



IEAGHG Information Paper: 2018-IP01; Global Risk Report 2018 highlights

The World Economic Forum¹ annually produces a Global Risks Report, which feeds into the Annual Meeting held in Davos Switzerland each year. The 48th World Economic Forum Annual meeting is currently under way (23rd - 26th January 2018) and is, as always, attracting a lot of media attention. Details of the meeting can be found at:

<https://www.weforum.org/events/world-economic-forum-annual-meeting-2018>.

The Global Risks Report has now been published for 13 consecutive years. The reports are based on a survey amongst the World Economic Forum's multi-stakeholder communities, members of the Institute of Risk Management and the professional networks of their Advisory Board Members. Details of the methodology of the survey and how the results are used to construct the report can be found at: <http://reports.weforum.org/global-risks-2018/appendix-b-methodology/>

The full survey results can be found at:

<http://reports.weforum.org/global-risks-2018/explore-the-survey-results/>

Of particular interest to the IEAGHG membership is the key headline that, for the second year in a row, the survey has indicated that concerns over environmental risks are most prominent. All five risks in the environmental category were ranked higher than average for both likelihood and impact over a 10-year horizon.

The 5 environmental risk categories listed in the Global Risks Report are:

Environmental Risks	Extreme weather events (e.g. floods, storms, etc.)	Major property, infrastructure and/or environmental damage as well as loss of human life caused by extreme weather events
	Failure of climate-change mitigation and adaptation	The failure of governments and businesses to enforce or enact effective measures to mitigate climate change, protect populations and help businesses impacted by climate change to adapt
	Major biodiversity loss and ecosystem collapse (terrestrial or marine)	Irreversible consequences for the environment, resulting in severely depleted resources for humankind as well as industries
	Major natural disasters (e.g. earthquake, tsunami, volcanic eruption, geomagnetic storms)	Major property, infrastructure and/or environmental damage as well as loss of human life caused by geophysical disasters such as earthquakes, volcanic activity, landslides, tsunamis, or geomagnetic storms
	Man-made environmental damage and disasters (e.g. oil spills, radioactive contamination, etc.)	Failure to prevent major man-made damage and disasters, including environmental crime, causing harm to human lives and health, infrastructure, property, economic activity and the environment

¹ <https://www.weforum.org/about/world-economic-forum>



We should also note that in the survey there are 5 Societal risks that are environmental related, these include:

Societal Risks	Failure of urban planning	Poorly planned cities, urban sprawl and associated infrastructure that create social, environmental and health challenges
	Food crises	Inadequate, unaffordable, or unreliable access to appropriate quantities and quality of food and nutrition on a major scale
	Large-scale involuntary migration	Large-scale involuntary migration induced by conflict, disasters, environmental or economic reasons
	Profound social instability	Major social movements or protests (e.g. street riots, social unrest, etc.) that disrupt political or social stability, negatively impacting populations and economic activity
	Rapid and massive spread of infectious diseases	Bacteria, viruses, parasites or fungi that cause uncontrolled spread of infectious diseases (for instance as a result of resistance to antibiotics, antivirals and other treatments) leading to widespread fatalities and economic disruption
	Water crises	A significant decline in the available quality and quantity of fresh water, resulting in harmful effects on human health and/or economic activity

The full report can be found at: http://www3.weforum.org/docs/WEF_GRR18_Report.pdf

Key infographic headlines from the report are:

Global Risks Report

The 5 risks that will have the biggest impact in the next 10 years

	rank
Weapons of mass destruction	1
Extreme weather events	2
Natural disasters	3
Failure of climate change mitigation & adaptation	4
Water crises	5

Source: Global Risks Perception Survey 2017-2018, World Economic Forum



Global Risks Report

The 5 risks most likely to happen in the next 10 years

	rank
Extreme weather events	1
Natural disasters	2
Cyber attacks	3
Data fraud or theft	4
Failure of climate change mitigation & adaptation	5

Source: Executive Opinion Survey 2017, World Economic Forum

Extreme weather events come top in each risk category concerning the next 10 years. Extreme weather events can, of course, be natural but there is increasing concern that the frequency of extreme weather events is being driven by climate change. This was discussed in two recent IEAGHG Information Papers:

1. *2017-IP48; Weather Extremes Caused by Global Warming is Biggest Risk to Humans*,²
2. *2017-IP60; Findings of Fourth National (US) Climate Assessment Report*:³

In the report section Fractures, Fears and Failures there is also quite an extensive discussion on the increased incidence of extreme weather events and their global/regional impacts, which also references data from the US National Report.

The failure of Climate change mitigation and adaptation ranks 4 and 5 respectively; both very high.

