



# BUILDING A SAFE FUTURE AND UNLOCKING SYSTEM TRANSFORMATIONS IS POSSIBLE

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*You will find below an analysis of the key findings of the Intergovernmental Panel on Climate WGIII mitigation Report released on April 4th 2022. This document begins with a quick takeaway on key messages and a deep dive analysis of critical points that IPCC scientists have concluded in this report.*

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JUST SYSTEMS TRANSFORMATION REQUIRES POLITICAL WILLINGNESS, INSTITUTIONAL, FINANCIAL TRANSFORMATION AND CULTURAL SHIFTS

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## 5 THINGS TO KNOW ABOUT THIS REPORT / 5 POINTS CLÉS DANS CE RAPPORT DU GIEC

Today, the IPCC has released a groundbreaking report providing the most comprehensive roadmap to build a just and equitable future that ends with a legacy of fossil fuels destruction and leads toward a robust, rights-based response to climate change.

This IPCC report confirms that:

- **We have the solutions** to slash more than half of the global emissions in just eight years, as is needed to meet the Paris Agreement goal of limiting warming to 1.5°C and very likely below 2°C. In this critical decade, by 2030, the biggest contributions to net emission reductions would come from solar and wind energy, conservation and restoration of forests and other natural ecosystems, climate-friendly agriculture and food, and energy efficiency. More than half of solutions costs below 20 USD/tonne or even negative costs! This means that investing in them, like solar and wind, will bring cost savings compared to continuing current ways.
- **Citizens, youth, and Indigenous Peoples are mobilizing** and organizing using all existing tools (climate strikes, litigation, community organizing), calling for systems transformation. Communities will play a critical role in scaling up ambition. At the local level, they can help redefine infrastructure, advancing technology adoption and socio-cultural factors that help adopt sustainable ways of life from walkable and bikeable cities and shared and electrified mobility to self-sustaining homes, healthy plant-based diets, avoided flights, and consumption requiring less material input as we reuse, repair and improve recycling.
- **We have enough financial resources** to pay for these transitions. But we must ensure equitable distribution, use and access of financial resources to achieve the needed 2030 emission cuts. Annual investment flows towards clean energy, efficiency, transport, agriculture and forests will need to increase at least 3-6 fold up to 2030. We must end flows to fossil fuels because they contribute to misaligning incentives outside and within the financial sector. Removing fossil fuel subsidies could reduce emissions by 10% by 2030. Access to finance remains a big barrier, especially for developing countries.
- **All national climate plans must be enhanced** to be compatible with 1.5°C. Misaligned policies lead to misaligned financial flows into the fossil fuel economy when there's no room for any new fossil fuel infrastructure. Avoiding short-term action by relying on long-term plans that assume that somehow, somewhere, somebody will remove our emissions from the atmosphere in large amounts sometime in the future is dangerous. Such carbon dioxide removals are largely uncharted territory and come with many uncertainties and risks. Some amount of carbon dioxide removal will be necessary, but the need for it can be limited with urgent emission cuts.
- **Limiting global warming to 1.5°C will require tackling emissions from the wealthiest 10%** of households who contribute about 36-45 % of global emissions, with  $\frac{2}{3}$  living in developed countries.

Aujourd'hui, le GIEC a publié un rapport révolutionnaire qui présente la feuille de route la plus complète pour construire un avenir juste et équitable qui mette fin à l'héritage de la destruction des combustibles fossiles et conduise à une réponse au changement climatique solide et fondée sur les droits.

Ce rapport du GIEC confirme que :

