LET'S TALK ABOUT TECH

5G Space Appeal

Waarom tekenen wereldwijd vooraanstaande wetenschappers, professoren, epidemiologen, artsen, milieu-en gezondheidsorganisaties het *5G Space Appeal*? En hoe kan het dat zo weinig mensen op de hoogte zijn van dit belangrijke appèl en de onderliggende (wetenschappelijke) informatie?

20 februari 2019

Beste commissaris van de Koning, gedeputeerden en statenleden, ,

De digitalisering verandert onze samenleving in een razendsnel tempo en het maatschappelijk debat spitst zich momenteel toe op fundamentele vragen aangaande privacy en digitale veiligheid. Let's Talk About Tech wil via deze brief met als bijlage het *5G Space Appeal*[1] aandacht vragen voor een andere fundamentele kwestie, namelijk of en in hoeverre een gezonde leefomgeving in het geding is. Deze kwestie is met de voorgenomen uitrol van het vijfde generatie draadloze netwerk (5G) extra prangend.

Door 5G substantiële toename van straling in de directe leefomgeving
5G maakt mogelijk dat alles en iedereen overal en altijd draadloos verbonden is met het internet. Bedrijven en overheden introduceren met veel enthousiasme "slimme" woningen, "slimme" bedrijven, "slimme" snelwegen, "slimme" steden en zelfrijdende auto's. Wat de uitrol van 5G en de substantiële toename van de straling in de leefomgeving betekent voor de gezondheid en ons ecosysteem is echter niet onderzocht. Ook houdt de digitaliseringsstrategie geen rekening met de vele aangetoonde biologische schadelijke effecten die ver onder de huidige blootstellingsrichtlijnen van de ICNIRP optreden. Zeer recent hebben meerdere organisaties, die samenwerken onder de vlag van 'Eerlijk over straling', in een gezamenlijke brandbrief 'Visie op digitaliseringsstrategie overheid'[2] aangegeven dat zij grote zorgen hebben over de gezondheidsschade door elektromagnetische velden en straling, dat deze schade nu al ernstig is en dat deze met de voorliggende plannen sterk zal toenemen. Deze brandbrief is gestuurd aan leden van verschillende Kamercommissies (o.a. CIE Economische Zaken en CIE Leefomgeving).

Nu waarschuwen wereldwijd vele wetenschappers, artsen, ingenieurs en tech professionals met het *5G Space Appeal* dat de 5G-plannen ernstige, onomkeerbare gevolgen voor de mens en permanente schade aan alle ecosystemen op aarde dreigen te veroorzaken. Zij geven aan dat onmiddellijke maatregelen nodig zijn om de mensheid en het milieu te beschermen en roepen via dit internationale appel de VN, WHO, EU, Raad van Europa en regeringen van alle landen op om de uitrol van 5G op aarde en in de ruimte te stoppen.

Waarom bieden wij u deze informatie aan?
Wij kijken er niet gek van op als deze belangrijke informatie nieuw voor u is. Als het aankomt op geïnformeerd zijn over wat de ontwikkelingen zijn op het gebied van gezondheid en draadloze technieken, zijn de meeste mensen bijzonder slecht geïnformeerd. Hoe komt dat?

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[1] https://www.5gspaceappeal.org/the-appeal/
[2] https://www.stichtingehs.nl/publicaties/publicaties-stichting-ehs/view_document/106-visie-op-de-digitaliseringsstrategie-overheid