The report refers to several points as reasons for heightened risk:

- News that emissions of CO₂ had risen for the first time in four years, The increase in emissions in 2017 being partly a result of developments in China, where the heatwaves mentioned above led to a 6.3% increase in energy consumption, and extreme drought in the north of the country led to a switch from hydro to coal-fired power generation⁴.
- The report voices concerns regarding research published in 2012 that suggests that having absorbed 93% of the increase in global temperatures between 1971 and 2010⁵, the world's

²http://www.ieaghg.org/docs/General_Docs/Information_Papers/2017-IP60_Findings_of_Fourth_National_US_Climate_Assessment_Report.pdf
http://www.ieaghg.org/docs/General_Docs/Publications/Information_Papers/2017-IP48.pdf

³http://www.ieaghg.org/docs/General_Docs/Information_Papers/2017-IP60_Findings_of_Fourth_National_US_Climate_Assessment_Report.pdf

⁴http://www.ieaghg.org/docs/General_Docs/Information_Papers/2017-IP58_Global_CO2_Emissions_on_the_Rise_Again.pdf

⁵ Levitus, S., J. I. Antonov, T. P. Boyer, O. K. Baranova, H. E. Garcia, . . . , and M. M. Zweng. 2012. "World Ocean Heat Content and Thermoclinic Sea Level Change (0–2000 m), 1955–2010". *Geophysical Research Letters* 39 (10). 17 May 2012, <http://onlinelibrary.wiley.com/doi/10.1029/2012GL051106/abstract>



oceans continue to get warmer and a study from 2016 that suggests their capacity to absorb CO₂ may be declining⁶

- Similarly the report quotes a research paper from 2017 suggests that tropical forests are now releasing rather than absorbing carbon dioxide⁷.

The latter two points are interesting and warrant an Information Paper to see if there is more published research in these areas to underpin the concerns raised in the 2018 Risks Report. This is not to say that IEAGHG has concerns regarding the research identified but merely suggest seeing if there is a substantive body of research in both these important areas.

The 2018 report voices a concern that political factors might disrupt efforts to mitigate climate change. The case highlighted was the US announcement to withdraw from the Paris Agreement. However, the report also refers to several counterbalancing positives on a global scale, like China's announcement of its intent to support of the Paris Agreement during 2017 and that many US businesses, cities and states have pledged to help deliver on the country's emissions reduction targets. We should also add to this the increasing action that cities around the globe are taking with respect to greenhouse gas reduction through actions like the C40 Cities Climate Leadership Programme⁸⁹

The report also raises two other issues of concern:

- The potential economic and societal risks that may arise as transition to a low-carbon and environmentally secure world accelerates. There is a recognition that moves towards financial disclosures to quantify the transition risks that businesses face have been accelerating¹⁰, as has the idea of fossil-fuel divestment.
- That the potential spill over effects of climate-related transition will be more far-reaching than its effect on financial disclosure norms. For example, dramatic changes in the way energy is produced are likely to trigger large-scale labour-market disruptions. Structural economic changes in affected countries and regions could also stoke societal and geopolitical risks.

Water crises were also high on the list of risks with the biggest impact in the next 10 years. Climate change is also muted to have a significant on water availability in regions, the IPCC Assessment reports¹¹¹²

Summary

The last two Global Risk Reports have identified issues related to climate change to be of major concern to businesses and business leaders around the world. In fact, the risks associated with extreme weather events has been in each of the top 5 most like events since 2012. Similarly, the risk of climate change mitigation failure has been in the top 5 likely to happen risk category since 2013. It seems that those involved in these surveys are now very conscious of the need for the UNFCCC climate negotiations to be a success. The report stresses the urgency that is needed in addressing climate change.

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⁶ Ayres, R. 2016. "The Ocean Cannot Absorb Much More CO₂". *Knowledge*, INSEAD Blog. 19 October 2016. <https://knowledge.insead.edu/blog/insead-blog/the-ocean-cannot-absorb-much-more-co2-4990>

⁷ Baccini, A., W. Walker, L. Carvalho, M. Farina, D. Sulla-Menashe, and R. A. Houghton. 2017. "Tropical Forests Are a Net Carbon Source Based on Aboveground Measurements of Gain and Loss". *Science* 358 (6360) 230–34

⁸ <http://www.c40.org/>

⁹ http://www.ieaghg.org/docs/General_Docs/Publications/Information_Papers/2016-IP39.pdf

¹⁰ http://www.ieaghg.org/docs/General_Docs/Publications/Information_Papers/2017-IP01.pdf

¹¹ https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch3s3-5-1.html

¹² <http://www.ipcc.ch/report/ar5/wg2/>