

Date and time	Tuesday 4 June, 2 – 4 pm
Agenda item	16 th Research Dialogue
Session	N/A
Location	Plenary New York
Notes taken by:	Matti Goldberg, Woodwell Climate Research Center

HARRY (SBSTA CHAIR):

- Considerations: 1. reflect submissions received (had only 8 of them); 2. avoiding duplication with previous topics; 3. complementarity with other WPs and relevance to other topics (e.g. UAE-Belem); 4. next year's RD has more space and time, and can have more topics. Apologies for the lateness of providing information.
- We are looking for a climate science value chain from researchers to decisionmakers;
- Since 2023, CMA 5 concluded the first GST; while collective progress had been made, but we are far from the PA goals; today's dialogue focuses on the latest findings relevant to preparing new low-emission and resilience NDCs; focus will be on how the findings of the GST can be integrated into the new NDCs in line with 1.5 pathways and equity;
- It's up to Parties to decide how to reflect the results of the RD;
- Structure: Cecilia reflections, Jim Skea provides an overview of scientific foundations of today's topics, ? From ETH Zuerich (how we can act on the GST outcome, and synergies with SDGs, Cheryl Jeffers (St. Kitts and Nevis): research and SB needs in SIDS for integrating the GST outcomes => open discussions

CECILIA (UNFCCC):

- [...]
- RCCs are engaging in supporting countries in different areas;
- [...]

JIM SKEA (IPCC):

- I started with the two guiding questions (research to inform NDCs + specific research and CB needs), and identified four topics (from submissions): 1. emission pathways, 2. acceleration of efforts, 3. adaptation and resilience, 4. synergies and trade-offs.
- For each, identify what we know and what we need to know;
- Emission pathways and overshoot:
 - What we know: NDCs make >+1.5 likely, limiting requires overshoot and return, significant and possible irreversible impacts can happen at +1.5-2
 - What we need to know: 1. how the earth would respond to negative emissions, 2. reversible and irreversible impacts, 3. higher warming and effectiveness of actions, 4. CDR options;
- Acceleration of efforts:
 - WWK: 1. acceleration will reduce overshoot, 2. many options for all sectors, 3. demand-side mitigation is possible (socio-cultural, infrastructure, technology)
 - WWNK: 1. how policy can enable accelerated action, 2. resource use and transitioning to energy supplies, 3. effectiveness of land-based measures such as peatland restoration (baseline emissions measurement, effects of interventions)
- Adaptation:
 - WWK: 1. fragmented, small, incremental, more planning than implementation, 2. overshoot will result in irreversible impacts (polar, coastal), 3. adaptation finance is public, and only small proportion

- WWNK: 1. regional and local projections and systematic observation, 2. metrics and indicators, 3. understand reversible and irreversible impacts, 4. limits of adaptation, 5. directing finance to resilience
- Synergies and trade-offs:
 - WWK: 1. near term actions have more synergies than trade-offs with SDGs, 2. implementing mitigation and adaptation together can have major co-benefits, 3. must consider people's needs
 - WWNK: 1. local and regional insights, 2. links with other global challenges, 3. equity, justice, distributional impacts.
- Just transition: AR6 WGIII: elements of JT (investments in low-emission labor intensive technologies, fair energy access and use, economic diversification, training and retraining, gender-specific policies, redressing past harms and injustices, etc.).

SONIA (ETH Zuerich):

- Pictures show we are in a climate crisis; drought in Europe, Pakistan floods, Indian heatwaves, wildfires in Canada; temperature is close to +1.5 limit; we are not on track (trajectory to 3.2 degrees C), would need to halve emissions by 2030;
- Balance of CO2 vs. net-zero. Net zero pathways. Reduce 90% of emissions, and use 10% of negative emissions technologies
- Main source is CO2 emissions is FF use; for 1.5 limit, phase out of most FFs is important;
- Research needs:
 - Where do we stand?
 - Monitor CO2, warming, extremes, tipping points
 - What are the potential mitigation pathways?
 - New emissions scenarios needed, with feedbacks and mitigation pathways (afforestation, agriculture, infrastructure)
 - Fast computation of regional climate projections for CDR
 - Limitations of nature-based and technological options
 - Regional differentiations
 - Economic and social developments in a net-zero world / risk of continued FF use
 - What are the impacts between 1.5 and 2?
 - Global and regional tipping points (Arctic ice melt, rainforests becoming a carbon sources due to drought, food shortages, extreme events, compound events)
 - Overshoot pathways and their impacts
 - Irreversible losses and damages
 - Attribution, methods to assess loss and damage
 - New climate research fields:
 - Social sciences and humanities (psychology, ethics, philosophy, sociology)
 - Law, finance, economy
 - Communication, art
 - Integration of social and natural sciences, stories and narratives.

