

## Do Our Children Stand a Chance from the Impact of Climate Change?

**A R Gatrad<sup>1\*</sup> and Dr Ijaz Bashir<sup>2</sup>**

<sup>1</sup>*Professor of Paediatrics and Child Health, Universities of Kentucky, USA, University Birmingham and University of Health Sciences Lahore, Pakistan, Founder of WASUP (World Against Single Use Plastic -Incorporating Climate Change)*

<sup>2</sup>*Chairman and CEO of Aisha Bashir and Cleft Hospital, Gujarat Pakistan, Chief Pakistan WASUP Ambassador*

**\*Corresponding Author:** A R Gatrad, Professor of Paediatrics and Child Health, Universities of Kentucky, USA, University Birmingham and University of Health Sciences Lahore, Pakistan, Founder of WASUP (World Against Single Use Plastic - Incorporating Climate Change).

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“Humanity is waging a suicidal war against our planet”.

- UN Secretary General.

We presently have a global climate crisis at a possible tipping point - a point of no return with temperatures soaring inexorably. To get on track to 2°C rise, a 30% reduction in greenhouse gases is needed, whereas a 55% reduction is needed to achieve 1.5°C - our acceptable aim suggested by the Paris Agreement in 2015 signed by 196 nations at COP 21. But the world continues to remain blindfolded.

During the summer of 2022 the record-breaking heat resulted in over 60,000 deaths in Europe alone, and in 2024 we have witnessed the hottest ever recorded global temperatures in Europe, North America and Africa. In China 53°C was recorded. These extremes of heat are getting more extreme and lasting longer with ‘ever burning’ fires in many countries endangering life and limb. Some are classing this year as the start of the tipping point. Scientists are now calling this, not global warming but ‘Global Boiling’.

Human health both mental and physical, particularly that of children, is inextricably linked to the health of the earth’s natural systems, which create the air we breathe, the food we eat and the water we drink. This complex set of relationships is sometimes referred to as ‘planetary health’ and moving forward it is increasingly recognised as a critical perspective for the health of our future generations.

The climate crisis also poses a substantial risk to the healthcare infrastructure and vital services, not forgetting its impact on individual health caused by heatwaves, flooding, wildfires and conflicts leading to a greater demand for hospitalisation. This is already evident, with further pressure from the presence of vector borne diseases, such as malaria and dengue fever, in areas where they previously did not exist.

Ever since the industrial revolution, over 150 years ago, greenhouse gas emissions have increased, particularly carbon dioxide, and indeed over the last 50 years exponentially so. In addition, human activity has removed over half of wild birds, mammals, fish, and insects from our planet. In fact, a global study of 71,000 animal species found that 48% are declining. A further pertinent example of our human activities affecting the eco system is the staggering figure of 100 million sharks killed for food per year, decimating their population.

Over the last 100 years sea levels have risen between 11 - 16 cms and it is estimated that they will rise by 50 cms in the next 100 years as more and more arctic glaciers melt. Many islands, such as the Maldives, will simply sink. In fact, there is now an inexplicable phenomenon of ‘hazard flips’ where areas that were prone to drought experience flooding and vice versa.