We hebben deze taak grotendeels in handen gegeven van gezondheidsraden, commissies en zogenaamde kennisplatforms. Telecom-stakeholders zijn doorgaans in deze commissies vertegenwoordigd, hebben korte lijnen met beleidsbepalers en beïnvloeden ook op andere manieren het besluitvormingsproces. Het is algemeen bekend dat effectieve lobby door bedrijven er toe leidt dat beleidsmakers stelselmatig winstbelangen boven publieke belangen stellen. Daarbij komt dat in geval van de Telecomsector de overheid frequenties voor miljarden euro's heeft geveild (en in 2019 opnieuw van plan is om te doen voor 5G) en hiermee zelf ook grote financiële belangen heeft bij een probleemloze uitrol van de technologie. In de afgelopen jaren is er een situatie ontstaan waarin een dominant verhaal een krachtige positie in onze maatschappij heeft ingenomen. Dat verhaal is dat onze technieken veilig zijn, dat er verder onderzoek afgewacht moet worden en dat er geen rechtvaardiging is voor ingrijpen of zelfs kennisvergroting van bijvoorbeeld de GGD 's of overheid.

Wij zijn een expertgroep van personen die rechtstreeks klachten zijn gaan ervaren van draadloze technologie en op deze manier geïnteresseerd zijn geraakt in de kennis, processen en stand van de wetenschap over elektromagnetische velden en gezondheid. Onze nieuwsgierigheid heeft ons schokkende, verontrustende en fascinerende informatie opgeleverd. Informatie waar je als burger recht op hebt en die je als politicus en beleidsmaker nodig hebt om goed onderbouwde verantwoorde keuzes te kunnen maken blijkt helaas niet via de geëigende kanalen (overheidsinstanties, nationale media) te worden gedeeld. Zo blijft onder andere voor velen onbekend dat er wereldwijd talloze wetenschappers, epidemiologen, artsen en elektrogevoeligen zijn, die zich inspannen om de aandacht te vestigen op een reëler verhaal: onze huidige technieken zijn niet onbegrensd, overschrijden op dit moment al de gezondheidslimieten en hebben ecologisch schadelijke effecten. Er zijn ruim voldoende peer-reviewed studies die schadelijke gezondheidseffecten aantonen om in actie te komen. Zo zijn er onder andere effecten aangetoond qua normale breinfunctie, fertiliteit, DNA schade en kanker.

Ondertekening en aanbieding 5G Space Appeal
In het *5G Space Appeal* vindt u uitgebreide wetenschappelijke onderbouwing van de schadelijkheid van de straling van wireless technologie. Het appèl is d.d. 15 februari 2019 door maar liefst 48.523 personen en organisaties ondertekend en zal officieel worden aangeboden aan VN, WHO, EU, Raad van Europa en regeringen van alle landen. Wij, de expertgroep Let's Talk About Tech, onderschrijven het *5G Space Appeal* met de expertise die wij de afgelopen jaren hebben opgedaan. Bij deze nodigen wij u van harte uit om kennis te nemen van dit internationale appèl en onze 'wake-up call' te ondersteunen door deze onder de aandacht te brengen van uw netwerk.

Bij voorbaat hartelijk dank voor uw aandacht en inzet.

Namens expertgroep Let's Talk About Tech,



To the UN, WHO, EU, Council of Europe and governments of all nations,

We the undersigned scientists, doctors, environmental organizations and citizens from ( ) countries, urgently call for a halt to the deployment of the 5G (fifth generation) wireless network, including 5G from space satellites. 5G will massively increase exposure to radio frequency (RF) radiation on top of the 2G, 3G and 4G networks for telecommunications already in place. RF radiation has been proven harmful for humans and the environment. The deployment of 5G constitutes an experiment on humanity and the environment that is defined as a crime under international law.

Executive summary

Telecommunications companies worldwide, with the support of governments, are poised within the next two years to roll out the fifth-generation wireless network (5G). This is set to deliver what is acknowledged to be unprecedented societal change on a global scale. We will have "smart" homes, "smart" businesses, "smart" highways, "smart" cities and self-driving cars. Virtually everything we own and buy, from refrigerators and washing machines to milk cartons, hairbrushes and infants' diapers, will contain antennas and microchips and will be connected wirelessly to the Internet. Every person on Earth will have instant access to super-high-speed, low-latency wireless communications from any point on the planet, even in rainforests, mid-ocean and the Antarctic.

