

*“Climate change is now reaching an end-game scenario, where very soon humanity must choose between taking unprecedented action, or accepting that it has been left too late and bear the consequences”.*

— **Leading climate scientist Prof. Hans Joachim Schellnhuber**  
Director Emeritus Potsdam Institute for Climate Impact Research (Club of Rome Member)<sup>1</sup>

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# THE CLUB OF ROME CLIMATE EMERGENCY PLAN

A Collaborative Call for Climate Action

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**By Members of the Club of Rome:**

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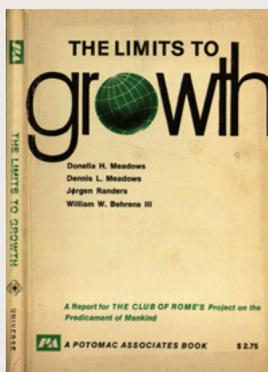


With this emergency paper, the Club of Rome is attempting to respond to the direct calls for action from citizens around the world, and to formulate a plan that will meet suitably ambitious reduction targets and ensure climate stability.



# CHALLENGE AND OPPORTUNITY

**The recent Intergovernmental Panel on Climate Change (IPCC) report on the impact of 1.5 °C and 2°C warming above pre-industrial levels<sup>ii</sup> sends a stark reminder to humanity about the existential threat posed by climate change. To avoid the worst of the predicted outcomes, global carbon emissions must be cut by half by 2030, to zero by 2050. This is an unprecedented task, requiring a reduction rate of at least 7% annually; no country has to date achieved more than 1.5%. The only possible response is emergency action that will transform human social, economic and financial systems.**



To put the situation into historical perspective, the Club of Rome alerted the world to the environmental and demographic challenges ahead as long as fifty years ago. The central message of *The Limits to Growth – A Report to the Club of Rome*<sup>iii</sup> published in 1972, was that the quest for unlimited growth in population, material goods and resources, on a finite planet, would eventually result in the collapse of its economic and environmental systems. Unfortunately, it seems this prediction is beginning to materialize and will escalate, unless humanity radically changes course.

Together with the mass extinction of species and the rise of inequality within and between nations, climate change is human society's most pressing global challenge. Until recently, it was seen as a future threat; but today, increasing climate chaos is a reality affecting the lives of millions. In the 21st Century, it will dictate the long-term prosperity and security of nations and of the entire planet, more than any other issue. With this emergency paper, the Club of Rome is attempting to respond to the direct calls for action from citizens around the world, and to formulate a plan that will meet suitably ambitious reduction targets and ensure climate stability.

Acceptance of this reality will create the basis for a societal renaissance of unprecedented proportions. This is the vision the Club of Rome and its partners offer - a positive future where global inequalities are dramatically reduced, well-being rather than growth is the economic norm, and harmony is reached between humans and nature.

Our historical recognition of the existential nature of this threat, the need for an emergency response, and the opportunity such planning can present, is the unique contribution which the Club of Rome wishes to bring to this debate. We are calling on governments, business leaders, the science community, NGOs and citizens to rise to the challenge of climate action, so that our species can survive and create thriving civilizations in balance with planetary boundaries.<sup>iv</sup>

# OUR CALL TO ACTION

## Transform Energy Systems

- 1. Halt fossil fuel expansion and fossil fuel subsidies by 2020:**
  - No new investments in coal, oil and gas exploration and development after 2020
  - Phase out indirect and direct fossil fuel subsidies by 2020–2025 in developed countries and by 2030 in developing countries, and redirect funds to support investments in renewables and energy efficiency
  - Minimise fugitive emissions from fossil fuel operations
  - Total phase-out of the existing fossil fuel industry by 2050
  
- 2. Continue the doubling of wind and solar capacity every four years, and triple annual investments in renewable energy, energy efficiency and low carbon technologies for high emitting sectors before 2025.**
  - Give priority to developing countries to avoid locked-into-carbon economies
  - Adopt sustainable finance taxonomies, finance sector and corporate disclosure, and transformational benchmark requirements for public and private finance
  - Shift public funding and public procurement programmes to cost-efficient low carbon energy infrastructure and products
  - For the developed world (developing world targets structured to local priorities):
    - Tighten CO<sub>2</sub> emission standards for all new light and heavy-duty vehicles to target at least a 50% reduction by 2030 and an 80% reduction by 2040<sup>vii</sup>
    - Prohibit new internal combustion engine sales by 2030
    - Reach zero carbon in new buildings by 2030 and in building retrofits by 2030
    - Achieve zero-carbon electricity grids and the manufacturing of energy intensive materials by 2040.
  - Call on development banks, development cooperation agencies and the Green Climate Fund (under the UNFCCC) to give priority to de-risking clean energy investments in developing countries.