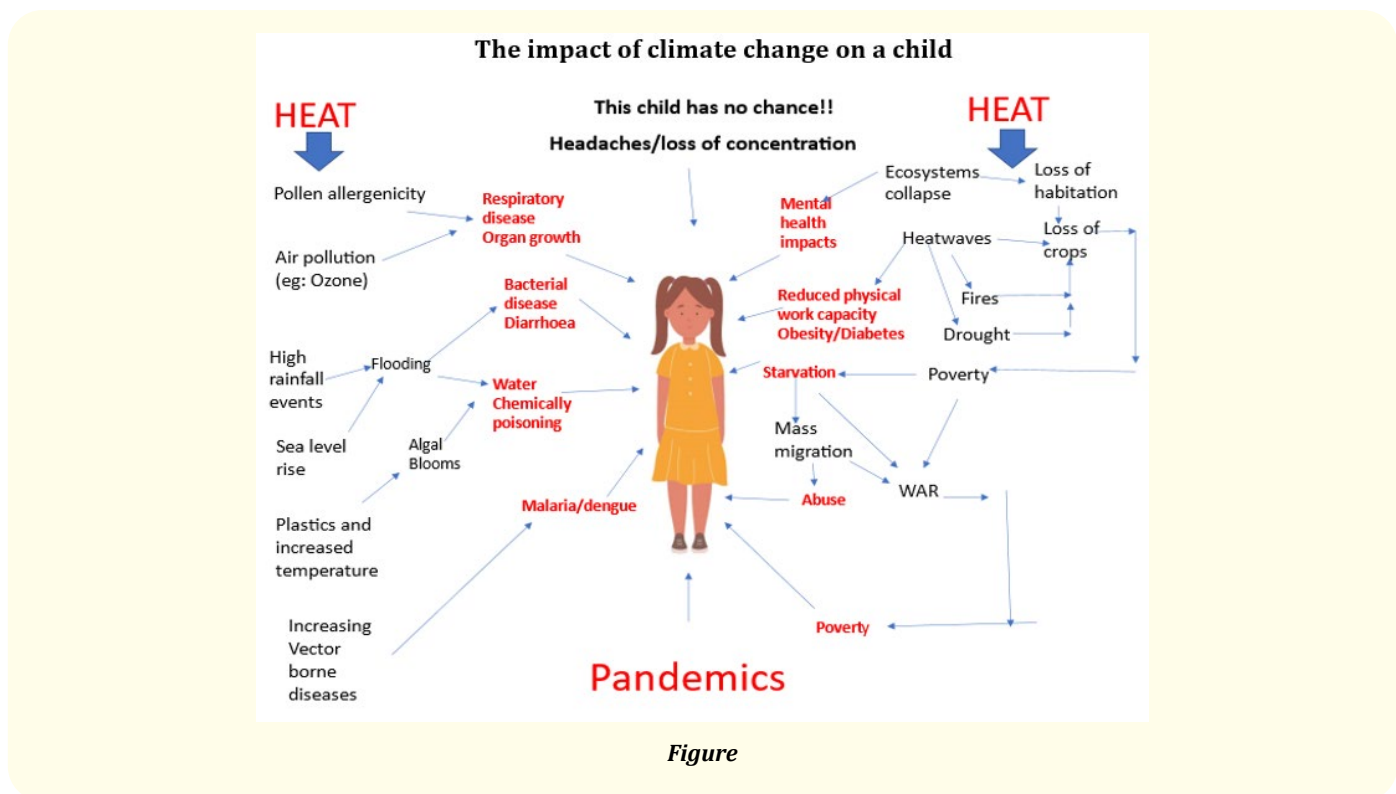
Over 6 billion tons of plastic waste have reached our waters over the last 50 years. As this waste lasts hundreds of years, the original plastic that was manufactured is still on this planet! Only 10% of global plastic is recycled. Ten percent of greenhouse gas emissions are from plastic manufacture, the main fossil fuel in its production being oil.

Our daily consumption of single use plastics and their composites are filling our oceans; marine life is strangled and strewn across litter filled beaches, which are becoming a telling sign of humanities’ failings. Pollution of our rivers and sea corals, on which all marine life depends, are in a crisis and heading for extinction too.

The impact of air pollution due to burning of fossil fuels is greatest on children whose physiology is such that their breathing and heart rates are faster. This results in more toxins being inhaled. Their immature organs, particularly the brain, are more vulnerable to the particulate matter in air pollutants. With pregnant mothers being similarly affected, children are therefore exposed from the womb to the grave.

These < 2.5 microns pollutants (particulate matter) in the air, aside from causing lung problems such as asthma, escape the lungs and impact on every organ of the body, affecting cognitive and other bodily functions. They are implicated in cancers, strokes, heart attacks, dementia and diabetes. According to the WHO over 95% of children globally breathe ‘toxic air’.

Microplastic is not only on land and seas but also in the air. For example, jumping up and down on the carpet releases plastic fibres that are inhaled. Plastic is in our blood, reproductive organs, brain and indeed all organs. This can result in infertility, cancers and depression of the immune system. Plastic is discarded by many countries and burnt. The dioxins produced are seriously harmful to children who play around these sites.



Figure

Children also have a relatively large bodily surface area per weight, compared to adults. Added to the fact that they also have an immature sweating system makes them more vulnerable to rising temperatures affecting their health, daily activities and concentration in schools. Climate inaction is costing lives and livelihoods today, with new global projections revealing the grave and mounting threat to health of further delayed action on climate change. Bold climate action could offer a lifeline for health.