What is not widely acknowledged is that this will also result in unprecedented *environmental* change on a global scale. The planned density of radio frequency transmitters is impossible to envisage. In addition to millions of new 5G base stations on Earth and 20,000 new satellites in space, 200 billion transmitting objects, according to estimates, will be part of the Internet of Things by 2020, and one *trillion* objects a few years later. Commercial 5G at lower frequencies and slower speeds was deployed in Qatar, Finland and Estonia in mid-2018. The rollout of 5G at extremely high (millimetre wave) frequencies is planned to begin at the end of 2018.

Despite widespread denial, the evidence that radio frequency (RF) radiation is harmful to life is already overwhelming. The accumulated clinical evidence of sick and injured human beings, experimental evidence of damage to DNA, cells and organ systems in a wide variety of plants and animals, and epidemiological evidence that the major diseases of modern civilization—cancer, heart disease and diabetes—are in large part caused by electromagnetic pollution, forms a literature base of well over 10,000 peer-reviewed studies.

If the telecommunications industry's plans for 5G come to fruition, no person, no animal, no bird, no insect and no plant on Earth will be able to avoid exposure, 24 hours a day, 365 days a year, to levels of RF radiation that are tens to hundreds of times greater than what exists today,

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without any possibility of escape anywhere on the planet. These 5G plans threaten to provoke serious, irreversible effects on humans and permanent damage to all of the Earth's ecosystems.

Immediate measures must be taken to protect humanity and the environment, in accordance with ethical imperatives and international agreements.

(Note: References are provided as hyperlinks and endnotes.)

5G will result in a massive increase in inescapable, involuntary exposure to wireless radiation

Ground-based 5G

In order to transmit the enormous amounts of data required for the Internet of Things (IoT), 5G technology, when fully deployed, will use millimetre waves, which are poorly transmitted through solid material. This will require every carrier to install base stations every 100 metres[1] in every urban area in the world. Unlike previous generations of wireless technology, in which a single antenna broadcasts over a wide area, 5G base stations and 5G devices will have multiple antennas arranged in "phased arrays"[2,3] that work together to emit focused, steerable, laser-like beams that track each other.

Each 5G phone will contain dozens of tiny antennas, all working together to track and aim a narrowly focused beam at the nearest cell tower. The US Federal Communications Commission (FCC) has adopted rules[4] permitting the effective power of those beams to be as much as 20 watts, ten times more powerful than the levels permitted for current phones.

Each 5G base station will contain hundreds or thousands of antennas aiming multiple laser-like beams simultaneously at all cell phones and user devices in its service area. This technology is called "multiple input multiple output" or MIMO. FCC rules permit the effective radiated power of a 5G base station's beams to be as much as 30,000 watts per 100 MHz of spectrum,[2] or equivalently 300,000 watts per GHz of spectrum, tens to hundreds of times more powerful than the levels permitted for current base stations.

Space-based 5G

At least five companies[5] are proposing to provide 5G from space from a combined 20,000 satellites in low- and medium-Earth orbit that will blanket the Earth with powerful, focused, steerable beams. Each satellite will emit millimetre waves with an effective radiated power of up to 5 million watts[6] from thousands of antennas arranged in a phased array. Although the energy reaching the ground from satellites will be less than that from ground-based antennas, it will irradiate areas of the Earth not reached by other transmitters and will be additional to ground-based 5G transmissions from billions of IoT objects. Even more importantly, the satellites will be located in the Earth's magnetosphere, which exerts a significant influence over the electrical properties of the atmosphere. ***The alteration of the Earth's electromagnetic environment may be an even greater threat to life than the radiation from ground-based antennas (see below).***

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Harmful effects of radio frequency radiation are already proven

Even before 5G was proposed, dozens of petitions and appeals[7] by international scientists, including the Freiburger Appeal signed by over 3,000 physicians, called for a halt to the expansion of wireless technology and a moratorium on new base stations.[8]

