Article VII

This Convention shall be of unlimited duration.

Article VIII

1. Five years after the entry into force of this Convention, a conference of the States Parties to the Convention shall be convened by the Depositary at Geneva, Switzerland. The conference shall review the operation of the Convention with a view to ensuring that its purposes and provisions are being realized, and shall in particular examine the effectiveness of the provisions of paragraph 1 of Article I in eliminating the dangers of military or any other hostile use of environmental modification techniques.
2. At intervals of not less than five years thereafter, a majority of the States Parties to the Convention may obtain, by submitting a proposal to this effect to the Depositary, the convening of a conference with the same objectives.
3. If no conference has been convened pursuant to paragraph 2 of this article within ten years following the conclusion of a previous conference, the Depositary shall solicit the views of all States Parties to the Convention, concerning the convening of such a conference. If one third or ten of the States Parties, whichever number is less, respond affirmatively, the Depositary shall take immediate steps to convene the conference.

Article IX

1. This Convention shall be open to all States for signature. Any State which does not sign the Convention before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.
2. This Convention shall be subject to ratification by signatory States. Instruments of ratification or accession shall be deposited with the Secretary-General of the United Nations.
3. This Convention shall enter into force upon the deposit of instruments of ratification by twenty Governments in accordance with paragraph 2 of this article.

4. For those States whose instruments of ratification or accession are deposited after the entry into force of this Convention, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or accession and the date of the entry into force of this Convention and of any amendments thereto, as well as of the receipt of other notices.

6. This Convention shall be registered by the Depositary in accordance with Article 102 of the Charter of the United Nations.

Article X

This Convention, of which the English, Arabic, Chinese, French, Russian, and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified copies thereof to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto by their respective governments, have signed this Convention, opened for signature at Geneva on the eighteenth day of May, one thousand nine hundred and seventy-seven.

ANNEX TO THE CONVENTION

Consultative Committee of Experts

1. The Consultative Committee of Experts shall undertake to make appropriate findings of fact and provide expert views relevant to any problem raised pursuant to paragraph 1 of Article V of this Convention by the State Party requesting the convening of the Committee.
2. The work of the Consultative Committee of Experts shall be organized in such a way as to permit it to perform the functions set forth in paragraph 1 of this annex. The Committee shall decide procedural questions relative to the organization of its work, where possible by consensus, but otherwise by a majority of those present and voting. There shall be no voting on matters of substance.
3. The Depositary or his representative shall serve as the Chairman of the Committee.
4. Each expert may be assisted at meetings by one or more advisers.
5. Each expert shall have the right, through the Chairman, to request from States, and from international organizations, such information and assistance as the expert considers desirable for the accomplishment of the Committees work.

Documents pertaining to the Convention

The following understandings regarding the Convention were included in the report transmitted by the Conference of the Committee on Disarmament to the General Assembly at its thirty-first session.

Understanding relating to Article I

It is the understanding of the Committee that, for the purposes of this Convention, the terms, "widespread", "long-lasting" and "severe" shall be interpreted as follows:

- (a) "widespread": encompassing an area on the scale of several hundred square kilometers;
- (b) "long-lasting": lasting for a period of months, or approximately a season;
- (c) "severe": involving serious or significant disruption or harm to human life, natural and economic resources or other assets.

It is further understood that the interpretation set forth above is intended exclusively for this Convention and is not intended to prejudice the interpretation of the same or similar terms if used in connection with any other international agreement.

Understanding relating to Article II

It is the understanding of the Committee that the following examples are illustrative of phenomena that could be caused by the use of environmental modification techniques as defined in Article II of the Convention: earthquakes, tsunamis; an upset in the ecological balance of a region; changes in weather patterns (clouds, precipitation, cyclones of various types and tornadic storms); changes in climate patterns; changes in ocean currents; changes in the state of the ozone layer; and changes in the state of the ionosphere.

It is further understood that all the phenomena listed above, when produced by military or any other hostile use of environmental modification techniques, would result, or could reasonably be expected to result, in widespread, long-lasting or severe destruction, damage or injury. Thus, military or any other hostile use of environmental modification techniques as defined in Article II, so as to cause those phenomena as a means of destruction, damage or injury to another State Party, would be prohibited.

It is recognized, moreover, that the list of examples set out above is not exhaustive. Other phenomena which could result from the use of environmental modification techniques as defined in Article II could also be appropriately included. The absence of such phenomena from the list does not in any way imply that the undertaking contained in Article I would not be applicable to those phenomena, provided the criteria set out in that article were met.

Understanding relating to Article III

It is the understanding of the Committee that this Convention does not deal with the question whether or not a given use of environmental modification techniques for peaceful purposes is in accordance with generally recognized principles and applicable rules of international law.

Understanding relating to Article VIII

It is the understanding of the Committee that a proposal to amend the Convention may also be considered at any conference of Parties held pursuant to Article VIII. It is further understood that any proposed amendment that is intended for such consideration should, if possible, be submitted to the Depositary no less than 90 days before the commencement of the conference.

Appendix C: ENMOD Factsheet

Below is a copy of the factsheet on ENMOD as given by the United Nations Office for Disarmament Affairs:

CONVENTION ON THE PROHIBITION OF MILITARY OR ANY OTHER HOSTILE USE OF ENVIRONMENTAL MODIFICATION TECHNIQUES (ENMOD)

The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) was approved by the United Nations General Assembly in resolution 31/72 of 10 December 1976. The text of the Convention and the Understandings were the product of intensive negotiations at the Conference of the Committee on Disarmament, a predecessor of the Conference on Disarmament. ENMOD is of unlimited duration and entered into force on 5 October 1978.

Structure of ENMOD The Convention contains 10 articles and one annex on the Consultative Committee of Experts. The Convention also includes the Understandings relating to its articles I, II, III and VIII. **Scope of the Convention** States parties are not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to another State party. States parties undertake to prohibit and prevent any activity in violation of the provisions of the Convention. ENMOD does not hinder the use of environmental modification techniques for peaceful purposes and is without prejudice to the generally recognized principles and applicable rules of international law concerning such use. States parties should facilitate, and have the right to participate in, the fullest possible exchange of scientific and technological information. States parties agree to consult and cooperate in solving any problems which may arise in relation to the objectives of, or in the application of the provisions of, the Convention.

