Climate Action Network

Non-Paper: Input to IPCC SR 1.5 Scoping Meeting

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Climate Action Network (CAN) is the world's largest network of civil society organizations working together to promote government action to address the climate crisis, with more than 950 members in over 110 countries. www.climatenetwork.org

Background

CAN welcomes the ongoing work by the IPCC for the release of the "Special Report on the Impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emissions pathways (IPCC SR 1.5)" in 2018. The preparation of this report were suggested by the UNFCCC in December 2015 and decided in the IPCC meeting in Nairobi in April 2016.

In order to define the scope of the report in autumn 2016, the IPCC has invited experts and governments to a first scoping meeting from the 15th to the 17th of August of this year in Geneva, Switzerland. Given the scarce participation of civil society in the upcoming Geneva scoping meeting, CAN has put together this paper with recommendations on topics and findings that could best trigger increased action by Parties to tackle climate change.

The task for the Geneva meeting is to identify the impacts of global warming of 1.5 degrees above pre-industrial levels and related global greenhouse gas emission pathways in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. (see: Art. 2.1 Paris Agreement and Par. 21 in 1/CP.21).

As outlined above a key question is which messages of the Special Report on 1.5 degrees could trigger best Party action to decrease emissions and which topics should be covered by the report? We are aware of the fine line between policy relevant information that the report should deliver without being prescriptive. We hope our recommendations can help to come to a good agreement on the scope of the report in the IPCC plenary session in autumn 2016.

A: Messages

The messages of the Special Report on 1.5 degrees could be e.g. the following:

1. If we don't act fast before 2020, emission reductions will become much costlier later;
2. If we don't act fast before 2020, it will be nearly impossible to achieve the climate goals without negative emissions which include experimental technologies with low levels of public acceptance;
3. An enumeration of tipping points which potentially lie between 1.5 and 2 degrees;
4. In some sectors with high inertia (e.g. transport) decisions on 1.5 degrees compatible infrastructure have to be taken soon to enable a 1.5 or 2 degrees limit;
5. the majority of known fossil fuel reserves need to stay in the ground to stop warming at 1.5 degrees;
6. Achieving the 1.5 degrees target will require urgent and significant pre-2020 action.
7. The special report must be strongly guided by scientific and technical realities, but it should not be constrained by current political economic "realism".
8. It must expand the mitigation pathway option to include those that do not rely heavily on unproven technologies.
9. The report should identify how the 1.5 degree goal can best be achieved without harmful socio-economic and environmental impacts to those least responsible for causing climate change.
10. Globally, the infrastructure required to burn the allowable share of existing fossil fuels has already been built.
11. Construction of additional infrastructure to burn fossil fuels would require retirement of additional infrastructure before the end of useful lifetimes in order to remain below 1.5 degrees

B: Topics

The Special Report on 1.5 degrees should cover the following topics:

1. General impacts on societies and the environment (examining the difference of estimated impacts between 1.0, 1.5 and 2 degrees warming until 2100, 2200, 2300)

1.1: Food security (drought, water, yield, land use)

1.2: Global heat extremes

1.3: Health (spread of diseases like dengue fever, health benefits from avoided air pollution by stopping burning fossil fuels)

1.4: Loss of coastal areas, along rivers and islands due to sea-level rise

1.5: Sea-level rise in the past interglacial periods

1.6: Extreme precipitation

1.7: Extreme drought

1.8: Storms

2. Impacts on land (examining the difference of estimated impacts between 1.0, 1.5 and 2 degrees warming until 2100, 2200, 2300)

Ecosystems:

2.1: Mountain glaciers and snowpacks

2.2: Mountain regions

2.3: Boreal forests (incl. the role of forest fires)

2.4: Mountain tropical forests (e.g. Andean)

2.5: Permafrost region

2.6: Greenland and Antarctic ice – shields and glaciers

2.7: Regions where ecosystems cannot move: e.g. South-Africa, islands, boreal forests, permafrost region etc.

Species from flora and fauna with following examples

2.8: Species loss of plants and animals in numbers and pro-cent at global and regional scale

2.9: Large mammals (e.g. elks in Scandinavia, America)

2.10: Birds (e.g. migration in average for all migratory species ca 6 days earlier than 1990 in Northern Europe in 2015)

2.11: Amphibians (endangered e.g. in Andean mountain tropical forest ecosystems)

2.12: Insects (e.g. butterflies moving north)

2.13: Plants and trees

3. Impacts in the ocean (examining the difference of estimated impacts between 1.0, 1.5 and 2 degrees warming until 2100, 2200, 2300)

Ecosystems

3.1: Sea-ice ecosystems

3.2: Ocean – ecosystems

3.3: Coral reefs

3.4: Ocean acidification

4. Mitigation

Pathways

4.1 How much is the world currently emitting per year and what time does that give us?

4.2 How much are sinks already removing globally per year?

4.3 How much is being reversed through forest fires/die backs?

4.4 Is it still physically possible to reach the 1.5 target?

4.5 What changes are occurring in instantaneous global sink capacity (oceans, land vegetation and rivers, cryosphere) as emissions continue?