Warnings have been issued by scientists for over 40 years in response to worldwide concerns regarding soil erosion, depletion of natural resources and habitat loss, made worse by widespread deforestation as a result of mindless actions of farming, timber and mining companies. These warnings are now a reality. If global warming continues to change faster than we can change its course, there will be an Armageddon not in some distant future, but in our lifetime; a frightening prospect for many but a reality all too close. As custodians of our planet, we have so far failed abysmally. What is more, is that we are spending billions on space exploration to further exploit, whilst millions on this planet continue to starve - a prime example being India landing a lunar probe in August 2023.

Scientists invented the engine that kick started the industrial revolution, and it is scientists, in different ways, who can and will help save our world, but they have to act quickly as there is a global climate emergency and in this, each one of us has a part to play. We can, for example, start by eating locally grown food, decrease our beef consumption and use less fossil fuel-based transport.

Research should be the bedrock of all universities and institutions, and be supported by government grants and subsidies, be it for harnessing energy from the sun and wind to produce green hydrogen for energy through electrolysis of water, or ways of capturing carbon.

In our present Anthropogenic geological era, our innate greed is coming back to haunt us, and in the process affecting populations, particularly children, of poorly resourced countries with catastrophic effects. An example of this being food insecurity, through droughts, floods and fires affecting millions of children worldwide. According to UNICEF (2023) 43 million children have been displaced over the last 6 years in 44 countries and the United Nations High Commissioner for Refugees António Guterres stated that human-induced climate change will become the biggest driver of population displacement in this century prompting an estimated 150-200 million people to move by 2050. This climate crisis is so complex that even the physical and mental safety of children is affected during 'climate migration' because of flooding, conflict, crop failures or drought.

Bellizzi., *et al.* (2023) state that although the term "climate refugees" has been introduced since 1985, in practice those people may not be able to claim asylum based on climate change reasons alone and as a result do not have adequate access to legal protection of their rights.

It is however heartening to know that several countries (Argentina, Finland, Australia) have started to offer special arrangements in order to protect persons displaced by natural disasters (e.g. visa schemes facilitating moves etc). They conclude that early preparedness and early warning systems are crucial to address those situations, alongside collaboration. The trillions of dollars agreed by COP 29 to help mitigate climate change, adapt and become resilient has been slow in coming and will be a reality by 2035. This is just too late!!

Although probably an underestimate, globally 5 million deaths a year are directly attributed to fossil fuel use and air pollution. Furthermore, it is expected that there will be 250,000 additional deaths per year from undernutrition, malaria, cholera, other diarrhoeal diseases and heat stress. Additionally, there is a global threat to the ever-decreasing ground water supply for sustenance, with direct effects of weather on crops affecting global food security.

It was in 2020 when residents of 10 villages surrounding Lake Baringo in Kenya saw their homes being submerged as lake waters swelled past human habitability. These residents were marginalised in an internally displaced persons' camp and when they were asked

what had displaced them, they replied with one simple word, "Water". (Extracted from 'Climate Change eBulletin August 2023 - Royal College of Paediatrics and Child Health). Is it not ironic that the more our world develops, the more challenges it faces? To readdress this imbalance, we need to revive our human values, not based on greed and over consumption, but on learning about and understanding the impact of our activities on the natural world. We all should share this concern, to help make our world a safer, more equitable place in which to live. A place where the eight people who control half of global wealth could dig deep into their conscience and ask themselves 'what can we individually or collectively do to mitigate this climate emergency?'

We must also remember that most countries strive, some at least in theory, for their populations to achieve their full potential and be happy. Each country should work in its own way to achieve this, and wealthier countries should help the poorer resourced ones to lessen human suffering. This will then inevitably contribute to a much happier world order. In the words of Bill Gates, one should be judged 'on how well you address deepest inequalities, and how you treat a people a world away who have nothing in common with you except their humanity' A recent example in 2022 was the flooding in Pakistan, a country which only contributes to 1% of global emissions, and yet was, and continues to be disproportionately affected. Here there was a fourfold increase of malaria including, in those provinces where it had been completely eradicated.

No religion condones destruction of our planet indiscriminately; on the contrary all religions in their own way make us, humans, custodians of this planet to ensure happiness and health.

With shortage of land though fires and floods, man and animal will come closer and compete for food and land. Man will eat unusual animals with transmission of zoonotic viruses such as Covid and Ebola leading to pandemics possibly worse than Covid.

With the loss of snow and ice over the poles (permafrost) there will potentially be hydrocarbons and viruses that have been buried for centuries released, that man will not be able to cope with - Is this a world we want for our children?

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