## Rethinking Pricing & Growth Indications

- 3. Introduce realistic pricing and taxation to reflect the true cost of fossil fuel use and embedded carbon by 2020:**
  - Introduce carbon floor prices
  - Tax embedded carbon through targeted consumption taxes. Direct tax revenues to research, development and innovation for low-carbon solutions, cutting taxes or propping up the welfare state
  - Converge carbon markets and instruments into a worldwide structure, particularly covering energy and energy-intensive sectors
  
- 4. Replace GDP growth as the main objective for societal progress:**
  - Adopt new indicators – such as the Genuine Progress Indicator – that accurately measure human progress, welfare and wellbeing, rather than production growth
  - Make sure market prices reflect the true costs of production, i.e. integrating social, environmental and ecosystem decline costs in market pricing.
  - Scale-up Transformational Technologies
  
- 5. Improve refrigerant management by 2020**
  - Meet the Kigali Amendment<sup>viii</sup> to the Montreal Protocol mandating a phase down of HFCs by more than 80% over the next 30yrs.
  - Adopt ambitious standards and policies to control leakages of refrigerants from existing appliances, through better management practices that also include recovery, recycling, and destruction of refrigerants at the end of life.
  
- 6. Encourage exponential technology development by 2020**
  - Create an International Task Force to explore technology disruption and the optimisation of exponential technology for GHG emissions reduction by aligning digitalisation, exponential technologies (such as Artificial Intelligence), and business models with Agenda 2030, the Paris Agreement along with each country's Nationally Determined Contributions (NDC's) to the UNFCCC process.
  
- 7. Ensure greater materials efficiency and circularity by 2025**
  - Substantially reduce the impact of basic materials, e.g. steel, cement, aluminum and plastics, from a rate of almost 20% of carbon emissions globally today, to close to net zero.
  - Promote innovation, material substitution, energy efficiency, renewable energy supply and circular material flows to more than halve GHG emissions.

**The Club of Rome and its Partners call on all stakeholders – governments, civil society, scientific institutions, business - to adopt the following emergency action plan, based on the Carbon Law Initiative approach to halve global GHG emissions every decade till 2050<sup>v</sup>, and the industrialized countries' Paris commitment to provide a minimum of US\$100 billion dollars annually to low-income countries in support of low-carbon technology development and adaptation.<sup>vi</sup>**

## Accelerate Low Carbon Land Use, Mitigation & Adaptation tools:

### 8. Accelerate regenerative land use policies

- Adopt the Food and Agriculture Organization of the United Nations' (FAO) recommendations for 100% climate smart agriculture (CSA)<sup>x</sup>
- Protect and maintain healthy forests and estuarine wetlands to minimise dangerous climate change, provide resilience against climate related disasters, and ensure their essential contribution to the well-being of the planet and humanity.
- Triple annual investments in large-scale REDD+ reforestation and estuarine wetland initiatives in developing countries.
- Scale up soil carbon, forestry and estuarine wetland sequestration, incentivising farmers as proposed in the "4 par mille" initiative of the French government.
- Strongly support efforts to restore degraded lands through restoration methods such as Ecosystem Restoration Camps.
- Implement adaptive risk management procedures in every state, industry, city or community. This would entail undertaking a risk assessment, developing an adaptation plan at the appropriate scale, changing planning procedures and reviewing laws and regulations to permit or prescribe more robust systems to ensure resilience to climate change impacts.

## Guarantee the Human Dimension

### 9. Ensure that population growth is kept under control by giving priority to education and health services for girls and women; promote reproductive health and rights, including family planning programmes.

- Scale up all commitments to achieve the ambitions set by Family Planning 2020<sup>xi</sup> in order to provide 120 million more women and girls access to contraceptives by 2020.
- Ensure the roll-out by 2025 of UNESCO's International Technical Guidance on Sexuality Education<sup>xii</sup> in all countries, to ensure that girls and boys have access to the highest quality, evidence-based education packages that will enable them to make healthy choices about all aspects of their reproductive and sexual lives.