In 2015, 215 scientists from 41 countries communicated their alarm to the United Nations (UN) and World Health Organization (WHO).[9] They stated that "numerous recent scientific publications have shown that EMF [electromagnetic fields] affects living organisms at levels well below most international and national guidelines". More than 10,000 peer-reviewed scientific studies demonstrate harm to human health from RF radiation.[10,11] Effects include:

- Alteration of heart rhythm[12]
- Altered gene expression[13]
- Altered metabolism[14]
- Altered stem cell development[15]
- Cancers[16]
- Cardiovascular disease[17]
- Cognitive impairment[18]
- DNA damage[19]
- Impacts on general well-being[20]
- Increased free radicals[21]
- Learning and memory deficits[22]
- Impaired sperm function and quality[23]
- Miscarriage[24]
- Neurological damage[25]
- Obesity and diabetes[26]
- Oxidative stress[27]

Effects in children include autism,[28] attention deficit hyperactivity disorder (ADHD)[29,30] and asthma.[31]

Damage goes well beyond the human race, as there is abundant evidence of harm to diverse plant- and wildlife[32,33] and laboratory animals, including:

- Ants[34]
- Birds[35,36]
- Forests[37]
- Frogs[38]
- Fruit flies[39]
- Honey bees[40]
- Insects[41]
- Mammals[42]
- Mice[43,44]
- Plants[45]
- Rats[46]
- Trees[47]

Negative microbiological effects[48] have also been recorded.

The WHO's International Agency for Research on Cancer (IARC) concluded in 2011 that RF radiation of frequencies 30 kHz - 300 GHz are possibly carcinogenic to humans (Group 2B).[49] However, recent evidence, including the latest studies on cell phone use and brain cancer risks, indicate that RF radiation is proven carcinogenic to humans[50] and should now be classified as a "Group 1 carcinogen" along with tobacco smoke and asbestos.

Most contemporary wireless signals are pulse-modulated. Harm is caused by both the high-frequency carrier wave and the low-frequency pulsations.[51]

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The deployment of 5G satellites must be prohibited

The Earth, the ionosphere and the lower atmosphere form the global electric circuit[52] in which we live. It is well established that biological rhythms—of humans,[53,54] birds,[55] hamsters,[56] and spiders[57,58]—are controlled by the Earth's natural electromagnetic environment and that the well-being of all organisms depends on the stability of this environment, including the electrical properties of the atmosphere.[59,60,61,62] Cherry, in a groundbreaking paper,[63] explained the importance of the Schumann resonances[64] and why ionospheric disturbances can alter blood pressure and melatonin and cause "cancer, reproductive, cardiac and neurological disease and death".

These elements of our electromagnetic environment have already been altered by radiation from power lines. Power line harmonic radiation[65] reaches the Earth's ionosphere and magnetosphere, where it is amplified by wave-particle interactions.[66,67] In 1985, Dr. Robert O. Becker warned that power line harmonic radiation had already changed the structure of the magnetosphere, and that the continued expansion of this effect "threatens the viability of all life on Earth".[68] The placement of tens of thousands of satellites directly in both the ionosphere and magnetosphere, emitting modulated signals at millions of watts and millions of frequencies, is likely to alter our electromagnetic environment beyond our ability to adapt.[69]

Informal monitoring has already provided evidence indicating serious effects on humans and animals from the approximately 100 satellites that have provided 2G and 3G phone service from low orbit since 1998. Such effects cannot be understood only from consideration of the low levels of radiation on the ground. Knowledge from other relevant scientific disciplines must be taken into account, including the fields of atmospheric physics and acupuncture.[70,71,72,73] Adding 20,000 5G satellites will further pollute the global electric circuit[74,75] and could alter the Schumann resonances,[76] with which all life on Earth has evolved. The effects will be universal and may be profoundly damaging.