- **Nous avons ce qu'il faut pour réduire de plus de 50% les émissions mondiales en seulement huit ans.** Au cours de cette décennie, d'ici à 2030, les plus grandes contributions aux réductions nettes d'émissions proviendraient de l'utilisation de l'énergies solaire et éolienne, de la conservation et de la restauration des forêts et autres écosystèmes naturels, d'une agriculture et d'une alimentation respectueuses du climat, et des mesures en matière d'efficacité énergétique. De plus, ce rapport présente que le coût par tonne de CO<sub>2</sub> est extrêmement bas. La moitié des solutions possibles coûtent moins de 20 USD/tonne. On peut donc transformer nos économies et épargner. Les modes actuels de développement nous appauvrissent.
- **La mobilisation citoyenne, des jeunes et des peuples autochtones, représente l'une des contributions les plus importantes pour transformer les systèmes économiques et sociaux.** Cette mobilisation est clé dans le renforcement de l'ambition. La mobilisation sociale contribue à redéfinir les infrastructures, à faire progresser l'adoption des technologies et les facteurs socioculturels qui favorisent l'adoption de modes de vie durables, qu'il s'agisse de villes où l'on peut se déplacer à pied ou à vélo, de mobilité partagée ou électrifiée, de maisons autonomes, de régimes alimentaires sains à base de plantes, de vols évités ou de consommation nécessitant moins de matières premières grâce à la réutilisation, à la réparation et au recyclage.
- **Nous disposons de suffisamment de ressources financières pour financer ces transitions.** Mais nous devons garantir une distribution, une utilisation et un accès équitables aux ressources financières pour atteindre les réductions d'émissions nécessaires en 2030. Les flux d'investissement annuels en faveur des énergies propres, de l'efficacité, des transports, de l'agriculture et des forêts devront être multipliés par au moins 3 à 6 jusqu'en 2030. Nous devons mettre un terme aux flux en faveur des combustibles fossiles, car ils contribuent au désalignement des incitations à l'extérieur et à l'intérieur du secteur financier. La suppression des subventions aux combustibles fossiles pourrait réduire les émissions de 10 % d'ici à 2030. L'accès au financement reste un obstacle majeur, en particulier pour les pays en développement.
- **Tous les plans climatiques nationaux doivent être révisés pour être compatibles avec le seuil de 1,5°C.** Des politiques mal alignées et des flux financiers mal alignés nous rendent plus dépendant des combustibles fossiles, alors qu'il n'y a pas de place pour de nouvelles infrastructures de ce type. Nous devons éviter les solutions technologiques risquées. Les technologies de suppressions de dioxyde de carbone sont largement inexplorées et s'accompagnent de nombreuses incertitudes et de risques. Les techniques d'élimination du dioxyde de carbone sont nécessaires dans une certaine mesure, mais elles doivent être limitées par une réduction urgente des émissions. L'utilisation de ces technologies doivent s'accompagner des considérations d'équité.
- **Pour limiter le réchauffement de la planète à 1,5 °C, il faudra s'attaquer aux émissions des 10 % de ménages les plus riches,** qui contribuent à environ 36-45 % des émissions mondiales, dont les 2/3 vivent dans les pays développés.

## ANALYSIS

### OUR ACTIONS IN RESPONSE TO THE CLIMATE CRISIS REMAIN HIGHLY INADEQUATE

- Things have considerably changed since 2015. Climate action, climate awareness, and climate mobilization have risen since the Paris Agreement was adopted.
- **But globally, actions from governments remain inadequate, and emissions continue to rise.**
  - Scientists observe the highest absolute increase of emissions ever recorded in human history. Global emissions growth between 2010 and 2019 was slower than the decade before. Total net greenhouse gas (GHG) emissions are now 54 % higher than in 1990 when international climate negotiations started.
- **Emissions rising are differentiated by regions, sectors, and income levels.**
  - Countries like Canada and the United States have substantially benefited from the Industrial Revolution to increase their human development. But they also are part of a group of major emitters both from per capita and absolute levels.
- **Emissions rising is also differentiated by sector.**
  - In 2019, energy was responsible for 34% (20 GtCO<sub>2</sub>-eq) of global GHG emissions, industry by 24% (14 GtCO<sub>2</sub>-eq), agriculture by 22% (13 GtCO<sub>2</sub>-eq), forestry and other land use (AFOLU), transport by 15% (8.7 GtCO<sub>2</sub>-eq), and buildings 5.6% (3.3 GtCO<sub>2</sub>-eq). Buildings, industry, and transport account for 44% of all emissions in 2019.
- **The rise of emissions is related to a large rise in demand** for basic materials and manufactured products, a global trend of increasing floor space per capita, building energy service use, travel distances, and vehicle size and weight.
- **A very small number of countries, at least 18, have reduced both territorial carbon dioxide (CO<sub>2</sub>) and GHG emissions and consumption-based CO<sub>2</sub> emissions in absolute terms for at least ten years.**
  - But the combined emissions reductions of these 18 countries were outweighed by rapid emissions growth elsewhere. The per capita emissions of developed countries remain high, particularly in Australia, Canada, and the United States.
- While we saw a reduction in emissions in 2019 during the COVID-19 Pandemic, emissions have continued to rise in 2020.
- With 52% of the current global population, the Asia and Developing Pacific region has contributed to consumption-based CO<sub>2</sub> emission growth since 2000.
- **We have seen emissions reductions in the carbon intensity of the production of carbon-intensive products.** But CO<sub>2</sub> Emissions related to trade activities have more than doubled between 2004 and 2011.
- **This IPCC also exposes the unequal distribution of emissions related to wealth**, with households with income in the top 10% contributing about 36-45% of global GHG emissions. **Wealthy individuals contribute disproportionately to higher emissions and have a high potential for emissions reductions** while maintaining decent living standards and well-being.

