

PLASTIC HEALTH COUNCIL

Protecting future generations from the manmade plastics health crisis

Plastic Health Council
White Paper



EXECUTIVE SUMMARY

Plastic is poisoning us. But humankind can find the antidote if it only has the courage to do so.

On 2nd March 2022 in Nairobi the international community endorsed a historic resolution at the UN Environment Assembly to develop an international legally binding agreement on plastic pollution by 2024. The negotiation of the Treaty represents the best opportunity to protect the global population from the health impact of plastic waste since the material's widespread proliferation in the 1950s.

Drawing on the insights offered by world-leading scientists at the inaugural Plastic Health Symposium in Brussels, this White Paper sets out in crystal-clear detail the human health impact of more than 70 years exposure to plastic. Microplastics starting to be found in the body in different organs and tissues. Plastic chemicals are measured in people world wide, and plastic chemicals have been linked to a plethora of chronic diseases in humans.

There is therefore an urgent and pressing need for world leaders to show the moral courage and political leadership required to agree a multilateral Global Plastics Treaty that prioritises the protection of human health. Crucial to delivering this will be an international agreement that ignites the world to radically change the global materials system, pursue safe and sustainable chemistry by design, and ensure that plastic polluters are held to the highest standards of legal and financial accountability.

Our blueprint for change includes 10 things the Global Plastics Treaty must do to protect human health.

These include:

- 1. Global position statement on plastic and its human health impact;**
- 2. 1-year, 3-year, and 10-year mandatory plastic reduction targets;**
- 3. A global position statement against unsafe and irresponsible forms of plastic recycling;**
- 4. UN Member States provide fiscal incentives to accelerate uptake of plastic-free materials;**
- 5. A worldwide ban on toxic plastic additives;**
- 6. Stricter regulation on chemical recycling claims;**
- 7. Mandatory testing for pre-market plastic product toxicity;**
- 8. International Criminalisation of overproduction of toxic Single Use Plastics as a form of Ecocide;**
- 9. An international 'greenwashing' transparency and accountability standard; and**
- 10. Worldwide real extender producer responsibility.**

Above all, this White Paper establishes an inconvenient truth. Plastic is already harming us. There is no need for further research, as the most daring scientists state. Now is the time for bold policy action and for human health to be at the heart of this.

PART ONE

INTRODUCTION

In May 2023 the European Parliament in Brussels played host to the inaugural Plastic Health Symposium. This event hosted by Sara Cerdas MEP, brought together some of the world's top scientists, NGOs, and business leaders to discuss the plastic health crisis.

Speaking in a discursive forum held under Chatham House Rules, the symposium saw attendees tackle some of the most pressing challenges associated with plastic and its associated health impacts. The symposium tackled the following key topics:

- **Systems Change & Innovation**

How can we rethink the entire lifecycle of plastic products, from design and manufacturing to consumption and waste management?

- **Safe and Sustainable Chemistry by Design**

How can we usher in a new era of chemical science, focusing on developing truly safe alternatives to carcinogens, endocrine disruptors, and other types of hazardous chemicals?

- **Legal Accountability**

How can we ensure plastic polluters are subjected to the highest standards of legal and financial accountability for the problems they create.

This white paper, published to mark the launch of the Plastic Health Council of scientists, is the product of the high-level discussions held at the Plastic Health Symposium.

It provides a series of recommendations for the policymakers responsible for negotiating the detail of the Global Plastics Treaty.

The Symposium could not have come at a more important time. The international community is currently negotiating the details of a Global Treaty on plastic pollution. The fine print of the Treaty will be decided in five international negotiation committee sessions in the following countries:

- **INC-1 - November/December 2022 - Punta del Este, Uruguay**
- **INC-2 - May/June 2023 - Paris, France**
- **INC-3 - November 2022 - Nairobi, Kenya**
- **INC-4 - April 2024 - Canada**
- **INC-5 - October/November 2024 - South Korea**

This White Paper aims to provide an invaluable toolkit for international negotiators at each of the sessions. And in this spirit, we hope to ensure the world can truly fulfil the promise of a Global Plastics Treaty.