ST KITTS AND NEVIS:

- SIDS research needs:
 - We submitted first NDC in 2017 (-22% by 2035), and revised NDC in 2022 (-61% by 2030); research need in the new NDC:
 - Understand the scenario space to correct to +1.5 trajectories
 - Trends in sectors and emissions (e.g. peaking, etc.)
 - Regional granularity to understand local RE and efficiency, challenges, and SD synergies and opportunities

- National level scenario analysis etc.
- Adaptation research needs:
 - Regional climate impact data and modelling, data collection and modelling infrastructure
 - Attribution of impacts to climate change
 - Adaptation potential and limits to adaptation (e.g. how limited water resources might limit adaptation)
- Loss and damage:
 - Link assessments of limits of adaptation to loss and damage
 - Risk management FWs and damage recovery
 - Data on experienced loss and damage (social, economic, ecologic)
 - Mechanisms to develop robust policies
 - Better monitoring of slow-onset events
- Just transition and synergies with SD:
 - Building local expertise
 - Minimize loss of livelihoods
 - Impacts within a +1.5 aligned future
 - Innovation to leverage private finance
- Quantification of regional finance needs:
 - Quantify finance needs for +1.5 aligned mitigation, adaptation and loss and damage;
 - Constraints imposed by high debt ratios
- Summary:
 - Mitigation: new +1.5 scenarios highlighting mitigation requirements
 - Adaptation: quantified information on regional adaptation options and limits
 - Loss and damage: more quantified information
 - Research on JT and synergies with SD
 - Regional implementation and support needs, including finance

SAUDI ARABIA:

- Concern about selected topic; it is not justified mixing the objective science with policy-related processes; the theme opens a door for a political discussion; science informs policy, but not the other way around; mixing the science with the GST would compromise scientific neutrality; science should inform policy, rather than being guided by specific policy outcomes like the GST; policy influence can compromise the integrity; and this approach dilutes the nationally-driven nature of the NDCs; they are purely nationally driven, and their nature is nationally specific; other considerations than science also inform the preparation of NDCs; there is no acting on the GST; we act on the Paris Agreement and its objectives, and on the basis of CBDRRD and equity;
- Second presentation: research relevant to support the development of NDCs; those were not IPCC-specific and include elements that have no scientific basis;
- Developing countries face significant challenges in deploying technologies required to limit warming to +1.5, and cultural and economic barriers exist, and enabling conditions are needed to overcome those; they also face economic limitations, infrastructure challenges, social inequities, etc.; all of these need delicate consideration and tailoring solutions to fit national contexts, technological innovations could reduce these barriers;
- Co-benefits: powerful framework; focus should be on economic development; effective policy packages should be comprehensive, tailored to national circumstances; we are taking actions even without MOI; no one-size-fits-all towards 1.5; IPCC pathways are based on assumptions

that do not consider equity, CBDR, and different regional circumstances and priorities, so we cannot rely on those;

- Considering sustainable development in its full scope and socio-economic impacts; ideal approach: circular carbon economy; underlying premise: it relies on all technologies with emphasis on abatement and removal; all pathways do require a degree of removals; this allows us to use our resources while reducing emissions and supporting economic growth;

CHILE:

- When we saw the topic we were surprised because none of the submissions were explicit about the NDCs, but with the presentations and the questions we are more confident that this is related to the next NDC; this might inform the future NDCs; so we can consider the direction of the research that can inform the next NDCs; and many of the needs mentioned in the presentations are mentioned in the submissions;
- Best mitigation options: need better resolution to consider which ones are appropriate for each national circumstance;
- Enabling ambitious NDCs: changes to financial systems = incentives to pursue actions; Colombia decided not to pursue specific coal reserves => their credit rating was downgraded (= financial system has bad incentives) - so research should look at how financial systems can be aligned;
- Equity was a big part of discussions, and maybe it was a mistake not to discuss operationalizing equity; this is not being addressed in JT or other discussions; not clear to us how this is related to pathways etc.;
- Idea: IPCC focal points for the constituted bodies - this should move forward;
- IPCC regional chapters are helpful, and should be built up.