Definition of environmental modification technique Any technique for changing — through the deliberate manipulation of natural processes — the dynamics, composition or

structure of the earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space. The Understandings the Interpretative Understandings are not incorporated into the Convention but are part of the negotiating record and were included in the report transmitted by the Conference of the Committee on Disarmament to the United Nations General Assembly in September 1976. They aim at clarifying the restrictive clauses “having widespread, long-lasting or severe effects” (known as the “troika”); the phenomena that could be caused by the use of environmental modification techniques; the compatibility of environmental modification techniques for peaceful purposes with generally recognized principles and applicable rules of international law; and the procedure for amending the text of the Convention.

ENMOD provides for a consultation mechanism to solve any problem arising in relation to the objectives and in the application of the provisions of the Convention. Consultation and cooperation may be done through appropriate international procedures and may include the services of appropriate international organizations or the establishment of a Consultative Committee of Experts to be chaired by the Secretary-General of the United Nations or his/her representative.

Review process According to article VIII, five years after the entry into force of the Convention, a conference of the States parties to the Convention shall be convened at Geneva, Switzerland, by the Secretary-General of the United Nations, who is the Depositary. It also provides that, at intervals of not less than five years thereafter, a majority of the States parties to the Convention may obtain, by submitting a proposal to this effect to the Depositary, the convening of a conference with the same objectives, and that if no conference has been convened within 10 years following the conclusion of a previous conference, the Depositary shall solicit the views of all States parties to the Convention concerning the convening of such a conference. The Depositary shall take immediate steps to convene such a conference if one third or 10 of the States parties, whichever number is less, respond affirmatively.

For more information: www.unog.ch/enmod

ENMOD implementation facts are as follows: ENMOD was opened for signature from 18 to 31 May 1977 at Geneva, Switzerland. Subsequently, it was transmitted to United Nations Headquarters where it was opened for signature by States until 4 October 1978. ENMOD was signed by 48 States and currently has 76 States parties. The First Review Conference of ENMOD was held in September 1984, with the attendance of 35 States parties. The Second Review Conference took place in Geneva in September 1992. In 2013 the Secretary-General of the United Nations invited the States parties to express their views on convening the Third Review Conference, but the minimum necessary number of 10 affirmative responses for convening such a conference was not reached. On 5 November 2001, the United Nations General Assembly declared 6 November of each year as the International Day for Preventing the Exploitation of the Environment in War and Armed conflict.

Appendix D: London Convention

1996 PROTOCOL TO THE CONVENTION ON THE PREVENTION OF MARINE POLLUTION BY DUMPING OF WASTES AND OTHER MATTER, 1972

(as amended in 2006)

THE CONTRACTING PARTIES TO THIS PROTOCOL,

STRESSING the need to protect the marine environment and to promote the sustainable use and conservation of marine resources,

NOTING in this regard the achievements within the framework of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 and especially the evolution towards approaches based on precaution and prevention,

NOTING FURTHER the contribution in this regard by complementary regional and national instruments which aim to protect the marine environment and which take account of specific circumstances and needs of those regions and States,

REAFFIRMING the value of a global approach to these matters and in particular the importance of continuing co-operation and collaboration between Contracting Parties in implementing the Convention and the Protocol,

RECOGNIZING that it may be desirable to adopt, on a national or regional level, more stringent measures with respect to prevention and elimination of pollution of the marine environment from dumping at sea than are provided for in international conventions or other types of agreements with a global scope,

TAKING INTO ACCOUNT relevant international agreements and actions, especially the United Nations Convention on the Law of the Sea, 1982, the Rio Declaration on Environment and Development and Agenda 21,

RECOGNIZING ALSO the interests and capacities of developing States and in particular small island developing States,

BEING CONVINCED that further international action to prevent, reduce and where practicable eliminate pollution of the sea caused by dumping can and must be taken without delay to protect and preserve the marine environment and to manage human activities in such a manner that the marine ecosystem will continue to sustain the legitimate uses of the sea and will continue to meet the needs of present and future generations,

HAVE AGREED as follows:

ARTICLE 1

DEFINITIONS

For the purposes of this Protocol:

1 "Convention" means the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, as amended.

2 "Organization" means the International Maritime Organization.

3 "Secretary-General" means the Secretary-General of the Organization.

4 .1 "Dumping" means:

.1 any deliberate disposal into the sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea;

.2 any deliberate disposal into the sea of vessels, aircraft, platforms or other man-made structures at sea;

.3 any storage of wastes or other matter in the seabed and the subsoil thereof from vessels, aircraft, platforms or other man-made structures at sea; and

.4 any abandonment or toppling at site of platforms or other man-made structures at sea, for the sole purpose of deliberate disposal.

.2 "Dumping" does not include:

.1 the disposal into the sea of wastes or other matter incidental to, or derived from the normal operations of vessels, aircraft, platforms or other man-made structures at sea and their equipment, other than wastes or other matter transported by or to vessels, aircraft, platforms or other man-made structures at sea, operating for the purpose of disposal of such matter or derived from the treatment of such wastes or other matter on such vessels, aircraft, platforms or other man-made structures;

.2 placement of matter for a purpose other than the mere disposal thereof, provided that such placement is not contrary to the aims of this Protocol; and

.3 notwithstanding paragraph 4.1.4, abandonment in the sea of matter (e.g., cables, pipelines and marine research devices) placed for a purpose other than the mere disposal thereof.

.3 The disposal or storage of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of seabed mineral resources is not covered by the provisions of this Protocol.

5 .1 "Incineration at sea" means the combustion on board a vessel, platform or other man-made structure at sea of wastes or other matter for the purpose of their deliberate disposal by thermal destruction.

.2 "Incineration at sea" does not include the incineration of wastes or other matter on board a vessel, platform, or other man-made structure at sea if such wastes or other matter were generated during the normal operation of that vessel, platform or other man-made structure at sea.

6 "Vessels and aircraft" means waterborne or airborne craft of any type whatsoever. This expression includes air-cushioned craft and floating craft, whether self-propelled or not.

7 "Sea" means all marine waters other than the internal waters of States, as well as the seabed and the subsoil thereof; it does not include sub-seabed repositories accessed only from land.

8 "Wastes or other matter" means material and substance of any kind, form or description.

9 "Permit" means permission granted in advance and in accordance with relevant measures adopted pursuant to article 4.1.2 or 8.2.

10 "Pollution" means the introduction, directly or indirectly, by human activity, of wastes or other matter into the sea which results or is likely to result in such deleterious effects as harm to living resources and marine ecosystems, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

ARTICLE 2

OBJECTIVES

Contracting Parties shall individually and collectively protect and preserve the marine environment from all sources of pollution and take effective measures, according to their scientific, technical and economic capabilities, to prevent, reduce and where practicable eliminate pollution caused by dumping or incineration at sea of wastes or other matter. Where appropriate, they shall harmonize their policies in this regard.