PART TWO

PLASTIC AND HEALTH A GLOBAL SCANDAL

The symposium was opened by Pete Myers, adjunct professor of chemistry at Carnegie Mellon University in Pittsburgh, Pennsylvania and Chief Scientist of Environmental Health Sciences. He provided the symposium's opening scientific statement:

"Scientists have worked for decades on the chemical dangers of plastics, and we know a lot. While plastics can be versatile and useful materials, unfortunately, they also are a significant source of harmful chemicals that leach during normal use, during production, and during disposal.

In addition to chemicals from plastics, micro- and nano-plastic particles originating from plastics lead to widespread pollution of humans, organisms, and ecosystems. Data now shows that no one, anywhere, can escape from exposure to plastics particles and plastic chemicals.

Our fate as a civilization is now threatened by this plastic deluge and its devastating impacts, which is still growing exponentially with no end in sight. Plastic chemicals have become so ubiquitous and pervasive globally at levels harmful to most, if not all, biodiversity, including human beings, that they have become an existential threat. Knowing what science has revealed to us, we can no longer accept this trajectory. This must stop now.

The plastic deluge is already upon us. Yet industry is insisting that they continue on their current trajectory of exponential growth. Thirty years of unimpeded exponential growth by the plastic industry will take a situation that is already unsustainable - 5 minutes past midnight - and make it truly horrific, a tsunami.

As scientists, we are at our wit's end: For decades, we have published peer-reviewed studies on hazardous chemicals in plastics and, more recently, on microplastics' health impacts, leading to serious concern. We have written op-eds and commentaries, and expressed our apprehension in ways we consider appropriate as scientists - all to no avail.

Nothing sufficient is happening to stem the plastic tide and to minimize the damage to the future of our children, and of the Planet. Nothing!

So, we are now calling upon you, the legislators and regulators, to please make the necessary and fundamental, systemic changes, to ensure the survival and humanity of humankind from the known and harmful excesses of the plastics industry - scientists cannot do it."

Professor Myers statement is rooted in a body of overwhelming scientific evidence that links plastic to serious diseases:

- Plastics are composed of polymers. Global plastic production amounts to some 400 million tonnes per year¹, and this figure is still growing. Approximately 12-15 million tonnes of plastic waste enter the oceans every year. Once in an environment, plastics release additives and break down into micro and nanoplastics. Today, plastic particles are part of the daily human diet, Plastic particles are also omnipresent in the air we breath.
- Microplastics are ubiquitous and therefore a health risk for humans and animals if they get into their bodies. Micro- and nanoplastics are generated by the normal and intended use of plastic food packaging, by the washing of plastic textiles from tyre abrasion and synthetic carpets. The distribution and abundance of microplastics is so wide that the historical time we live in has been defined as 'Plasticene'.
- Human exposure to certain plastic chemicals can adversely affect the metabolism and induce severe illness as well as compromise adequate foetus-developments.
- Microplastic particles, with hazard potential, have been detected in the environment, marine water, freshwater, agroecosystems, atmosphere, food, drinking-water, ecosystems, animals, plants, fruits, feedstocks, and other locations.
- When plastic ends up in the environment, it tends to bind with environmental pollutants. With plastic that moves through the food chain, the attached toxins can also move and accumulate in animal fat and tissue through a process called bio-accumulation. The bioaccumulation of toxins represents one of the most startling impacts of the plastics crisis. But it is a concept that is barely understood or reported on.

In Spring 2023, The Minderoo-Monaco Commission on Plastics and Human Health³ revealed that "More than 10,000 synthetic chemicals, including phthalates, bisphenols, per-and polyfluoroalkyl substances (PFAS), brominated flame retardants and organophosphate flame retardants are integral components of plastics.

Unfortunately, these components leach out during daily use, and toxicological and epidemiological evidence shows increasingly that many of them have neurotoxic, carcinogenic, immune, and endocrine-disrupting impacts on human health.

This wealth of clear, existing evidence that plastic is harmful to human health puts in sharp focus the urgent need for the Global Plastics Treaty to put protecting humans at its heart.

¹ Drowning in Plastics (2021) wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/36964/VITGRAPH.pdf

² Additives in the Plastics Industry (2011) doi.org/10.1007/698_2011_112

³ The Minderoo-Monaco Commission on Plastics and Human Health (2023) annalsofglobalhealth.org/articles/10.5334/aogh.4056

PART THREE

SYSTEMS CHANGE

The Global Plastics Treaty could represent a milestone moment in the trajectory of the plastics crisis. But this will only happen if it rejects the broken model of piecemeal tweaks and embraces root-and-branch systems change.