BARBADOS:

- Para 184 of 1/CMA.5: IPCC was invited to consider how to align its work with the GST and to provide timely information for it. IPCC is crucial for our work and the GSTs. We support efforts to reflect best available science here. Science needs to inform NDCs.
- IPCC: what's your assessment of the role of IPCC and AR7 for the UNFCCC and future GSTs?
- IPCC: what tools and activities can further facilitate the science-policy interface?

UNESCO-IOC:

- Our mandate is to promote international cooperation and capacity-building and apply that knowledge to decision-making; ocean science must inform climate action; we can provide ocean data to right people at the right time; more communication and outreach is needed to promote ocean action and support; Ocean Decade Conference: globalization of oceans science & huge amount of work happening; challenges: unlock ocean science, targeted support to countries; publication: State of the Ocean Report: physical, chemical etc. changes; massive ocean heating is taking place, with significant consequences; need better integration of the oceans into national climate strategies; [...]

INDIA:

- Reference in the GST outcome had a caveat: that NDCs should be in line with equity and CBDRRC etc.; the pathways considered in GST; IPCC: pathways do not make explicit assumptions about ???; global emission pathways contain regionally differentiated assumptions (this is a big qualifier); the pathways disregard the notion of responsibility of developed countries and are based on grandfathering; they project future energy needs of developing countries to be very low; serious questions about these pathways; how can we accept these scenarios as the basis for any NDC update? The scenarios violate the principles of the CBDRRC and key aspects of poverty eradication etc.; so we cannot proceed on the basis of the IPCC scenarios;
- AR7: tell us how these issues are being addressed in the AR7? What new scenarios are being developed to consider these?

- Sustainable development and trade-offs: burden being placed on developing countries; we have already reached the warming of +1.5 degrees, and now developing countries are expected to carry the burdens of mitigation and adaptation;
- [...]

IRELAND:

- IPCC: global scenarios - need for regional scenarios; does the IPCC have plans for this, or what research could countries do towards this?

LUXEMBOURG:

- How can emission reduction pathways be disaggregated by sector?

BRAZIL (Grupo Sur):

- We regret having only one issue to discuss this time; past years we had more issues that we could discuss;
- IPCC + others: aligning with +1.5 pathways; Sonia presented aspects of global GHG emissions and global model pathways limiting warming to 1.5; IPCC spoke of overshoots; SPM: achieving global net-zero emissions is different from achieving net-zero GHG emissions; choice of emission metric used to calculate emissions and removals affects at what point in time emissions are net-zero; emissions metrics: what are the specific research and CB needs on emissions metrics in the context of this discussion?
- Other presenters: details of the role of CDR activities in ambitious NDCs?
- Support Saudi Arabia etc. about the importance of equity

NEPAL:

- Mountain ecosystems are highly vulnerable, but there are data and research gaps; need to strengthen research; +1.5 is too high for mountainous countries; disasters are becoming more vulnerable, and pose significant threats to ecosystems; need efforts to enhance disaster risk management; finance is needed to build resilience and protect ecosystems; we need capacity for climate research etc.;

JAPAN:

- Agricultural emissions; hard to abate; need to consider food security and livelihoods when looking at this, as well as availability of technology; innovation and R&D is important, as is the dissemination of outcomes of the innovation; development of wheat something reducing nitrogen use; reducing emissions from rice paddies; ASEAN and JPN plan: contribute to sustainable ecosystems in the region;

WMO:

- Concern about 2023 being the warmest on record, and impacts are rapidly accelerating; COP 28 decision on first GST: building accessible climate service systems, early warning systems, etc., and recognizing that 1/3 of the world has no access to EWS. EW4A initiative + Global GHG Watch Initiative, and Systematic Observation Financing Facility; impactful implementation of NDCs; national hydrological services have a role to play; they fill the gap between IPCC cycle to get accurate and evidence-based understandings of local contexts; RD can be improved by engaging the research community more closely, including through the WCRP;

ITALY:

- Net is more important than zero - primarily it's about reducing CO2 emissions; how can global mitigation pathways be complemented by regional scenarios?
- Computational approaches: status of CMIPs, given that their findings can inform the preparation of NDCs?