ARTICLE 3

GENERAL OBLIGATIONS

1 In implementing this Protocol, Contracting Parties shall apply a precautionary approach to environmental protection from dumping of wastes or other matter whereby appropriate preventative measures are taken when there is reason to believe that wastes or other matter introduced into the marine environment are likely to cause harm even when there is no conclusive evidence to prove a causal relation between inputs and their effects.

2 Taking into account the approach that the polluter should, in principle, bear the cost of pollution, each Contracting Party shall endeavour to promote practices whereby those it has authorized to engage in dumping or incineration at sea bear the cost of meeting the pollution prevention and control requirements for the authorized activities, having due regard to the public interest.

3 In implementing the provisions of this Protocol, Contracting Parties shall act so as not to transfer, directly or indirectly, damage or likelihood of damage from one part of the environment to another or transform one type of pollution into another.

4 No provision of this Protocol shall be interpreted as preventing Contracting Parties from taking, individually or jointly, more stringent measures in accordance with

international law with respect to the prevention, reduction and where practicable elimination of pollution.

ARTICLE 4

DUMPING OF WASTES OR OTHER MATTER

1 .1 Contracting Parties shall prohibit the dumping of any wastes or other matter with the exception of those listed in Annex 1.

.2 The dumping of wastes or other matter listed in Annex 1 shall require a permit. Contracting Parties shall adopt administrative or legislative measures to ensure that issuance of permits and permit conditions comply with provisions of Annex 2. Particular attention shall be paid to opportunities to avoid dumping in favour of environmentally preferable alternatives.

2 No provision of this Protocol shall be interpreted as preventing a Contracting Party from prohibiting, insofar as that Contracting Party is concerned, the dumping of wastes or other matter mentioned in Annex 1. That Contracting Party shall notify the Organization of such measures.

ARTICLE 5

INCINERATION AT SEA

Contracting Parties shall prohibit incineration at sea of wastes or other matter.

ARTICLE 6

EXPORT OF WASTES OR OTHER MATTER

Contracting Parties shall not allow the export of wastes or other matter to other countries for dumping or incineration at sea.

ARTICLE 7

INTERNAL WATERS

1 Notwithstanding any other provision of this Protocol, this Protocol shall relate to internal waters only to the extent provided for in paragraphs 2 and 3.

2 Each Contracting Party shall at its discretion either apply the provisions of this Protocol or adopt other effective permitting and regulatory measures to control the deliberate disposal of wastes or other matter in marine internal waters where such disposal would be "dumping" or "incineration at sea" within the meaning of article 1, if conducted at sea.

3 Each Contracting Party should provide the Organization with information on legislation and institutional mechanisms regarding implementation, compliance and enforcement in marine internal waters. Contracting Parties should also use their best efforts to provide on a voluntary basis summary reports on the type and nature of the materials dumped in marine internal waters.

ARTICLE 8

EXCEPTIONS

1 The provisions of articles 4.1 and 5 shall not apply when it is necessary to secure the safety of human life or of vessels, aircraft, platforms or other man-made structures at sea in cases of force majeure caused by stress of weather, or in any case which constitutes a danger to human life or a real threat to vessels, aircraft, platforms or other man-made structures at sea, if dumping or incineration at sea appears to be the only way of averting the threat and if there is every probability that the damage consequent upon such dumping or incineration at sea will be less than would otherwise occur. Such dumping or incineration at sea shall be conducted so as to minimize the likelihood of damage to human or marine life and shall be reported forthwith to the Organization.

2 A Contracting Party may issue a permit as an exception to articles 4.1 and 5, in emergencies posing an unacceptable threat to human health, safety, or the marine environment and admitting of no other feasible solution. Before doing so the Contracting

Party shall consult any other country or countries that are likely to be affected and the Organization which, after consulting other Contracting Parties, and competent international organizations as appropriate, shall, in accordance with article 18.1.6 promptly recommend to the Contracting Party the most appropriate procedures to adopt. The Contracting Party shall follow these recommendations to the maximum extent feasible consistent with the time within which action must be taken and with the general obligation to avoid damage to the marine environment and shall inform the Organization of the action it takes. The Contracting Parties pledge themselves to assist one another in such situations.

3 Any Contracting Party may waive its rights under paragraph 2 at the time of, or subsequent to ratification of, or accession to this Protocol.

ARTICLE 9

ISSUANCE OF PERMITS AND REPORTING

1 Each Contracting Party shall designate an appropriate authority or authorities to:

.1 issue permits in accordance with this Protocol;

.2 keep records of the nature and quantities of all wastes or other matter for which dumping permits have been issued and where practicable the quantities actually dumped and the location, time and method of dumping; and

.3 monitor individually, or in collaboration with other Contracting Parties and competent international organizations, the condition of the sea for the purposes of this Protocol.

2 The appropriate authority or authorities of a Contracting Party shall issue permits in accordance with this Protocol in respect of wastes or other matter intended for dumping or, as provided for in article 8.2, incineration at sea:

.1 loaded in its territory; and

.2 loaded onto a vessel or aircraft registered in its territory or flying its flag, when the loading occurs in the territory of a State not a Contracting Party to this Protocol.

3 In issuing permits, the appropriate authority or authorities shall comply with the requirements of article 4, together with such additional criteria, measures and requirements as they may consider relevant.

4 Each Contracting Party, directly or through a secretariat established under a regional agreement, shall report to the Organization and where appropriate to other Contracting Parties:

.1 the information specified in paragraphs 1.2 and 1.3;

.2 the administrative and legislative measures taken to implement the provisions of this Protocol, including a summary of enforcement measures; and

.3 the effectiveness of the measures referred to in paragraph 4.2 and any problems encountered in their application.

The information referred to in paragraphs 1.2 and 1.3 shall be submitted on an annual basis. The information referred to in paragraphs 4.2 and 4.3 shall be submitted on a regular basis.

5 Reports submitted under paragraphs 4.2 and 4.3 shall be evaluated by an appropriate subsidiary body as determined by the Meeting of Contracting Parties. This body will report its conclusions to an appropriate Meeting or Special Meeting of Contracting Parties.

ARTICLE 10

APPLICATION AND ENFORCEMENT

1 Each Contracting Party shall apply the measures required to implement this Protocol to all:

.1 vessels and aircraft registered in its territory or flying its flag;

.2 vessels and aircraft loading in its territory the wastes or other matter which are to be dumped or incinerated at sea; and

.3 vessels, aircraft and platforms or other man-made structures believed to be engaged in dumping or incineration at sea in areas within which it is entitled to exercise jurisdiction in accordance with international law.