Too often, if not invariably, short-term profit maximisation has guided technological progress, but this can lead to false solutions for the plastic crisis, such as bioplastics as a simple, silver bullet drop-in solution.

Bioplastics still are plastics, and they can contain hazardous chemicals even when not synthesized from petrochemicals. And not all bioplastics fully degrade at a meaningful time scale when littered into the environment. To effectively address the problems, society must prioritize real systems change and innovation.

This involves rethinking the entire lifecycle of plastic products, from design and manufacturing to consumption and waste management. Not just rethinking, but also carrying out meaningful tests about toxicity and permanence, using the highest standards of contemporary science.

Encouraging research and development of new technologies, as well as promoting collaboration among industries, governments and communities, can drive the necessary changes in society's plastic consumption habits and waste management systems. But we're not there yet and this takes time.

Even seemingly promising approaches such as bioplastics need comprehensive study and testing before going to market. "If you don't test, you don't know", should be the principle guiding the assessment of any novel materials. Systems change also involves implementing effective policies, regulations, and incentives to encourage responsible production and consumption practices.

By fostering a culture of sustainability and supporting innovative solutions, society can collectively work towards a future with reduced plastic pollution and a healthier planet.

The recycling myth

For too long the world has operated under the industrial myth that we can recycle our way out of the plastics crisis. But most plastics can only be recycled a few times before being considered valueless. There is also an emerging body of evidence that suggests recycling may actually increase the toxicity of plastic.

A report by Greenpeace USA revealed in May 2023⁴ that:

"Recycled plastics often contain higher levels of chemicals that can poison people and contaminate communities, including toxic flame retardants, benzene and other carcinogens, environmental pollutants like brominated and chlorinated dioxins, and numerous endocrine disruptors that can cause changes to the body's natural hormone levels."

Thus, the world is witnessing an increasing acceptance that plastics recycling does nothing to protect human health. Instead, a radical reduction in the production and proliferation of plastic is urgently needed.

Microfibre release

The unintentional release of microfibres represents a profound issue for the world. When these textiles are manufactured, washed with your laundry, worn, or dried, they release plastic fibres in the water and the air.

These microfibres have been found in almost everything we eat, drink and inhale: fish, seafood, chicken, tap water, bottled water, salt, beer. They have entered our food chain, implying that humans ingest microplastics as part of their daily diet.

Because of their small size and light weight of these microfibres, atmospheric distribution is a dominant pathway, releasing fibres at a rate several orders of magnitude greater than via treated wastewater effluent. Therefore, airborne microplastics pose a very relevant exposure pathway and there is therefore a real need to both eradicate plastic from textiles as much as possible as well as take strong mitigatory action including devices such as mandatory microplastic filters on washing machines

⁴ Forever Toxic: The science on health threats from plastic recycling (2023) www.greenpeace.org/usa/reports/forever-toxic

New materials

At the heart of systems change will be a wholesale shift to materials that are considerably less toxic than plastic. Many of these plastic-free material innovations have already reached the market and are successfully winning market share away from their petrochemical counterparts.

There is considerable debate about the role of bioplastics and materials that purport to be compostable despite exhibiting the same polymeric characteristics of plastic. These materials face a range of challenges – and for many of them the industrial composting infrastructure required to process them does not and will not exist for years to come.

There is therefore a clear need for UN member states to provide significant fiscal incentives to encourage the mainstream uptake of truly plastic-free materials that:

- 1) do not share the toxic properties of plastic and the associated risk to human health; and
- 2) can easily be processed at their end of life by existing waste management infrastructure.

Time to change

To protect human health, a fundamental change is needed in the way that plastic is made and consumed – international experts agree on this. But there is less agreement on the time frame in which this profound transformation can be achieved.

What is clear however is that the global plastic status quo will not change unless it is given crystal-clear deadlines in which to modify their collective business model.

A radical reduction in the proliferation of plastic and its subsequent risk to planetary and human health will only happen if the Global Plastics Treaty provides clear short, medium and long-term mandatory targets for UN member states.