5G is qualitatively and quantitatively different from 4G

The idea that we will tolerate tens to hundreds of times more radiation at millimetre wavelengths is based on faulty modelling of the human body as a shell filled with a homogeneous liquid.[77,78] The assumption that millimetre waves do not penetrate beyond the skin completely ignores nerves,[79] blood vessels[80,81] and other electrically conducting structures that can carry radiation-induced currents deep into the body.[82,83,84] Another, potentially more serious error is that phased arrays are not ordinary antennas. When an ordinary electromagnetic field enters the body, it causes charges to move and currents to flow. But when extremely short electromagnetic pulses enter the body, something else happens: the moving charges themselves become little antennas that reradiate the electromagnetic field and send it deeper into the body. These reradiated waves are called Brillouin precursors.[85] They become significant when either the power or the phase of the waves changes rapidly enough.[86] 5G will probably satisfy both criteria.

In addition, shallow penetration in itself poses a unique danger to eyes and to the largest organ of the body, the skin, as well as to very small creatures. Peer-reviewed studies have recently been published, predicting thermal skin burns[87] in humans from 5G radiation and resonant absorption by insects,[88] which absorb up to 100 times as much radiation at millimetre

wavelengths as they do at wavelengths presently in use. Since populations of flying insects have declined by 75-80 per cent since 1989 even in protected nature areas,[89] 5G radiation could have catastrophic effects on insect populations worldwide. A 1986 study by Om Gandhi warned that millimetre waves are strongly absorbed by the cornea of the eye, and that ordinary clothing, being of millimetre-size thickness, increases the absorption of energy by the skin by a resonance-type effect.[90] Russell (2018) reviews the known effects of millimetre waves on skin, eyes (including cataracts), heart rate, immune system and DNA.[91]

Regulators have deliberately excluded the scientific evidence of harm

Stakeholders thus far in the development of 5G have been industry and governments, while renowned international EMF scientists who have documented biological effects on humans, animals, insects and plants, and alarming effects on health and the environment in thousands of peer-reviewed studies have been excluded. The reason for the current inadequate safety guidelines is that conflicts of interest of standard-setting bodies "due to their relationships with telecommunications or electric companies undermine the impartiality that should govern the regulation of Public Exposure Standards for non-ionizing radiation".[92] Professor Emeritus Martin L. Pall lays out the conflicts of interest in detail, and the lists of important studies that have been excluded, in his literature review.[93]

The thermal hypothesis is obsolete – new safety standards are needed

Current safety guidelines are based on the obsolete hypothesis that heating is the only harmful effect of EMFs. As Markov and Grigoriev have stated, "Today standards do not consider the real pollution of the environment with nonionizing radiation".[94] Hundreds of scientists, including many signatories to this appeal, have proven that many different kinds of acute and chronic illnesses and injuries are caused without heating ("non-thermal effect") from radiation levels far below international guidelines.[9] Biological effects occur even at near-zero power levels. Effects that have been found at 0.02 picowatts (trillionths of a watt) per square centimetre or less include altered genetic structure in E. coli[95] and in rats,[96] altered EEG in humans,[97] growth stimulation in bean plants,[98] and stimulation of ovulation in chickens.[99]

To protect against non-thermal effects, duration of exposure must be considered. 5G will expose everyone to many more transmissions simultaneously and continuously, day and night without cessation. New safety standards are needed and should be based on *cumulative exposure* and *not only on power levels* but also on frequency, bandwidth, modulation, waveform, pulse width and other properties that are biologically important. Antennas must be confined to specific, publicly identified locations. To protect humans, antennas must be located far from where people live and work, and excluded from the public rights-of-way where people walk. To protect wildlife, they must be excluded from wilderness sanctuaries and strictly minimized in remote areas of the Earth. To protect all life, commercial communications satellites must be limited in number and prohibited in low- and medium-Earth orbits. Phased arrays must be prohibited on Earth and in space.