2 Each Contracting Party shall take appropriate measures in accordance with international law to prevent and if necessary punish acts contrary to the provisions of this Protocol.

3 Contracting Parties agree to co-operate in the development of procedures for the effective application of this Protocol in areas beyond the jurisdiction of any State, including procedures for the reporting of vessels and aircraft observed dumping or incinerating at sea in contravention of this Protocol.

4 This Protocol shall not apply to those vessels and aircraft entitled to sovereign immunity under international law. However, each Contracting Party shall ensure by the adoption of appropriate measures that such vessels and aircraft owned or operated by it act in a manner consistent with the object and purpose of this Protocol and shall inform the Organization accordingly.

5 A State may, at the time it expresses its consent to be bound by this Protocol, or at any time thereafter, declare that it shall apply the provisions of this Protocol to its vessels and aircraft referred to in paragraph 4, recognising that only that State may enforce those provisions against such vessels and aircraft.

ARTICLE 11

COMPLIANCE PROCEDURES

1 No later than two years after the entry into force of this Protocol, the Meeting of Contracting Parties shall establish those procedures and mechanisms necessary to assess and promote compliance with this Protocol. Such procedures and mechanisms shall be developed with a view to allowing for the full and open exchange of information, in a constructive manner.

2 After full consideration of any information submitted pursuant to this Protocol and any recommendations made through procedures or mechanisms established under paragraph 1, the Meeting of Contracting Parties may offer advice, assistance or co-operation to Contracting Parties and non-Contracting Parties.

ARTICLE 12

REGIONAL CO-OPERATION

In order to further the objectives of this Protocol, Contracting Parties with common interests to protect the marine environment in a given geographical area shall endeavour, taking into account characteristic regional features, to enhance regional co-operation including the conclusion of regional agreements consistent with this Protocol for the prevention, reduction and where practicable elimination of pollution caused by dumping or incineration at sea of wastes or other matter. Contracting Parties shall seek to cooperate with the parties to regional agreements in order to develop harmonized procedures to be followed by Contracting Parties to the different conventions concerned.

ARTICLE 13

TECHNICAL CO-OPERATION AND ASSISTANCE

1 Contracting Parties shall, through collaboration within the Organization and in coordination with other competent international organizations, promote bilateral and multilateral support for the prevention, reduction and where practicable elimination of

pollution caused by dumping as provided for in this Protocol to those Contracting Parties that request it for:

.1 training of scientific and technical personnel for research, monitoring and enforcement, including as appropriate the supply of necessary equipment and

facilities, with a view to strengthening national capabilities;

.2 advice on implementation of this Protocol;

.3 information and technical co-operation relating to waste minimization and clean production processes;

.4 information and technical co-operation relating to the disposal and treatment of waste and other measures to prevent, reduce and where practicable eliminate pollution caused by dumping; and

.5 access to and transfer of environmentally sound technologies and corresponding know-how, in particular to developing countries and countries in transition to market economies, on favourable terms, including on concessional and preferential terms, as mutually agreed, taking into account the need to protect intellectual property rights as well as the special needs of developing countries and countries in transition to market economies.

2 The Organization shall perform the following functions:

.1 forward requests from Contracting Parties for technical co-operation to other Contracting Parties, taking into account such factors as technical capabilities;

.2 co-ordinate requests for assistance with other competent international organizations, as appropriate; and

.3 subject to the availability of adequate resources, assist developing countries and those in transition to market economies, which have declared their intention to become

Contracting Parties to this Protocol, to examine the means necessary to achieve full implementation.

ARTICLE 14

SCIENTIFIC AND TECHNICAL RESEARCH

1 Contracting Parties shall take appropriate measures to promote and facilitate scientific and technical research on the prevention, reduction and where practicable elimination of pollution by dumping and other sources of marine pollution relevant to this Protocol. In particular, such research should include observation, measurement, evaluation and analysis of pollution by scientific methods.

2 Contracting Parties shall, to achieve the objectives of this Protocol, promote the availability of relevant information to other Contracting Parties who request it on:

.1 scientific and technical activities and measures undertaken in accordance with this Protocol;

.2 marine scientific and technological programmes and their objectives; and

.3 the impacts observed from the monitoring and assessment conducted pursuant to article 9.1.3.

ARTICLE 15

RESPONSIBILITY AND LIABILITY

In accordance with the principles of international law regarding State responsibility for damage to the environment of other States or to any other area of the environment, the Contracting Parties undertake to develop procedures regarding liability arising from the dumping or incineration at sea of wastes or other matter.

ARTICLE 16

SETTLEMENT OF DISPUTES

1 Any disputes regarding the interpretation or application of this Protocol shall be resolved in the first instance through negotiation, mediation or conciliation, or other peaceful means chosen by parties to the dispute.

2 If no resolution is possible within twelve months after one Contracting Party has notified another that a dispute exists between them, the dispute shall be settled, at the request of a party to the dispute, by means of the Arbitral Procedure set forth in Annex 3, unless the parties to the dispute agree to use one of the procedures listed in paragraph 1 of Article 287 of the 1982 United Nations Convention on the Law of the Sea. The parties to the dispute may so agree, whether or not they are also States Parties to the 1982 United Nations Convention on the Law of the Sea.

3 In the event an agreement to use one of the procedures listed in paragraph 1 of Article 287 of the 1982 United Nations Convention on the Law of the Sea is reached, the provisions set forth in Part XV of that Convention that are related to the chosen procedure would also apply, *mutatis mutandis*.

4 The twelve-month period referred to in paragraph 2 may be extended for another twelve months by mutual consent of the parties concerned.

5 Notwithstanding paragraph 2, any State may, at the time it expresses its consent to be bound by this Protocol, notify the Secretary-General that, when it is a party to a dispute about the interpretation or application of article 3.1 or 3.2, its consent will be required before the dispute may be settled by means of the Arbitral Procedure set forth in Annex 3.

ARTICLE 17

INTERNATIONAL CO-OPERATION

Contracting Parties shall promote the objectives of this Protocol within the competent international organizations.