These targets must be codified in a way in touch with the realities of global societies and economies, but profoundly ambitious. Only with strict deadlines can progressive governments and businesses be empowered to change, and their less enlightened counterparts be compelled to reform their practices.

PART FOUR

SAFE AND SUSTAINABLE CHEMICALS BY DESIGN

Creating a global economic order with a regulatory environment that permits only the proliferation of safe and sustainable chemicals is a pre-requisite in the protection of human health. This white paper advocates strong multi-lateral international action to make this vision of the future a tangible reality.

Today's world-wide chemical enterprise is a ticking time bomb, posing a massive risk to our global community. The widespread use of certain harmful chemicals, known as endocrine disruptors, is damaging the health and well-being of citizens, affecting our ability to think clearly, fight off diseases, have healthy children, and to even have children at all. Our society's current reliance on these plastics and toxic chemicals is a recipe for disaster.

We must change course and innovate to create a safer, more sustainable future. We must enter a new era of chemical science, focusing on developing truly safe alternatives to carcinogens, endocrine disruptors, and other types of hazardous chemicals that are widely in use today, and replacing plastics with non-toxic materials that will not harm the environment nor human health.

Past efforts have stumbled due to a lack of bold action. It is time now to push forward with safe and sustainable chemistry by design. This innovative approach will drive European technology and economic growth while eliminating the risks associated with EDCs and plastics. Science has given a clear direction. Society must work together to build a healthier future.

Plastic Additives

To solidify plastic products, producers use reinforcing substances such as bisphenol A (BPA). To make plastic soft and flexible, producers use plasticisers such as phthalates. To make furniture and electronics less flammable, fire retardants are added to plastic during production.

Altogether there are thousands of plastic additives used that consumers come into contact with on a daily basis. Some of these substances are harmful to health and are found in human urine and blood as a result of this exposure.

The Global Plastics Treaty must therefore create a strong impetus for UN member states to introduce strong bans on hazardous plastic chemicals. (such as additives). This in turn could significantly mitigate the substantial risk to human health posed by plastic.

Chemical Recycling

Chemical recycling in its essence is an inherently linear process. It is a process in which plastic waste is broken down using high heat or more chemicals and turned into a low-quality fossil fuel.

This is the plastic industry's solution to deal with plastics that cannot be recycled mechanically. Chemical recycling is energy intensive and should not be considered a sustainable technology or solution for dealing with plastic waste.

It is therefore falsely presented as a solution to the climate crisis.

Chemical recycling is not viable. It has failed and will continue to fail for the same down-to-earth, real-world reasons that the conventional mechanical recycling of plastics has consistently failed. Worse yet, its toxic emissions could cause new harm to our environment, climate, and health.

The Global Plastics Treaty must therefore formally reject chemical recycling as a silver bullet solution to the plastics crisis.

Testing for Toxicity

The Plastic Health Symposium saw delegates issue a clear challenge to UN member states - urgently turn off the plastic tap to protect human health.

One of the most effective ways UN member states can achieve this is to introduce rigorous regimes in which the burden of proof is on companies to show their plastic products have no adverse effect on human health before they are allowed to enter the market.

This would see member states introduce much more rigorous product testing - with independent panels of experts briefed on the latest science (on plastic chemicals including phthalates and BPA) tasked with ensuring a product is safe to be used by consumers.

PART FIVE

LEGAL ACCOUNTABILITY

During the symposium, scientists, NGOs and politicians alike expressed a clear view that the Global Plastics Treaty must ensure plastic polluters are subjected to the highest standards of legal and financial accountability for the problems they create.

Humankind cannot live healthily in a world where major polluters are granted de-facto impunity by the international legal system and those legal architectures of UN member states.

Legal and financial accountability for plastic pollution is an essential element in the fight against this pressing environmental disaster. It involves holding manufacturers, businesses, and even individuals responsible for the negative impact their use and production of plastics have on the environment and on human health.

By creating and enforcing laws, regulations, and penalties for improper plastic disposal or unsustainable production practices, society can encourage more responsible behaviour from all stakeholders. Solutions are on the horizon. This is doable. A key element in fostering this change is prioritising the well-being of our planet over short-term profit maximisation.

Encouraging businesses and individuals to consider long-term environmental consequences instead of focusing solely on financial gain helps create a more sustainable and conscientious society.