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RF radiation has both acute and chronic effects

RF radiation has both immediate and long-term effects. Cancer and heart disease are examples of long-term effects. Alteration of heart rhythm[100] and changes in brain function (EEG)[101] are examples of immediate effects. A syndrome that was called *radiowave sickness*[102] in the former Soviet Union and is called *electromagnetic hypersensitivity* (EHS) around the world today[103] can be either acute or chronic. Professor Dr. Karl Hecht has published a detailed history of these syndromes, compiled from a review of more than 1,500 Russian scientific papers and the clinical histories of more than 1,000 of his own patients in Germany. Objective findings include sleep disorders, abnormal blood pressure and heart rate, digestive disorders, hair loss, tinnitus and skin rash. Subjective symptoms include dizziness, nausea, headache, memory loss, inability to concentrate, fatigue, flu-like symptoms and cardiac pain. [104]

The EUROPAEM EMF Guideline 2016 states that EHS develops when people are "continuously exposed in their daily life" to increasing levels of EMFs, and that "reduction and prevention of EMF exposure" is necessary to restore these patients to health.[105] EHS should no longer be considered a disease, but an injury by a toxic environment that affects an increasingly large portion of the population, estimated already at 100 million people worldwide,[106,107] and that may soon affect everyone[108] if the worldwide rollout of 5G is permitted.

The International Scientific Declaration on EHS and multiple chemical sensitivity (MCS), Brussels, declared in 2015 that "*[i]naction is a cost to society and is not an option any more* … [W]e unanimously acknowledge this serious hazard to public health ... [urgently requiring] that major *primary prevention measures are adopted and prioritized, to face this worldwide pan-epidemic in perspective*" (emphasis added).[109]

World governments are failing in their duty of care to the populations they govern

In their haste to implement 5G and to encourage the unconstrained use of outer space, the European Union, United States and national governments worldwide are taking steps to ensure a "barrier-free" regulatory environment.[110] They are prohibiting local authorities from enforcing environmental laws,[111] and "in the interest of speedy and cost-effective deployment", removing "unnecessary burdens … such as local planning procedures [and] the variety of specific limits on electromagnetic field (EMF) emissions and of the methods required to aggregate them".[112]

Governments are also enacting laws to make wireless facilities a permitted use in all public rights-of-way.[113] To date, most wireless facilities have been located on private property at some distance from homes and businesses. In order for them to be spaced less than 100 metres apart as required by 5G, however, they will now be located on the sidewalk *directly in front of* homes and businesses and close above the heads of pedestrians, including mothers with babies.

Public notice requirements and public hearings are being eliminated. Even if there were a hearing and 100 scientific experts were to testify against 5G, laws have been passed making it illegal for local authorities to take their testimony into consideration. US law, for example, prohibits local governments from regulating wireless technology "on the basis of the environmental effects of radio frequency radiation",[114] and courts have reversed regulatory

decisions about cell tower placement simply because most of the public testimony was about health.[115] Insurers will not provide coverage against EMF risks,[116] and there is zero clarity as to what entity will bear legal responsibility for damage to life, limb and property arising from exposure to 5G, whether ground- or space-based.[117]

In the absence of an agreed comprehensive legal regime governing activities in outer space, legal liability for those activities is non-existent, despite the prospect of whole continents, the atmosphere and the oceans being put at risk by them.

International agreements are being violated

Children and duty of care

The United Nations Convention on the Rights of the Child: States shall "undertake to ensure the child such protection and care as is necessary for his or her well-being" (art. 3), "ensure … the survival and development of the child" (art. 6) and "take appropriate measures to combat disease … taking into consideration the dangers and risks of environmental pollution" (art. 24(c)).