- Ensure the right to gender transformative education to give every girl the right to a safe, formal, quality education and access to lifelong learning.
- Empower women to make choices about reproduction, family size and timing.

### 10. Provide for a just transition in all affected communities.

- Recognise that the degree of social change needed to make a successful transformation to a sustainable future will extend throughout society, requiring fundamental shifts in behavior and rethinking of national and community support and care systems.
- Establish clear funding and re-training programmes for displaced workers and communities.
- Provide government assistance to enable higher carbon industries to diversify to lower carbon production, through tax breaks and incentives or other economic measures
- Reframe business models and roles for declining high-carbon industries such as oil, gas and coal.
- Support citizen action and litigation against countries not fulfilling their climate targets.<sup>xiii</sup>
- Support the Citizens Climate Pledge<sup>xiv</sup>, which calls for the world's wealthiest citizens, particularly the top 10% of earners causing 50% of all GHG emissions, to cut their emissions in half by 2030.

The manner and priority in which these issues are addressed will obviously vary from country to country, but the overall objective of rapid carbon emission reduction is their common goal.

Clearly there are many other systemic issues which need attention if humanity is to live in harmony with the planet. New economic, social and political frameworks will need to be put in place to ensure adequate wealth distribution and a proper notion of care. However, unless climate change is addressed as an emergency, those debates will become academic, as the opportunity for constructive human development will no longer exist.

Once the challenge of addressing climate change becomes reality, these frameworks become critically important to the emergence of our sustainable future and a societal renaissance.

The Club of Rome is seeking partners to support this nascent Action Plan, and to help ensure methods of implementation and accountability.

# THE RATIONALE FOR EMERGENCY ACTION

**Dangerous climate change is occurring at the 1°C temperature increase already experienced.** 2°C now represents the boundary of extremely dangerous climate change.

**Climate inertia means that allowing continued fossil fuel investment today, with its associated emission increases, risks locking in irreversible, existential climatic outcomes.** By the time the climatic impact of these investments becomes clear, it will be too late to take action and avoid extensive stranded assets.

**IPCC scenarios still rely heavily on carbon removal from the atmosphere as a prerequisite for meeting the 1.5°C target.** Their degree of dependence on several negative emissions technologies (e.g. BECCS), none of which exist at significant scale today, is extremely dangerous, creating a false sense of security that there are easy solutions when in fact none exist.

**To stay well below the 2°C warming limit mentioned in the Paris Agreement, global emissions would have to peak no later than 2020 and be reduced by more than 7% annually thereafter.** To meet the lower 1.5°C target requires even more rapid reduction. By contrast, emissions continue to rise in line with worst-case scenarios.

**Probabilities being used to define the global carbon budgets needed to meet Paris objectives are unrealistic.** The IPCC sets up a 50 to 66% chance of successfully dealing with climate change as its goal; not good odds for the future of humanity. Carbon budgets and emissions reductions should be based upon a realistic chance they will meet their goals, that is, at least 90%. On that basis, there is no carbon budget left today to keep temperature rise below 2°C, let alone 1.5°C.

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**The recent IPCC summary report understates key risks in moving from 1.5°C to 2°C warming.** Examples include: a likely rise in climate-driven refugees; the danger of exceeding tipping points that could push the world onto an irreversible path to a “Hothouse Earth”<sup>xv</sup>; cryosphere risks such as Antarctic ice sheet instability and triggering of the loss of the Greenland ice sheet, leading over time to multi-metre sea level increase. Exceeding 1.5°C poses huge risks both for humans and natural systems.

**Atmospheric aerosols produced by burning coal and oil are cooling the planet by around 0.3°C to 0.50°C.** As these concentrations reduce with the phase-out of fossil fuels, a commensurate one-off increase in temperature is likely, further compounding the problem of staying below warming limits.