The requisite tectonic shift from money-first to sustainability-first will require a suite of new laws, as well as the assertive use of the environmental protection laws Europe already has. Legal accountability not only aids in reducing plastic pollution but also cultivates a culture of environmental awareness, ultimately contributing to a cleaner, healthier planet for future generations.

Real leadership takes real regulation

For progressive business leaders, well-designed regulation should be no barrier to innovation, progress, and commercial success.

In fact, good regulation properly promotes competition and innovation because the alternative is a piecemeal self-regulated market where polluters

act with impunity and those that do the right thing are put at a competitive disadvantage.

Progressive businesses are happy to innovate at pace to comply with a rapidly evolving regulatory environment. By doing this, everyone benefits – including shareholders, wider society, and the planet.

The onus should not be placed on consumers to lead change because people only purchase what companies elect to sell them. And as a result, real leadership must be rooted in UN member states being brave enough to judiciously regulate the companies that fall under their jurisdiction.

The Fallacy of Voluntary Agreements

The symposium also saw leading politicians express their grave concerns about the efficacy of voluntary agreements in minimising human health harms from plastic waste. For many large corporations, voluntary agreements represent a cynical attempt to obfuscate and confuse policymakers into thinking mandatory regulations are excessive and unnecessarily litigious.

Today the world has more voluntary agreements than at any time in human history. And yet the plastic health crisis is more serious than ever before.

Criminalising 'ecocide'

At the heart of the Treaty should be the international criminalisation of 'ecocide' - unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either wide-spread or long-term damage to the environment being caused by those acts.

There was clear agreement – the massive proliferation of plastic, the toxic chemicals it obtains and its eventual release to the environment represents a crime tantamount to 'ecocide'. The Global Plastics Treaty will fail to ensure proper legal accountability for polluters unless it establishes a fundamental jurisprudence of ecocide.

Tackling Greenwashing

Corporate greenwashing represents perhaps the biggest threat to progress on the plastics crisis. It is – the symposium agreed – a major barrier in ensuring polluters is properly held to account. The Global Plastics Treaty must therefore create the impetus for UN member states to begin to legislate against greenwashing.

This could be in the form of mandatory independent auditing of large company's environmental claims – with mistruths punished in ways equivalent to the prosecution of fraudulent financial accounting.

Science is Sacred

So often at the heart of greenwashing is an attempt to suggest to the public that the science on plastic is unclear. And so petrochemical polluters can justify doing very little to cut their plastic output or address their use of chemicals.

The Plastic Health Symposium saw numerous attempts by industry to antagonise scientists or seek to discredit rigorous, peer-reviewed scientific work.

Now more than ever before, it's time to listen to the scientists. They have no agenda other than to measure the objective truth.

Ensuring Equity

There was clear consensus at the symposium that the plastics crisis is both a cause and a symptom of a deeply unequal international system.

Hyper consumption of plastic waste in the Global North translates to pervasive pollution in the Global South. The world's biggest petrochemical behemoths are headquartered in London and Tokyo, but the products they market litter the beaches of Bangladesh and West Bengal.

There is a clear need for the Global Plastics Treaty to enshrine in law a new legal order that places equity and fairness at the heart of accountability for pollution.

This means developing a system that is as punitive on Ecocide in New Delhi as it is on environmental crimes in New York. And it means ensuring the Global South is protected from the worst excesses of the Global North.

Real extended producer responsibility

The symposium saw thought leaders highlight the clear and pressing need to ensure UN member states are empowered to introduce extended producer responsibility schemes that properly hold polluters to account. This means ensuring that the costs of pollution and associated externalities are shifted away from municipalities and communities towards the producer themselves.

POLICY RECOMMENDATIONS

A 10 POINT BLUEPRINT FOR CHANGE

The Global Plastics Treaty represents a monumental opportunity for the world to protect future generations from the manmade plastics crisis.

Drawing on the range of insights generated at The Plastic Health Symposium and the latest science, the Plastic Health Council puts forward the following 10-point blueprint for change.

This blueprint, if followed, will help deliver the truly impactful Global Plastics Treaty the world deserves:

Blueprint for Change

1. Global position statement on plastic and its human health impact

There is already clear evidence that plastic is harmful to health. There is no need to spend a billion dollars on further studies that take years to complete. The Global Plastics Treaty must set out a clear global position statement ratified by UN member states that accepts plastic is a leading cause of ill-health.