The Nuremberg Code (1949) applies to all experiments on humans, thus including the deployment of 5G with new, higher RF radiation exposure that has not been pre-market tested for safety. "The voluntary consent of the human subject is absolutely essential" (art. 1). Exposure to 5G will be involuntary. "No experiment should be conducted, where there is an a priori reason to believe that death or disabling injury will occur" (art. 5). The findings of over 10,000 scientific studies and the voices of hundreds of international organizations representing hundreds of thousands of members who have suffered disabling injury and been displaced from their homes by already-existing wireless telecommunications facilities, are "a priori reasons to believe that death or disabling injury will occur".

Duty to inform and EMFs

The World Telecommunication Standardization Assembly (2012) of the International Telecommunication Union (ITU) stated that "[t]here is a need to inform the public of the potential effects of exposure to electromagnetic fields (EMFs)" and invited Member States "to adopt suitable measures in order to ensure compliance with relevant international recommendations to protect health against the adverse effect of EMF".

The Mid-term review of the European Environment and Health Action Plan 2004-2010 (2008): "The European Parliament … [n]otes that the limits on exposure to electromagnetic fields which have been set for the general public are obsolete, … obviously take no account of developments in information and communication technologies, of the recommendations issued by the European Environment Agency or of the stricter emission standards adopted, for example, by Belgium, Italy and Austria, and do not address the issue of vulnerable groups, such as pregnant women, newborn babies and children."

Resolution 1815 (Council of Europe, 2011): "Take all reasonable measures to reduce exposure to electromagnetic fields, especially to radio frequencies from mobile phones, and particularly the exposure to children and young people."

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Environment

The Declaration of the United Nations Conference on the Human Environment (1972): "The discharge of toxic substances ... in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems" (principle 6).

The World Charter for Nature (1982): "Activities which are likely to cause irreversible damage to nature shall be avoided ... [W]here potential adverse effects are not fully understood, the activities should not proceed" (art. 11).

The Rio Declaration on Environment and Development (1992): "States have … the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction" (principle 2).

The United Nations World Summit on Sustainable Development (2002): "There is an urgent need to … create more effective national and regional policy responses to environmental threats to human health" (para. 54(k)).

The African Convention on the Conservation of Nature and Natural Resources (2017): "The Parties shall … take all appropriate measures to prevent, mitigate and eliminate to the maximum extent possible, detrimental effects on the environment, in particular from radioactive, toxic, and other hazardous substances and wastes" (art. 13).

Health and human rights

The Universal Declaration of Human Rights: "Everyone has the right to life, liberty and security of person" (art. 3).

The United Nations Global Strategy for Women's, Children's and Adolescents' Health (2016-2030) has as objectives and targets to "transform", by expanding enabling environments; to "survive", by reducing maternal and newborn mortality; and to "thrive" by ensuring health and well-being and reducing pollution-related deaths and illnesses.

Space

The Outer Space Treaty (1967) requires that the use of outer space be conducted "so as to avoid [its] harmful contamination and also adverse changes in the environment of the Earth" (art. IX).

The United Nations Guidelines for The Long-Term Sustainability of Outer Space Activities (2018): "States and international intergovernmental organizations should address ... risks to people, property, public health and the environment associated with the launch, in-orbit operation and re-entry of space objects" (guideline 2.2(c)).

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World governments are playing dice with life on Earth

Albert Einstein famously asserted that "God does not play dice".[118] Yet by pursuing the broadcast on Earth and from space of 5G, an unprecedented technology of millimetre waves previously used as an energy weapon in military operations and crowd control,[119] world governments are recklessly playing dice with the future of life on Earth.

To refuse to accept and apply relevant and valid scientific knowledge is ethically unacceptable. Existing research shows that 5G—and especially space-based 5G—contravenes principles enshrined in a host of international agreements.