ARTICLE 18

MEETINGS OF CONTRACTING PARTIES

1 Meetings of Contracting Parties or Special Meetings of Contracting Parties shall keep under continuing review the implementation of this Protocol and evaluate its effectiveness with a view to identifying means of strengthening action, where necessary, to prevent, reduce and where practicable eliminate pollution caused by dumping and incineration at sea of wastes or other matter. To these ends, Meetings of Contracting Parties or Special Meetings of Contracting Parties may:

.1 review and adopt amendments to this Protocol in accordance with articles 21 and 22;

.2 establish subsidiary bodies, as required, to consider any matter with a view to facilitating the effective implementation of this Protocol;

.3 invite appropriate expert bodies to advise the Contracting Parties or the Organization on matters relevant to this Protocol;

.4 promote co-operation with competent international organizations concerned with the prevention and control of pollution;

.5 consider the information made available pursuant to article 9.4;

.6 develop or adopt, in consultation with competent international organizations, procedures referred to in article 8.2, including basic criteria for determining exceptional and emergency situations, and procedures for consultative advice and the safe disposal of matter at sea in such circumstances;

.7 consider and adopt resolutions; and

.8 consider any additional action that may be required.

2 The Contracting Parties at their first Meeting shall establish rules of procedure as necessary.

ARTICLE 19

DUTIES OF THE ORGANIZATION

1 The Organization shall be responsible for Secretariat duties in relation to this Protocol. Any Contracting Party to this Protocol not being a member of this Organization shall make an appropriate contribution to the expenses incurred by the Organization in performing these duties.

2 Secretariat duties necessary for the administration of this Protocol include:

.1 convening Meetings of Contracting Parties once per year, unless otherwise decided by Contracting Parties, and Special Meetings of Contracting Parties at any time on the request of two-thirds of the Contracting Parties;

.2 providing advice on request on the implementation of this Protocol and on guidance and procedures developed thereunder;

.3 considering enquiries by, and information from Contracting Parties, consulting with them and with the competent international organizations, and providing recommendations to Contracting Parties on questions related to, but not specifically covered by, this Protocol;

.4 preparing and assisting, in consultation with Contracting Parties and the competent international organizations, in the development and implementation of procedures referred to in article 18.1.6;

.5 conveying to the Contracting Parties concerned all notifications received by the Organization in accordance with this Protocol; and

.6 preparing, every two years, a budget and a financial account for the administration of this Protocol which shall be distributed to all Contracting Parties.

3 The Organization shall, subject to the availability of adequate resources, in addition to the requirements set out in article 13.2.3.

.1 collaborate in assessments of the state of the marine environment; and

.2 co-operate with competent international organizations concerned with the prevention and control of pollution.

ARTICLE 20

ANNEXES

Annexes to this Protocol form an integral part of this Protocol.

ARTICLE 21

AMENDMENT OF THE PROTOCOL

1 Any Contracting Party may propose amendments to the articles of this Protocol. The text of a proposed amendment shall be communicated to Contracting Parties by the Organization at least six months prior to its consideration at a Meeting of Contracting Parties or a Special Meeting of Contracting Parties.

2 Amendments to the articles of this Protocol shall be adopted by a two-thirds majority vote of the Contracting Parties which are present and voting at the Meeting of Contracting Parties or Special Meeting of Contracting Parties designated for this purpose.

3 An amendment shall enter into force for the Contracting Parties which have accepted it on the sixtieth day after two-thirds of the Contracting Parties shall have deposited an instrument of acceptance of the amendment with the Organization. Thereafter the amendment shall enter into force for any other Contracting Party on the sixtieth day after

the date on which that Contracting Party has deposited its instrument of acceptance of the amendment.

4 The Secretary-General shall inform Contracting Parties of any amendments adopted at Meetings of Contracting Parties and of the date on which such amendments enter into force generally and for each Contracting Party.

5 After entry into force of an amendment to this Protocol, any State that becomes a Contracting Party to this Protocol shall become a Contracting Party to this Protocol as amended, unless two-thirds of the Contracting Parties present and voting at the Meeting or Special Meeting of Contracting Parties adopting the amendment agree otherwise.

ARTICLE 22

AMENDMENT OF THE ANNEXES

1 Any Contracting Party may propose amendments to the Annexes to this Protocol. The text of a proposed amendment shall be communicated to Contracting Parties by the Organization at least six months prior to its consideration by a Meeting of Contracting Parties or Special Meeting of Contracting Parties.

2 Amendments to the Annexes other than Annex 3 will be based on scientific or technical considerations and may take into account legal, social and economic factors as appropriate. Such amendments shall be adopted by a two-thirds majority vote of the Contracting Parties present and voting at a Meeting of Contracting Parties or Special Meeting of Contracting Parties designated for this purpose.

3 The Organization shall without delay communicate to Contracting Parties amendments to the Annexes that have been adopted at a Meeting of Contracting Parties or Special Meeting of Contracting Parties.

4 Except as provided in paragraph 7, amendments to the Annexes shall enter into force for each Contracting Party immediately on notification of its acceptance to the Organization or 100 days after the date of their adoption at a Meeting of Contracting

Parties, if that is later, except for those Contracting Parties which before the end of the 100 days make a declaration that they are not able to accept the amendment at that time. A Contracting Party may at any time substitute an acceptance for a previous declaration of objection and the amendment previously objected to shall thereupon enter into force for that Contracting Party.

5 The Secretary-General shall without delay notify Contracting Parties of instruments of acceptance or objection deposited with the Organization.

6 A new Annex or an amendment to an Annex which is related to an amendment to the articles of this Protocol shall not enter into force until such time as the amendment to the articles of this Protocol enters into force.

7 With regard to amendments to Annex 3 concerning the Arbitral Procedure and with regard to the adoption and entry into force of new Annexes the procedures on amendments to the articles of this Protocol shall apply.

ARTICLE 23

RELATIONSHIP BETWEEN THE PROTOCOL AND THE CONVENTION

This Protocol will supersede the Convention as between Contracting Parties to this Protocol which are also Parties to the Convention.

ARTICLE 24

SIGNATURE, RATIFICATION, ACCEPTANCE, APPROVAL AND ACCESSION

1 This Protocol shall be open for signature by any State at the Headquarters of the Organization from 1 April 1997 to 31 March 1998 and shall thereafter remain open for accession by any State.

2 States may become Contracting Parties to this Protocol by:

.1 signature not subject to ratification, acceptance or approval; or

.2 signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval; or

.3 accession.

3 Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

ARTICLE 25

ENTRY INTO FORCE

1 This Protocol shall enter into force on the thirtieth day following the date on which:

.1 at least 26 States have expressed their consent to be bound by this Protocol in accordance with article 24; and

.2 at least 15 Contracting Parties to the Convention are included in the number of States referred to in paragraph 1.1.

2 For each State that has expressed its consent to be bound by this Protocol in accordance with article 24 following the date referred to in paragraph 1, this Protocol shall enter into force on the thirtieth day after the date on which such State expressed its consent.