GERMANY:

- RD is very valuable; we support Barbados in relation to the role of the IPCC;

- Content: how to ensure highest possible ambition of the NDCs and how can progression be ensured?
- How has the cost of RE and EE changed? Is this change considered in the latest research and scenarios for LE development?

SIERRA LEONE:

- How can the LDCs better understand and prepare for irreversible impacts associated with higher warming levels?
- How can the IPCC ensure the consideration of the research needs of the most vulnerable countries?

USA:

- The IPCC presentation has significant scientific basis;
- 1st guiding question: NDCs - mitigation is the only mandatory elements, so NDC mitigation targets must consider best available science; clearly would be helpful to understand options when developing targets; global pathways help understand collective progress towards Paris Agreement goals, while maximizing economic growth and sustainable development; any approach will be subjective; need information on cost-effective mitigation pathways, and which technologies are most relevant;
- What linking between options has already been done? Are there good options people can look at?
- Global pathways can you elaborate how they are differentiated in regional terms?
- What is the spread in terms of reaching net-zero throughout major economies?

UK:

- Given the long timescales for planning, what needs to be considered to avoid lockins and stranded assets?
- [...]
- How can pathways for 1.5 integrate consideration of human development needs?

CHINA:

- Support Saudi etc.; focus should be more on scientific research; we hope future RDs will consider this; nature of NDCs is bottom-up, and CBDRRD is central; temperature goals of the PA => programme of research should focus on both numbers;

GRENADA:

- We need more research on the emissions space that informs the +1.5 pathways; what sources of information can the IPCC anticipate to assess this in its seventh cycle?

BOTSWANA:

- Lack of delivery of NDCs depends on many factors - this is at the heart of things; we can go on developing more ambitious etc., but without support things won't make a difference;

IPCC:

- GST-IPCC relationship: formal invitation was to consider the alignment of IPCC cycle with GST; we considered that, but didn't reach a conclusion; last week, bureau considered a timeline, which will be put to the bureau for a written agreement; governments will make the decision on this based on a recommendation by the bureau;
- Enhancing the science-policy interface: there's a joint SBSTA-IPCC working group; stronger links with the CBs would be helpful; we are ready to engage about this; we are also engaging with the major constituencies under the Convention; we just met with YOUNGO
- Scenarios and equity: IPCC doesn't have scenarios; since 2008 we do not produce our own, but assess those by others; we had a workshop on scenarios in April 2023 to consider issues countries have raised => recommendations for IPCC, research community, research funders;

that included recommendations relating to the way communities are constructed and how they engage; co-chairs are very cognizant of these connections;

- Brazil: metrics for GHGs; the TF on national GHG inventories makes recommendations on methods on sinks, but no recommendations for metrics on aggregating different gases; that is a decision for the UNFCCC, not the IPCC; there's enough science out there to make a decision by governments;
- We need to pay more attention to specific factors in the next IPCC cycle;

SONIA (ETH):

- Saudi Arabia: scientific content - I can confirm this, and I'd like to hear which parts you think are not scientific;
- SDGs: several countries mentioned this; here we can do more research; IPCC SR on 1.5 has a chapter assessing tradeoffs and synergies in chapter 5;
- Mitigation pathways and disaggregation by sectors: famous figure in SR showing potential for decarbonizing until 2030 = 2030 global scale (halve emissions by 2030, several sectors have strong potential (e.g. energy sector);
- [...]

CHERYL (ST. KITTS AND NEVIS):

- Call for sci community map latest mitigation scenarios etc..
- IPCC and others are critical to inform the processes such as the GST in a timely manner, as well as national processes;