We call upon the UN, WHO, EU, Council of Europe and governments of all nations,

(a) *To take* immediate measures to halt the deployment of 5G on Earth and in space in order to protect all humankind, especially the unborn, infants, children, adolescents and pregnant women, as well as the environment;

(b) *To follow* the United Nations Convention on the Rights of the Child and Council of Europe Resolution 1815 by informing citizens, including teachers and physicians, about the health risks (to adults and children) from RF radiation, and *why they should* and *how they can* avoid wireless communication and base stations, particularly in or near day-care centres, schools, hospitals, homes and workplaces;

(c) *To favour and implement* wired telecommunications instead of wireless;

(d) *To prohibit* the wireless/telecommunications industry through its lobbying organizations from persuading officials to make decisions permitting further expansion of RF radiation, including ground- and space-based 5G;

(e) *To appoint* immediately—without industry influence—international groups of independent, truly impartial EMF and health scientists with no conflicts of interest,[120] for the purpose of establishing new international safety standards for RF radiation that are not based only on power levels, that consider cumulative exposure, and that protect against *all* health and environmental effects, not just thermal effects and not just effects on humans;

(f) *To appoint* immediately—without industry influence—international groups of scientists with expertise in EMFs, health, biology and atmospheric physics, for the purpose of developing a comprehensive regulatory framework that will ensure that the uses of outer space are safe for humans and the environment, taking into account RF radiation, rocket exhaust gases, black soot, and space debris and their impacts on ozone,[121] global warming,[122] the atmosphere and the preservation of life on Earth. Not only ground-based but also space-based technology must be sustainable[123] for adults and children, animals and plants.

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Please respond to the Appeal Administrator listed below

detailing the measures you intend to take to protect the global population against RF radiation exposure, especially 5G radiation.

This appeal and your response will be publicly available on www.5gSpaceAppeal.org.

Respectfully submitted,

Arthur Firstenberg, **Appeal Administrator,** info@5gSpaceAppeal.org

Initial Signatories

AFRICA

Lauraine Margaret Helen Vivian, PhD, Anthropology and Psychiatry; Honorary Research Associate, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark. Signatory for **South Africa**

ASIA

Girish Kumar, PhD, Professor, Electrical Engineering Department, Indian Institute of Technology Bombay, Powai, Mumbai, **India**

AUSTRALIA

Don Maisch, PhD, Independent researcher, author of "The Procrustean Approach", Lindisfarne, Tasmania, **Australia**

EUROPE

Alfonso Balmori, BSc, Master in Environmental Education, Biologist. Valladolid, **Spain**

Klaus Buchner, Dr. rer. nat., Professor, MEP – Member of the European Parliament, Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V., München, **Germany**

Daniel Favre, Dr. phil. nat., Biologist, A.R.A. (Association Romande Alerte aux Ondes Electromagnétiques), **Switzerland**

Annie Sasco, MD, DrPH, SM, HDR, former Chief of Research Unit of Epidemiology for Cancer Prevention at the International Agency for Research on Cancer (IARC), Lyon; former Acting Chief, Programme for Cancer Control of the World Health Organization (WHO); former Director of Research at the Institut National de la Santé et de la Recherche Médicale (INSERM); **France**

NORTH AMERICA

Martin Pall, Professor Emeritus of Biochemistry and Basic Medical Sciences, Washington State University, residing in Portland, Oregon, **USA**

Kate B. Showers, PhD, Soil Science, Senior Research Fellow, Centre for World Environmental History, University of Sussex, Falmer, Brighton, UK, residing in Bolton-Est, Québec, **Canada**

SOUTH AMERICA

Carlos Sosa, MD, University of Antioquia, Medellín, **Colombia**

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[120] Conflicts of interest have frequently arisen in the past. For example, the EU Commission (2008/721/EC) appointed industry-supportive members for SCENIHR who submitted to the EU a misleading SCENIHR report on health risks, which gave the telecommunications industry carte blanche to irradiate EU citizens. The report is now quoted by radiation safety agencies in the EU. Another example is the US National Toxicology Program contracting with the IT'IS Foundation, which is funded by the entire telecommunications industry, to design, build and monitor the exposure facility for a two-year, 25-million-US-dollar study of cell phones. It subsequently produced a misleading report that is now quoted by industry officials in the US.

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