ARTICLE 26

TRANSITIONAL PERIOD

1 Any State that was not a Contracting Party to the Convention before 31 December 1996 and that expresses its consent to be bound by this Protocol prior to its entry into force or within five years after its entry into force may, at the time it expresses its consent, notify the Secretary-General that, for reasons described in the notification, it will not be able to comply with specific provisions of this Protocol other than those provided in paragraph 2, for a transitional period that shall not exceed that described in paragraph 4.

2 No notification made under paragraph 1 shall affect the obligations of a Contracting Party to this Protocol with respect to incineration at sea or the dumping of radioactive wastes or other radioactive matter.

3 Any Contracting Party to this Protocol that has notified the Secretary-General under paragraph 1 that, for the specified transitional period, it will not be able to comply, in part or in whole, with article 4.1 or article 9 shall nonetheless during that period prohibit the dumping of wastes or other matter for which it has not issued a permit, use its best efforts to adopt administrative or legislative measures to ensure that issuance of permits and permit conditions comply with the provisions of Annex 2, and notify the Secretary-General of any permits issued.

4 Any transitional period specified in a notification made under paragraph 1 shall not extend beyond five years after such notification is submitted.

5 Contracting Parties that have made a notification under paragraph 1 shall submit to the first Meeting of Contracting Parties occurring after deposit of their instrument of ratification, acceptance, approval or accession a programme and timetable to achieve full compliance with this Protocol, together with any requests for relevant technical co-operation and assistance in accordance with article 13 of this Protocol.

6 Contracting Parties that have made a notification under paragraph 1 shall establish procedures and mechanisms for the transitional period to implement and monitor submitted programmes designed to achieve full compliance with this Protocol. A report on progress toward compliance shall be submitted by such Contracting Parties to each Meeting of Contracting Parties held during their transitional period for appropriate action.

ARTICLE 27

WITHDRAWAL

1 Any Contracting Party may withdraw from this Protocol at any time after the expiry of two years from the date on which this Protocol enters into force for that Contracting Party.

2 Withdrawal shall be effected by the deposit of an instrument of withdrawal with the Secretary-General.

3 A withdrawal shall take effect one year after receipt by the Secretary-General of the instrument of withdrawal or such longer period as may be specified in that instrument.

ARTICLE 28

DEPOSITARY

1 This Protocol shall be deposited with the Secretary-General.

2 In addition to the functions specified in articles 10.5, 16.5, 21.4, 22.5 and 26.5, the Secretary-General shall:

.1 inform all States which have signed this Protocol or acceded thereto of:

.1 each new signature or deposit of an instrument of ratification, acceptance, approval or accession, together with the date thereof;

.2 the date of entry into force of this Protocol; and

.3 the deposit of any instrument of withdrawal from this Protocol together with the date on which it was received and the date on which the withdrawal takes effect.

.2 transmit certified copies of this Protocol to all States which have signed this Protocol or acceded thereto.

3 As soon as this Protocol enters into force, a certified true copy thereof shall be transmitted by the Secretary-General to the Secretariat of the United Nations for

registration and publication in accordance with Article 102 of the Charter of the United Nations.

ARTICLE 29

AUTHENTIC TEXTS

This Protocol is established in a single original in the Arabic, Chinese, English, French, Russian and Spanish languages, each text being equally authentic.

IN WITNESS WHEREOF the undersigned being duly authorized by their respective Governments for that purpose have signed this Protocol.

DONE AT LONDON, this seventh day of November, one thousand nine hundred and ninety- six.

1 Signatures omitted.

ANNEX 1

WASTES OR OTHER MATTER THAT MAY BE CONSIDERED FOR DUMPING

1 The following wastes or other matter are those that may be considered for dumping being mindful of the Objectives and General Obligations of this Protocol set out in articles 2 and 3:

- .1 dredged material;
- .2 sewage sludge;
- .3 fish waste, or material resulting from industrial fish processing operations;
- .4 vessels and platforms or other man-made structures at sea;
- .5 inert, inorganic geological material;

.6 organic material of natural origin;

.7 bulky items primarily comprising iron, steel, concrete and similarly unarmful materials for which the concern is physical impact, and limited to those circumstances where such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping; and

.8 Carbon dioxide streams from carbon dioxide capture processes for sequestration.

2 The wastes or other matter listed in paragraphs 1.4 and 1.7 may be considered for dumping, provided that material capable of creating floating debris or otherwise contributing to pollution of the marine environment has been removed to the maximum extent and provided that the material dumped poses no serious obstacle to fishing or navigation.

3 Notwithstanding the above, materials listed in paragraphs 1.1 to 1.8 containing levels of radioactivity greater than de minimis (exempt) concentrations as defined by the IAEA and adopted by Contracting Parties, shall not be considered eligible for dumping; provided further that within 25 years of 20 February 1994, and at each 25 year interval thereafter, Contracting Parties shall complete a scientific study relating to all radioactive wastes and other radioactive matter other than high level wastes or matter, taking into account such other factors as Contracting Parties consider appropriate and shall review the prohibition on dumping of such substances in accordance with the procedures set forth in article 22.

4 Carbon dioxide streams referred to in paragraph 1.8 may only be considered for dumping, if:

.1 disposal is into a sub-seabed geological formation; and

.2 they consist overwhelmingly of carbon dioxide. They may contain incidental associated substances derived from the source material and the capture and sequestration processes used; and

.3 no wastes or other matter are added for the purpose of disposing of those wastes or other matter.

ANNEX 2

ASSESSMENT OF WASTES OR OTHER MATTER THAT MAY BE CONSIDERED FOR DUMPING

GENERAL

1 The acceptance of dumping under certain circumstances shall not remove the obligations under this Annex to make further attempts to reduce the necessity for dumping.

WASTE PREVENTION AUDIT

2 The initial stages in assessing alternatives to dumping should, as appropriate, include an evaluation of:

.1 types, amounts and relative hazard of wastes generated; .2 details of the production process and the sources of wastes within that process; and .3 feasibility of the following waste reduction/prevention techniques:

.1 product reformulation; .2 clean production technologies; .3 process modification; .4 input substitution; and .5 on-site, closed-loop recycling.

3 In general terms, if the required audit reveals that opportunities exist for waste prevention at source, an applicant is expected to formulate and implement a waste prevention strategy, in collaboration with relevant local and national agencies, which includes specific waste reduction targets and provision for further waste prevention audits to ensure that these targets are being met. Permit issuance or renewal decisions shall assure compliance with any resulting waste reduction and prevention requirements.