Economic, social and environmental considerations

4.6 Which are sectors where mitigation is difficult and what are the problems to overcome?

4.7 What/Which co-benefits come with achieving the 1.5 target?

4.8 Under which conditions mitigation efforts to reach 1.5 can meet sustainable development and not undermining it (e.g. recognizing the specific characteristics of land use and its multiple benefits)?

4.9 What mitigation pathways might be possible using regulatory tools e.g. for universal highest emissions standards?

4.10 What mitigation pathways might be possible using alternative economic trajectories?

4.11 What mitigation pathways might be possible through halting deforestation and restoring degraded ecosystems?

4.12 What harmful socio-economic and environmental impacts may occur from emission pathways that rely largely on negative emissions technologies (e.g. the impact of BECCS on land use and food security.)

4.13 What existing legal norms might have an implication for the use of the various technologies?

Technologies

4.14 Efficiency – supply and demand

4.15 Models should use latest available data and projections on efficiency, availability and cost trajectories of renewable energy.

4.16 Models should be encouraged to identify possible demand-led interventions, including highest available emission standards, regulations, alternative economic models etc.

4.17 Pathways based on sectoral analysis, rather than cost-optimization modelling should be included.

4.18 Any model-based literature accepted for use in the 1.5C report should make clear the discount rate used, and other input assumptions.

4.19 For negative emissions - land use - geological storage - chemical (i.a. enhanced weathering) - CCU (Carbon Capture and Use: are carbon fibres promising to replace steel and cement in big volumes and store them underground after use? Please judge CCU projects in the context of potential health risks and how much of the captured CO2 is actually stored long-term.

4.20 The scale of reliance on negative emission technologies should be transparent in all studies.

4.21 Where negative emissions technologies are used in modelling, the likely social impacts must be clearly indicated e.g. the scale of land required, or the risks associated with geoengineering. Consideration must be made of where the technologies would be deployed, who would be carrying those risks, and whether such interventions are just.

4.22 Where negative emission technologies are used in modelling, the scientific feasibility and effectiveness must be considered. E.g. including the best available science on the carbon neutrality of biomass, the known limits to storage capacity, and whether technologies are likely to be available at scale needed at the timeframe of the model.

4.23 There should be good representation of modelled and non-model based pathways that do not rely on negative emission technologies.

C: Research demands

The Special Report on 1.5 should clarify the following research demands and FAQs:

1. What are the risks of an overshoot, including the potential to cross tipping points? Is there any research on feasibility of overshoot and return? How much does the size and duration of the overshoot matter?

2. What is a tipping point? What are the most important tipping points? At what levels of warming may they lie?

3. What is the emissions removal potential of ecosystem restoration and re/afforestation? How much of this potential can we reasonably use to limit GHG emissions?

4. What is the permanent emissions reduction potential of industrial agriculture, particularly nitrous oxide and methane?

5. Which "development model(s)" do exist for countries which are heavy depending on income from fossil fuel exports to implement a just transition to a low carbon development pathway – in the context of a carbon-constraint world?

6. How much of known fossil fuel reserves need to stay in the ground to stay below 1.5C?

7. What is the remaining budget for 1.5C? Well below 2C? How high is the probability to stop warming at 1.5 degrees in a scenario with the probability of 90% to remain below 2 °C? Is the budget best expressed as CO2eq or CO2? If so, what approximate budget proportions pertain to CO2 and to short term forcers, particularly methane (CH4)?

8. What are the implications of the 1.5 degrees target, and for negative emissions, for efforts to reduce conventional air pollutants that have a net cooling effect?

9. What are the implications of the 1.5 degrees target regarding the pacing and direction of long-term low greenhouse gas emission development strategies called for by the Paris agreement, particularly investment in renewable energy infrastructure vs. fossil-fuel infrastructure?

10. How is the report going to be linked to the following report: climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems?

11. What are the risks to the 1.5 degrees goal of models relying heavily on unproven technologies?

12. How can the 1.5 degrees goal best be achieved without harmful socio-economic and environmental impacts to those least responsible for causing climate change?

D: Scenarios

The Special Report on 1.5 should prepare scenarios to clarify the following:

1. How many 1.5 studies/reduction pathways have been published until 2018? (list them all with reference in the report, including discount rates and input assumptions for all model-based studies)

2. What is the carbon budget for <1.5 with 90, 66 and 33% probability and with a baseline 2015 and a perspective until 2100?

3. What is the role of CO_2 mitigation in a 15, 50 and 100 years perspective?

4.What is the role of SLCF mitigation in a 15, 50 and 100 years perspective?

5. Allow 1.5 C impact scenarios to be 'regionalized' (sub continental scale e.g. at 250km or 100km grid square level), particularly for regions where impacts may cross a tipping points between 1.5 and 2.0 degrees, e.g. mountain snow-packs in mid-latitude regions.

6. What would be required to achieve a 1.5°C pathway that does not rely on overshoot, unproven or socially-harmful technologies?