As an example, while aviation emissions have grown particularly fast, only 2-4% of the global population flew internationally in 2018, with 1% of the world population emitting 50% of CO<sub>2</sub> from commercial aviation. Addressing inequality and many forms of status consumption supports climate change mitigation efforts.

## THERE ARE KEY BLOCKING FORCES AVOIDING URGENT CLIMATE ACTION

- **The IPCC identifies key specific blockers to accelerating climate action, including:**
  - Countries and international development banks funding and developing new coal capacity.
  - High travel demand, heavier vehicles, low efficiencies, and car-centric development.
  - Significant lock-in risk in all regions given the long lifespans of buildings and the low ambition of building policies.
  - Current national pledges under the Paris Agreement are insufficient to limit warming to 1.5°C.
  - Many net-zero targets are ambiguous, and opposition from status quo interests and insufficient low-carbon financial flows act as barriers to establishing and implementing stringent climate policies covering all sectors.
  - Lack of coverage of non-CO<sub>2</sub> gases, CO<sub>2</sub> from industrial processes, and emissions outside the energy sector.
  - A rise in deforestation emissions in the Amazon over the past four years. Deforestation is also very high in Southeast Asia.
  - **Lack of progress in the alignment of financial flows towards the Paris Agreement goal remains slow**, and tracked climate finance flows are distributed unevenly across regions and sectors. Annual tracked total financial flows for climate adaptation and mitigation increased by up to 30-40% between 2015/16 and 2019/20, but growth has slowed recently. Climate finance flows from developed to developing countries remain below USD 100 billion per year pledged under the UNFCCC.

## JUST AND TRANSFORMATIVE TRANSITIONS ARE POSSIBLE AND WILL HELP AVOID DESTRUCTIVE EMISSION PATHWAYS, BUT THEY REQUIRE ACTIVE MOBILIZATION

- **The necessary systems transformation requires active, collective, and social organizing. This report confirms that keeping 1.5C alive requires active mobilization.**
  - Climate strikes have given voice to youth in more than 180 countries.
- **It is possible to unlock the full emission mitigation potential that is achievable by the year 2030.**
  - Calculated potential based on sectoral assessments show that we have enough solutions to reduce global greenhouse gas emissions to half of the current (2019 level or less), compatible with a 1.5C aligned future.
  - Today, national economy-wide greenhouse gas emissions targets covered 90% of global emissions in 2020 compared to 49% in 2010.
  - We must cut emissions by half in 2030 and meet net-zero in 2050<sup>1</sup>. Implementing only countries' current emission reduction targets and policies will close the door for the 1.5°C warming limit.

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<sup>1</sup> Pathways that limit global warming to below 1.5°C with no or limited overshoot require a further acceleration in the pace of transformation, with net GHG emissions typically around 21-36 GtCO<sub>2</sub>-eq yr<sup>-1</sup> by 2030 and 1-15 GtCO<sub>2</sub>-eq yr<sup>-1</sup> by 2050; this corresponds to reductions of 34–60% by 2030 and 73-98% by 2050 relative to 2019 levels.

- **Mitigations solutions are today cheaper than ever** and available to help us meet 2030 goals. More than half of the potential comes with no or low costs (of less than USD20/tCO<sub>2</sub>-eq) or negative costs.
- Some of the options, like solar and wind and more efficient mobility and housing, can save money compared to continuing current trends.