**Despite three decades of intense activity by NGOs, progressive business, governments, official bodies and international organisations, it is virtually impossible to now limit temperature increases to the lower 1.5°C limit of the Paris climate agreement.** It is probably not even possible to keep to the 2°C upper limit, unless state and non-state actors across the globe unite in support of fundamental change

Most Nationally Determined Contributions (NDC's) are not ambitious enough at the country level to ensure the well below the 2°C warming limit mentioned in the Paris Agreement let alone the 1.5°C warming limit called for by the IPCC. All government leaders have a moral obligation to current and future generations to ensure that they are secure in the short term and can continue to live within current planetary boundaries, thriving in a balanced ecosystem. It is to inspire such leaders that this document was created.



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As a result of inaction, climate change now represents an existential risk to humanity. That is, a risk posing permanent, massively negative consequences which can never be undone.



# BACKGROUND

**Humanity currently faces systemic collapse on many fronts, such as threats to the philosophical underpinnings of modern society’s democratic institutions and practices that include declining respect for human rights, the rule of law and the proper use of science, and very much needs more enlightened leadership.**

Decades of exponential growth in both population and consumption are now colliding with the limits of the Earth’s biosphere: the climate system is destabilizing; about half of the world’s tropical forests have already been cleared; in the last 150 years, half of its topsoil has been depleted; nearly 90% of fish stocks are either fully or overfished; and the sixth mass extinction event is well underway.

This situation is exacerbated by a global leadership that has abrogated its moral responsibility to provide security for the world’s people and the planet, even as the risks of irreversible climate change escalate.

The inability of our existing economic and financial systems to provide real quality of life and to ensure decent standards of living across the globe has also created social breaking points. The current neoclassical economic model was designed for an ‘empty’ world with a global population of around 2 billion people, when the bounty of natural resources seemed endless. Today we live in a full world of almost 8 billion people. Conventional economic growth is no longer sustainable, despite desperate efforts to keep it afloat with massive financial interventions such as “quantitative easing”. The prevailing mantra that all economic growth is good defies the reality of life on a finite planet with finite resources. There is an urgent need for new economic thinking and new indicators that value quality as well as quantity in our economic metrics.

Countries around the world are seeing climate effects first hand – from dangerous wildfires to extreme weather events such as flooding, droughts and record-breaking heat waves.

In 2017, climate disasters in the US alone cost US\$306 billion, double their 2016 cost; the predicted expense for 2018 is even higher. These figures are only for the US and do not include the loss of human life or displacement of peoples, which predominantly happens in the most vulnerable countries but is increasing even in rich ones. Experts predict 140 million climate migrants by 2050.<sup>xvi</sup>

The global climate is a complex, non-linear system characterized by inertia and punctuated by both fast and slow feedbacks. Inertia means changes in the climate system will continue for some time, even if emissions come to an abrupt halt.

With increasing warming, carbon sinks such as forests, plants and the oceans may become carbon sources, further accelerating warming. This threat is not new, having been well-documented over many years<sup>xvii</sup>, but has been ignored by incumbent leaders.

As a result of inaction, climate change now represents an existential risk to humanity. That is, a risk posing permanent, massively negative consequences which can never be undone, an adverse outcome that would either annihilate intelligent life or permanently and drastically curtail its potential.

Recognition of these implications creates the basis for a societal renaissance of unprecedented proportions. But realizing this vision requires swift action and the collective implementation of one of the most comprehensive emergency plans ever contemplated. The Club of Rome believes that such action, difficult as it may be, will create a much healthier, happier and more innovative global society.

# IMPLEMENTING THE PLAN

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**Humanity currently possesses the necessary technological, political and economic solutions to address climate change and seize the opportunities which transformation to a low carbon society presents; but the political will to use them has been lacking.**

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This Climate Emergency Plan sets out such priorities, but of course they cannot remain just a wish-list. The Club of Rome will act as a catalyst to develop momentum with partners across the spectrum of concerned organisations, to give political, community and business leadership the confidence and legitimacy to implement emergency action and ensure the implementation of ambitious NDC's.

This Climate Emergency Plan sets out such priorities, but of course they cannot remain just a wish-list. The Club of Rome will act as a catalyst to develop momentum with partners across the spectrum of concerned organisations, to give political, community and business leadership the confidence and legitimacy to implement emergency action. Over the course of the next three years, the Club of Rome will undertake a series of key catalyzing interventions and engagements with partners in order to ensure the global recognition that humanity is confronted with an existential threat and that addressing climate change requires an emergency plan.