2. 1-year, 3-year, and 10-year mandatory plastic reduction targets

The world cannot afford to wait until 2040 or 2050 to realise meaningful progress in the reduction of the proliferation of plastic. The Global Plastics Treaty must therefore set out tough quantitative plastic reduction targets that UN member states must enshrine in their own domestic legislation.

3. A global position statement against unsafe and irresponsible forms of plastic recycling;

This White Paper has demonstrated that plastic recycling does nothing to tackle the inherent toxicity of plastic, instead it compounds it. And therefore, investment in plastic waste management infrastructure

will not mitigate the health impact of plastic. The Global Plastics Treaty must therefore set out a multi-lateral statements that plastic recycling should not be considered the answer to the waste crisis. It must caution too that wholesale investment in plastic recycling infrastructure risks becoming a stranded asset as the plastic health risk escalates.

4. UN Member States provide fiscal incentives to accelerate uptake of plastic-free materials

Industry will not move at the pace that is required without the tools and incentives to do so. UN Member States must promote and encourage investment in alternative materials and systems to plastic, starting with single use plastics. Tax incentives to tax breaks for companies that are innovating in the market and already brought disruptive plastic-free solutions to the market. There are already countless examples of suitable replacements.

5. A worldwide ban on toxic plastic additives

There is no good reason why humankind must sacrifice global health by including hazardous additives such as bisphenols in consumer products. The Global Plastics Treaty must give UN member states the impetus to ban plastic additives to protect human health.

6. Stricter regulation on chemical recycling claims

The petrochemical industry currently presents chemical recycling as an enhanced next-gen development on conventional mechanical recycling. This White Paper has shown chemical recycling does nothing to protect human health, conserve raw materials, or reduce carbon emissions. The Global Plastics Treaty must empower member states to properly scrutinise claims regarding the merits of chemical recycling,

and where possible take punitive action to prevent the dissemination of misinformation by fossil fuel companies.

7. Mandatory testing for pre-market plastic product toxicity

Before any product is permitted to be sold to consumers, it should be verified by an independent panel of scientific experts who are fully briefed on the latest science regarding the health impact of plastic. If a product prevents a toxicity risk to the health of current and future generations, it should not be allowed to reach the market.

8. International Criminalisation of over-production of toxic Single Used Plastics as a form of Ecocide

The wilful and negligent destruction of nature has been allowed to continue for decades. And it has been enabled by an international legal order that lacks the mandate to tackle it head on. The Global Plastics Treaty must convene UN member states around a basic principle - ecocide is a criminal act and offenders should be prosecuted accordingly.

9. An international 'greenwashing' transparency and accountability standard, and

There can be no tangible progress on the reduction of plastic proliferation while greenwashing is allowed to flourish with impunity. The Global Plastics Treaty must invigorate UN member states in their pursuit of companies that mislead their citizens and deliberately spread misinformation to wilfully obstruct the truth.

10. Worldwide real extender producer responsibility

Global plastic polluters will never be held to account until they are compelled to cover the full social and environmental externalities of the products they put on the market. A well-designed Global Plastics Treaty will establish minimum standards for corporate extended producer responsibility as an urgent priority.

THE PLASTIC HEALTH COUNCIL

After 4 years working together, supporting the scientists through two very successful Plastic Health Summits, Plastic Soup Foundation and A Plastic Planet have joined forces to create the new PLASTIC HEALTH COUNCIL. This new global Council supports the leading health scientists focusing on plastic and chemicals impact on human health. The Plastic Health Council has one simple goal - to protect future generations from the manmade plastic health crisis.

Throughout these INC negotiations, we have a narrow window to impact the UN Plastics Treaty, to ensure the final Treaty is robust and does indeed protect the unborn, the next generations from the impact of microplastics, nano-plastics and chemicals within plastic. The scientists are clear. We have the evidence. Now we need to act.



Contact information

A Plastic Planet

Sian Sutherland

Sian@aplasticplanet.com

+44 7768 385383

Plastic Soup Foundation

Maria Westerbos

Maria@plasticsoupfoundation.org

Mobile +31 (0) 6 510 90 91

Higginson Strategy

Tom Beresford

Tom@higginsonstrategy.com

+44 7770 518729