## JUST SYSTEMS TRANSFORMATION MUST HAPPEN IN EVERY SECTOR

- **Limiting global warming to 1.5°C with no or limited overshoot requires ending incremental climate action across all sectors.** Incrementalism will lead toward destructive unequitable transitions.
  - If current NDCs are not enhanced, we risk climate impacts and losses and damages. We will also become more dependent on carbon dioxide removal from the atmosphere. We will be exposed to higher fossil fuel deployment and lower reliance on low carbon alternatives until 2030.
  - CO<sub>2</sub> emissions reductions between 2019 and 2050 of around 77% (31-96%) for energy demand, around 115% (90 to 167%) for energy supply, and around 148% (94 to 387%) for AFOLU. It also involves an almost substantial reduction of fossil fuels and almost no coal use without CCS.
  - A large contribution to closing the 2030 mitigation gap comes from solar and wind energy, energy efficiency improvements, reduced deforestation, restoration of ecosystems, soil carbon sequestration and CH<sub>4</sub> emissions reductions.
  - Scale-up opportunities for energy generation as the unit costs for several key energy system mitigation options have dropped rapidly. Solar PV grew by 170% (to 680 TWh); wind grew by 70% (to 1420 TWh) from 2015 to 2019.
- **Limiting warming to 1.5C requires immediate action in cities.**
  - Urban areas generate between 62 and 72% of CO<sub>2</sub> and Ch<sub>4</sub> emissions. Keeping 1.5C alive requires aggressive reduction of urban emissions and the participation of everyone's in innovative partnerships and scaling up financial support.
  - Immediate action includes reducing urban energy consumption across all sectors, including compact and efficient urban forms and supporting infrastructure; electrification and switching to low carbon energy sources; and enhancing carbon uptake and stocks).
  - Cities can implement plans that result in high levels of electrification, energy and material efficiency, renewable energy preferences, and socio-behavioural responses. Robust action from cities, including strong collaboration between all relevant actors, could help urban GHG emissions approach net-zero and reach a maximum of 3 GtCO<sub>2</sub>-eq in 2050 in cities.
  - Cities can also **reduce transport-related fuel consumption** by around 25% through combinations of more compact land use and less car-dependent transport infrastructure.
- **Emission reductions plans must include structural economic and social changes that result in high employment policies, housing, access to public and accessible transportation.**
  - For example, legislated climate strategies at all levels of government, together with pledges for personal choices, could spur the deployment of demand and supply-side transport mitigation strategies.
- There are unique opportunities from **Agriculture, Forestry, and Other Land Uses that can result in 20–30% of the global mitigation needed for a 1.5°C or 20C pathway** towards 2050.
  - These options require protecting and restoring forests, peatland, coastal wetland, and other ecosystems that come with higher costs and high rewards, if implemented well, respecting the rights and knowledge of Indigenous Peoples and local communities.

- Examples of successful policies and measures include establishing and respecting tenure rights and community forestry, improved agricultural management and sustainable intensification, biodiversity conservation, payments for ecosystem services, improved forest management and wood chain usage, bioenergy, voluntary supply chain management efforts, consumer behaviour campaigns, private funding, and joint regulatory efforts to avoid e.g. leakage.
- **Systemic, immediate climate solutions must also tackle structural inequities:**
  - The COVID-19 exacerbated inequities related to access to public services. Mitigating the impacts of climate change on buildings requires adapting buildings to climate change and reducing the demand for cooling with strategies that include natural ventilation, white walls, and nature-based solutions (e.g. green roofs). Shared cooled spaces with highly efficient cooling solutions are among the mitigation strategies that can limit the expected heatwaves' effect on people's health.
- **23 to 42% of emissions are directly linked to food systems.**
  - While there has been a rise in emissions from food systems, there is also widespread malnutrition and food insecurity. Solutions are possible via a shift to healthy and sustainable diets, new digital agriculture technologies, agroecological practices, high plant protein alternatives, moderate intake of animal-source foods, and reduced saturated fats.
- **For the first time, the IPCC focuses on the need to radically transform demand-side services provisions.**
  - Just, equitable transitions require a toolbox of systemic solutions that involve transforming demand-side systems and result in the provision of better services with less energy use, greater employment, and resource decentralization.
  - Transforming societies and communities includes ensuring services to enhance individual mobility choices, which represent the largest potential to reduce carbon footprints. Prioritizing car-free mobility by walking and cycling and adopting electric mobility could save two tCO<sub>2</sub>-eq cap-1 yr. Reducing air travel, cooling setpoint adjustments, reduced appliance use, shifts to public transit, and shifting consumption towards plant-based diets.
- **Equity must inform the use and deployment of Carbon Dioxide Removal.**
  - Achieving net-zero CO<sub>2</sub> or GHG emissions globally or at the country, level entails deploying Carbon Dioxide Removal (CDR) to counterbalance hard-to-abate residual emissions (e.g., emissions from aviation, agriculture, and industrial processes).
  - The deployment of CDR faces feasibility and sustainability constraints, especially at large scales. Reforestation, improved forest management, and soil carbon sequestration are the only widely deployed CDR methods. The removal and storage of CO<sub>2</sub> through vegetation and soil management can be reversed by human or natural disturbances; it is also vulnerable to climate change impacts.