4 For dredged material and sewage sludge, the goal of waste management should be to identify and control the sources of contamination. This should be achieved through implementation of waste prevention strategies and requires collaboration between the relevant local and national agencies involved with the control of point and non-point sources of pollution. Until this objective is met, the problems of contaminated dredged material may be addressed by using disposal management techniques at sea or on land.

CONSIDERATION OF WASTE MANAGEMENT OPTIONS

5 Applications to dump wastes or other matter shall demonstrate that appropriate consideration has been given to the following hierarchy of waste management options, which implies an order of increasing environmental impact:

.1 re-use; .2 off-site recycling; .3 destruction of hazardous constituents; .4 treatment to reduce or remove the hazardous constituents; and .5 disposal on land, into air and in water. 6 A permit to dump wastes or other matter shall be refused if the permitting authority determines that appropriate opportunities exist to re-use, recycle or treat the waste without undue risks to human health or the environment or disproportionate costs. The practical availability of other means of disposal should be considered in the light of a comparative risk assessment involving both dumping and the alternatives.

CHEMICAL, PHYSICAL AND BIOLOGICAL PROPERTIES

7 A detailed description and characterization of the waste is an essential precondition for the consideration of alternatives and the basis for a decision as to whether a waste may be dumped. If a waste is so poorly characterized that proper assessment cannot be made of its potential impacts on human health and the environment, that waste shall not be dumped.

8 Characterization of the wastes and their constituents shall take into account:

.1 origin, total amount, form and average composition; .2 properties: physical, chemical, biochemical and biological; .3 toxicity; .4 persistence: physical, chemical and biological; and .5 accumulation and biotransformation in biological materials or sediments.

ACTION LIST

9 Each Contracting Party shall develop a national Action List to provide a mechanism for screening candidate wastes and their constituents on the basis of their potential effects on human health and the marine environment. In selecting substances for consideration in an Action List, priority shall be given to toxic, persistent and bioaccumulative substances from anthropogenic sources (e.g., cadmium, mercury, organohalogens, petroleum hydrocarbons, and, whenever relevant, arsenic, lead, copper, zinc, beryllium, chromium, nickel and vanadium, organosilicon compounds, cyanides, fluorides and pesticides or their by-products other than organohalogens). An Action List can also be used as a trigger mechanism for further waste prevention considerations.

10 An Action List shall specify an upper level and may also specify a lower level. The upper level should be set so as to avoid acute or chronic effects on human health or on sensitive marine organisms representative of the marine ecosystem. Application of an Action List will result in three possible categories of waste:

.1 wastes which contain specified substances, or which cause biological responses, exceeding the relevant upper level shall not be dumped, unless made acceptable for dumping through the use of management techniques or processes; .2 wastes which contain specified substances, or which cause biological responses, below the relevant lower levels should be considered to be of little environmental concern in relation to dumping; and .3 wastes which contain specified substances, or which cause biological responses, below the upper level but above the lower level require more detailed assessment before their suitability for dumping can be determined.

DUMP-SITE SELECTION

11 Information required to select a dump-site shall include:

.1 physical, chemical and biological characteristics of the water-column and the seabed; .2 location of amenities, values and other uses of the sea in the area under consideration; .3 assessment of the constituent fluxes associated with dumping in relation to existing fluxes of substances in the marine environment; and .4 economic and operational feasibility.

ASSESSMENT OF POTENTIAL EFFECTS

12 Assessment of potential effects should lead to a concise statement of the expected consequences of the sea or land disposal options, i.e., the "Impact Hypothesis". It provides a basis for deciding whether to approve or reject the proposed disposal option and for defining environmental monitoring requirements.

13 The assessment for dumping should integrate information on waste characteristics, conditions at the proposed dump-site(s), fluxes, and proposed disposal techniques and specify the potential effects on human health, living resources, amenities and other legitimate uses of the sea. It should define the nature, temporal and spatial scales and duration of expected impacts based on reasonably conservative assumptions.

14 An analysis of each disposal option should be considered in the light of a comparative assessment of the following concerns: human health risks, environmental costs, hazards, (including accidents), economics and exclusion of future uses. If this assessment reveals that adequate information is not available to determine the likely effects of the proposed disposal option then this option should not be considered further. In addition, if the interpretation of the comparative assessment shows the dumping option to be less preferable, a permit for dumping should not be given.

15 Each assessment should conclude with a statement supporting a decision to issue or refuse a permit for dumping.

MONITORING

16 Monitoring is used to verify that permit conditions are met - compliance monitoring - and that the assumptions made during the permit review and site selection process were correct and sufficient to protect the environment and human health - field monitoring. It is essential that such monitoring programmes have clearly defined objectives.

PERMIT AND PERMIT CONDITIONS

17 A decision to issue a permit should only be made if all impact evaluations are completed and the monitoring requirements are determined. The provisions of the permit shall ensure, as far as practicable, that environmental disturbance and detriment are minimized and the benefits maximized. Any permit issued shall contain data and information specifying: .1 the types and sources of materials to be dumped; .2 the location of the dump-site(s); .3 the method of dumping; and .4 monitoring and reporting requirements.

18 Permits should be reviewed at regular intervals, taking into account the results of monitoring and the objectives of monitoring programmes. Review of monitoring results will indicate whether field programmes need to be continued, revised or terminated and will contribute to informed decisions regarding the continuance, modification or revocation of permits. This provides an important feedback mechanism for the protection of human health and the marine environment.

ANNEX 3

ARBITRAL PROCEDURE

Article 1

1 An Arbitral Tribunal (hereinafter referred to as the "Tribunal") shall be established upon the request of a Contracting Party addressed to another Contracting Party in application of article 16 of this Protocol. The request for arbitration shall consist of a statement of the case together with any supporting documents.

2 The requesting Contracting Party shall inform the Secretary-General of:

.1 its request for arbitration; and

.2 the provisions of this Protocol the interpretation or application of which is, in its opinion, the subject of disagreement.

3 The Secretary-General shall transmit this information to all Contracting States.

Article 2

1 The Tribunal shall consist of a single arbitrator if so agreed between the parties to the dispute within 30 days from the date of receipt of the request for arbitration.

2 In the case of the death, disability or default of the arbitrator, the parties to a dispute may agree upon a replacement within 30 days of such death, disability or default.

Article 3

1 Where the parties to a dispute do not agree upon a Tribunal in accordance with article 2 of this Annex, the Tribunal shall consist of three members:

.1 one arbitrator nominated by each party to the dispute; and

.2 a third arbitrator who shall be nominated by agreement between the two first named and who shall act as its Chairman.