Further, the Club of Rome proposes not just to address the immediate need for such action, but to devote its expertise to contribute to a comprehensive re-design of the social and economic systems which would create a sustainable future, in the spirit of "The Limits to Growth".

Citizen protests and legal actions against companies, governments and individuals will undoubtedly become an increasing leverage opportunity in support of this emergency approach and have already begun.

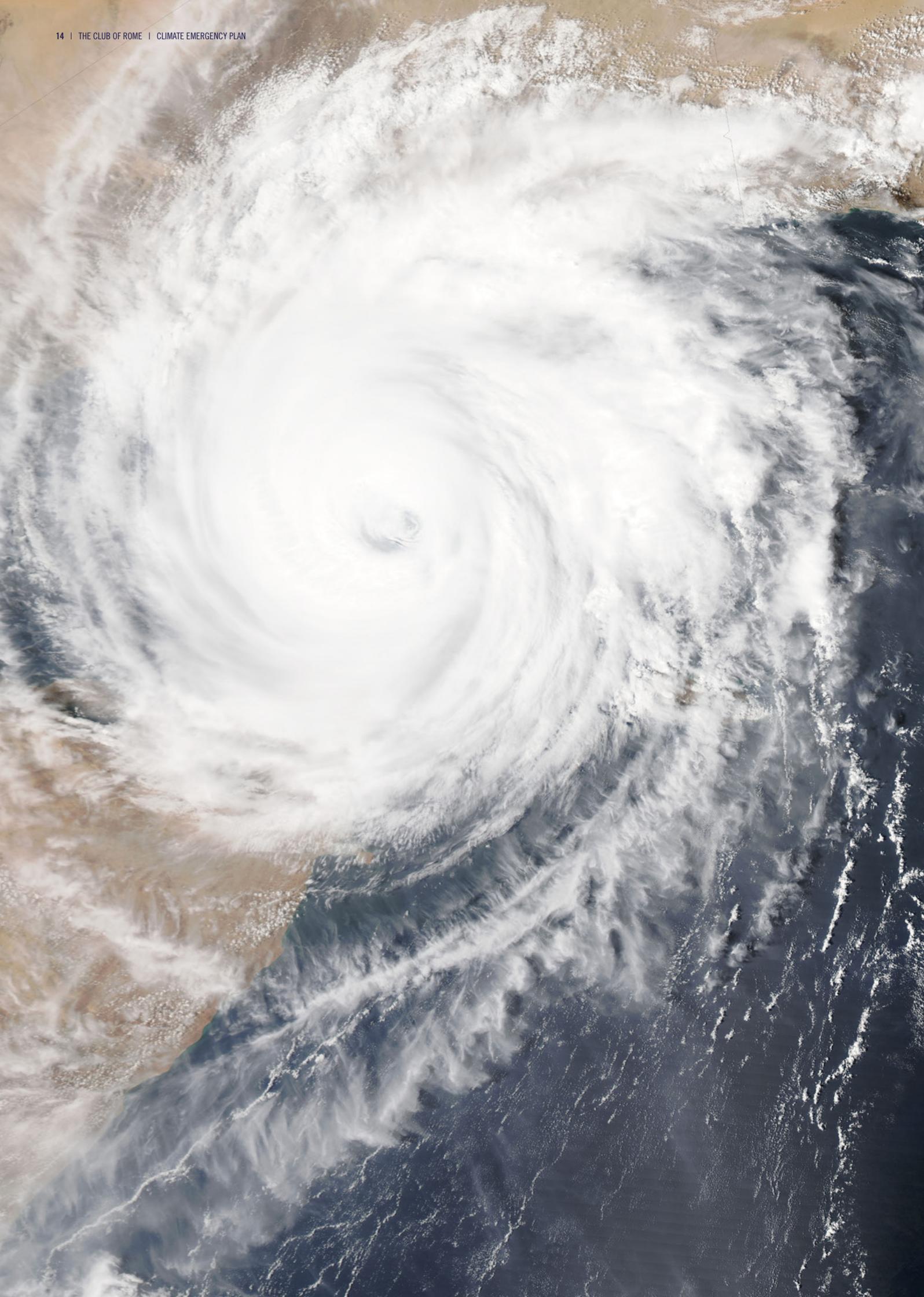


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