## **JUST SYSTEMS TRANSFORMATION REQUIRES POLITICAL WILLINGNESS, INSTITUTIONAL, FINANCIAL TRANSFORMATION AND CULTURAL SHIFTS**

- **Political leadership and intervention remain key to creating laws, the right institutions of governance that unlock, institutionalize and acceleration policies** that lead to deep emission reductions, including reducing emissions to net-zero.
  - Governments can address existing policy misalignments, including fossil fuel subsidies, undermine the credibility of public commitments and limit financial sector action.

- Clear signaling by governments and the international community, including a stronger alignment of public sector finance and policy, and higher public sector climate finance levels, reduces uncertainty and transition risks for the private sector.
- By 2020, 'direct' climate laws primarily focused on GHG reductions were present in 56 countries, covering 53% of global emissions.
- The increase of carbon pricing is increasing, and this mechanism is most effective when revenues are redistributed or used impartially.
- Governments have the tools to accelerate climate mitigation by encouraging low carbon systems while weakening high carbon systems.
- Governments must also work towards overcoming resistance to policies (e.g., from incumbents in high carbon-emitting industries) and ensure transitional support to the vulnerable and negatively affected by distributional impacts. Transition support and whole-of-government approaches are essential to unlock full mitigation potential.
- **Climate litigation is growing;** climate litigation is contributing to accelerating ambition.
  - Since 2015, at least 37 systemic cases have been initiated against states that challenge the overall effort to mitigate or adapt to climate change. These cases can lead to an increase in a country's overall ambition to tackle climate change.
  - Climate litigation has also successfully challenged governments' authorizations of high-emitting projects, setting precedents favouring climate action. Climate litigation against the private sector and financial institutions.
- **Journalists and the media play a unique role in representing and shaping the understanding of climate science.**
  - Global media coverage (across a study of 59 countries) has been growing, from about 47,000 articles in 2016-17 to about 87,000 in 2020-21, which the representation of climate science being much more accurate over time.
- **We have enough resources, global capital, and liquidity to close the emissions gap. Delaying systems transformation in finance will make us poorer and make responses to the climate crisis more expensive.**
  - Removing fossil fuel subsidies can reduce emissions, improve public revenue and macroeconomic performance, and yield other environmental and sustainable development benefits. Removing subsidies must come with policies to re-distribute revenue saved. Fossil fuel subsidy removal can reduce global CO2 emissions by 1-4%, and GHG emissions by up to 10% by 2030
  - **There is sufficient global capital and liquidity to close investment gaps, but barriers within and outside the financial sector must be overcome.** Barriers to the deployment of commercial finance include inadequate assessment of climate risks, a mismatch between capital and investment needs, home bias considerations, differences in risk perceptions, and limited institutional capacities. Despite the increasing attention of investors and many initiatives by financial regulators and institutions to assess and address climate-related financial risks, there is limited evidence that this attention has directly impacted emission reductions. Risks remain greatly underestimated by financial institutions and markets, limiting the capital reallocation needed for the low-carbon transition.
  - Progress on the alignment of financial flows with low GHG emissions pathways remains slow. Persistently high levels of public and private fossil-fuel-related financing continue to be of major concern despite promising recent commitments.
  - Shifting energy investments away from fossil fuels towards low carbon technology is crucial. Shifting financial flows for the electricity sector requires, on average, 2.3 trillion USD2015 annually over 2023 – 2052 in 1.5C compatible pathways.

- To meet the need for rapid deployment of mitigation options, global mitigation investments are expected to increase by three to six.
- **Accelerated international cooperation is a critical enabler of low-carbon and just transitions** and can address fundamental inequities in access to finance and the costs of, and vulnerability to, the impacts of climate change. Options include increased levels of public finance and publicly mobilized private finance flows from developed to developing countries in the context of the USD100 billion-a-year goal; shifting direct lending modality towards public guarantees to reduce risks and leverage private flows at a lower cost; changing the enabling operational definitions; local capital markets development; and building greater trust in international cooperation processes. International coordination of climate and trade policies is needed, too, as misaligned trade and investment agreements may hinder mitigation efforts.