2 If the Chairman of a Tribunal is not nominated within 30 days of nomination of the second arbitrator, the parties to a dispute shall, upon the request of one party, submit to the Secretary-General within a further period of 30 days an agreed list of qualified persons. The Secretary-General shall select the Chairman from such list as soon as possible. He shall not select a Chairman who is or has been a national of one party to the dispute except with the consent of the other party to the dispute.

3 If one party to a dispute fails to nominate an arbitrator as provided in paragraph 1.1 within 60 days from the date of receipt of the request for arbitration, the other party may request the submission to the Secretary-General within a period of 30 days of an agreed list of qualified persons. The Secretary-General shall select the Chairman of the Tribunal from such list as soon as possible. The Chairman shall then request the party which has not nominated an arbitrator to do so. If this party does not nominate an arbitrator within 15 days of such request, the Secretary-General shall, upon request of the Chairman, nominate the arbitrator from the agreed list of qualified persons.

4 In the case of the death, disability or default of an arbitrator, the party to the dispute who nominated him shall nominate a replacement within 30 days of such death, disability or default. If the party does not nominate a replacement, the arbitration shall proceed with the remaining arbitrators. In the case of the death, disability or default of the Chairman, a replacement shall be nominated in accordance with the provision of paragraphs 1.2 and 2 within 90 days of such death, disability or default.

5 A list of arbitrators shall be maintained by the Secretary-General and composed of qualified persons nominated by the Contracting Parties. Each Contracting Party may designate for inclusion in the list four persons who shall not necessarily be its nationals. If the parties to the dispute have failed within the specified time limits to submit to the Secretary-General an agreed list of qualified persons as provided for in paragraphs 2, 3

and 4, the Secretary-General shall select from the list maintained by him the arbitrator or arbitrators not yet nominated.

Article 4

The Tribunal may hear and determine counter-claims arising directly out of the subject matter of the dispute.

Article 5

Each party to the dispute shall be responsible for the costs entailed by the preparation of its own case. The remuneration of the members of the Tribunal and of all general expenses incurred by the arbitration shall be borne equally by the parties to the dispute. The Tribunal shall keep a record of all its expenses and shall furnish a final statement thereof to the parties.

Article 6

Any Contracting Party which has an interest of a legal nature which may be affected by the decision in the case may, after giving written notice to the parties to the dispute which have originally initiated the procedure, intervene in the arbitration procedure with the consent of the Tribunal and at its own expense. Any such intervenor shall have the right to present evidence, briefs and oral argument on the matters giving rise to its intervention, in accordance with procedures established pursuant to article 7 of this Annex, but shall have no rights with respect to the composition of the Tribunal.

Article 7

A Tribunal established under the provisions of this Annex shall decide its own rules of procedure.

Article 8

1 Unless a Tribunal consists of a single arbitrator, decisions of the Tribunal as to its procedure, its place of meeting, and any question related to the dispute laid before it, shall be taken by majority vote of its members. However, the absence or abstention of any member of the Tribunal who was nominated by a party to the dispute shall not constitute an impediment to the Tribunal reaching a decision. In case of equal voting, the vote of the Chairman shall be decisive.

2 The parties to the dispute shall facilitate the work of the Tribunal and in particular shall, in accordance with their legislation and using all means at their disposal:

.1 provide the Tribunal with all necessary documents and information; and

.2 enable the Tribunal to enter their territory, to hear witnesses or experts, and to visit the scene.

3 The failure of a party to the dispute to comply with the provisions of paragraph 2 shall not preclude the Tribunal from reaching a decision and rendering an award.

Article 9

The Tribunal shall render its award within five months from the time it is established unless it finds it necessary to extend that time limit for a period not to exceed five months. The award of the Tribunal shall be accompanied by a statement of reasons for the decision. It shall be final and without appeal and shall be communicated to the Secretary-General who shall inform the Contracting Parties. The parties to the dispute shall immediately comply with the award.

Appendix E: Convention on Bio-Diversity (CBD) decision X/33 – paragraph 8

The tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD) adopted [decision X/33](#) which includes, in paragraph 8 (w) and (x), a section on climate-related geo-engineering and its impacts on the achievement of the objectives of the CBD.

Below are the relevant paragraphs:

8. *Invites* Parties and other Governments, according to national circumstances and priorities, as well as relevant organizations and processes, to consider the guidance below on ways to conserve, sustainably use and restore biodiversity and ecosystem services while contributing to climate change mitigation and adaptation:

(w) Ensure, in line and consistent with [decision IX/16 C](#), on ocean fertilization and biodiversity and climate change, in the absence of science based, global, transparent and effective control and regulatory mechanisms for geo-engineering, and in accordance with the precautionary approach and Article 14 of the Convention, that no climate-related geo-engineering activities** that may affect biodiversity take place, until there is an adequate scientific basis on which to justify such activities and appropriate consideration of the associated risks for the environment and biodiversity and associated social, economic and cultural impacts, with the exception of small scale scientific research studies that would be conducted in a controlled setting in accordance with Article 3 of the Convention, and only if they are justified by the need to gather specific scientific data and are subject to a thorough prior assessment of the potential impacts on the environment;

(x) Make sure that ocean fertilization activities are addressed in accordance with [decision IX/16 C](#), acknowledging the work of the London Convention/London Protocol;

In addition to the above, the Conference of the Parties, in [decision X/33](#) paragraph 9(l) and (m), requests the Executive Secretary to:

- Compile and synthesize available scientific information, and views and experiences of indigenous and local communities and other stakeholders, on the possible impacts of geo-engineering techniques on biodiversity and associated social, economic and cultural considerations, and options on definitions and understandings of climate-related geo-engineering relevant to the Convention on Biological Diversity; and
 - Taking into account the possible need for science based global, transparent and effective control and regulatory mechanisms, subject to the availability of financial resources, undertake a study on gaps in such existing mechanisms for climate-related geo-engineering relevant to the Convention on Biological Diversity, bearing in mind that such mechanisms may not be best placed under the Convention on Biological Diversity.
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*** footnote to decision X/33 para 8 (w): Without prejudice to future deliberations on the definition of geo-engineering activities, understanding that any technologies that deliberately reduce solar insolation or increase carbon sequestration from the atmosphere on a large scale that may affect biodiversity (excluding carbon capture and storage from fossil fuels when it captures carbon dioxide before it is released into the atmosphere) should be considered as forms of geo-engineering which are relevant to the Convention on Biological Diversity until a more precise definition can be developed. It is noted that solar insolation is defined as a measure of solar radiation energy received on a given surface area in a given hour and that carbon sequestration is defined as the process of increasing the carbon content of a reservoir/pool other than the atmosphere.*

-Ends-