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Adverse Climate: Addressing Inclusion and Diversity Issues in the IPCC's Sixth Assessment and beyond

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TITLE PAGE

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Abstract

In this essay, we reflect on what it means for the scientific community to collaborate effectively in global scientific assessments, drawing on our experience within the Intergovernmental Panel on Climate Change (IPCC) and with relevance beyond the IPCC to many other scientific collaborations. We amplify IPCC author voices through lived-experience narratives that reveal how systemic barriers limited participation of Global South authors, people of colour, non-native English speakers, early-career scientists, women, and those outside academia during the IPCC's Sixth Assessment Report (AR6), particularly in Working Group II. These experiences expose the "meritocracy myth" in academia, where privileged individuals claim recognition while ignoring structural advantages, thereby perpetuating power imbalances and limiting equity. We focus on overarching issues that perpetuate exclusion within global scientific assessment reports, some costs if these remain unaddressed, and key considerations toward more inclusive future collaborations. We stress that an effective collaborative culture requires moving beyond diversity metrics: the scientific community must actively dismantle colonial knowledge hierarchies that are silencing diverse perspectives and instead embody the very transformations that we call for in our reports. Alternative forms of knowledge are often only accepted when verified through reductionist, positivist methods of Western science, and are therefore downplayed. Unless these deeper dynamics—and the value systems that sustain them—are confronted and addressed, well-intentioned reforms risk sliding into tokenism, treating symptoms rather than causes. We cannot continue with business as usual, celebrating diversity statistics while power structures remain unchanged.

Keywords

Climate change, IPCC, Diversity Equity and Inclusion, Global South - Global North dynamics, People of Colour, Epistemic Injustice, Lived experiences

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Box 1

A Note on Intent and Context

There is a risk that this essay may be misinterpreted or sensationalised and used to question the IPCC or climate science more broadly. Our purpose, however, is constructive: to share lived experiences of structural barriers that continue to shape whose voices are heard in science, and whose are sidelined. We believe that bringing these realities to light will encourage dialogue and, more importantly, support continuous improvement of the IPCC and the wider scientific community.

The challenges we describe extend far beyond the IPCC. They reflect a far larger and chronic global problem—the persistent marginalisation of people of colour and of scientists from the Global South across academic and research institutions worldwide. Rather than being a source, the IPCC is a mirror of the systems that perpetuate this status quo. These exclusions create blind spots—gaps in knowledge and perspective that risk limiting the scope, rigour, and relevance of climate science.

This essay is an independent and candid reflection, not an official IPCC product. It draws on AR6 experiences as a lens to understand how broader systemic inequities continue to shape global science. Our aim is to strengthen—rather than weaken—the scientific enterprise within this wider global context. Addressing these barriers is essential, not only for the IPCC, but for all of climate science and for the international research community more broadly.

We emphasize that inclusion is not political—it is fundamental to scientific excellence. Ensuring that diverse voices are equitably heard improves the quality and legitimacy of climate assessments, ultimately leading to better outcomes for all communities.

We are committed to contributing to this ongoing dialogue on how to enhance the IPCC and to support its mission. Our hope is that this essay opens space for constructive dialogue and practical reforms, so that AR7 and future assessments continue to serve as the gold standard of climate knowledge—representative, rigorous, and transformative.

Summary

In this essay, we reflect on what it means for the scientific community to collaborate effectively in global scientific assessments, drawing on our experience within the Intergovernmental Panel on Climate Change (IPCC) and with relevance beyond the IPCC to many other scientific collaborations. An effective research culture goes beyond quantitative diversity metrics, which by themselves cannot capture these complexities. Here we amplify IPCC author voices through lived-experience narratives that reveal how systemic barriers

limited participation of Global South authors, people of colour, non-native English speakers, early-career scientists, women, and those outside academia during the IPCC's Sixth Assessment Report (AR6), particularly in Working Group II.

These experiences expose the "meritocracy myth" in academia, where privileged individuals claim recognition while ignoring structural advantages, thereby perpetuating power imbalances and limiting equity. We focus on overarching issues that perpetuate exclusion within global scientific assessment reports, some costs if these remain unaddressed, and key considerations toward more inclusive future collaborations. We stress that an effective collaborative culture requires moving beyond diversity metrics: the scientific community must actively dismantle colonial knowledge hierarchies that are silencing diverse perspectives and instead embody the very transformations that we call for in our reports.

Alternative forms of knowledge are often only accepted when verified through reductionist, positivist methods of Western science, and are therefore downplayed. This narrow focus on physics-first objectivity has also proven costly and resource-intensive, reinforcing one-way knowledge and technology transfers from the Global North to the Global South. This devaluation extends beyond knowledge systems themselves, as reflected in the lived experiences we share below—where Global South contributions were marginalized even when discussions centered on so-called 'objective' science. Unless these deeper dynamics—and the *value systems* that sustain them—are confronted and addressed, well-intentioned reforms risk sliding into tokenism, treating symptoms rather than causes.

We cannot continue with business as usual, celebrating diversity statistics while power structures remain unchanged. We must embrace diversity and inclusion for the difficult work of genuine transformation. This choice extends far beyond the IPCC to every major scientific collaboration, every editorial board, every hiring decision, every funding decision and every assessment report.

Introduction

The Intergovernmental Panel on Climate Change (IPCC) plays a critical role at the science-policy interface through its assessments of the state of knowledge on climate change, its impacts, and potential solutions. These assessments are authored by hundreds of experts from around the world who volunteer their (unpaid) time.

While this bringing together of experts from different backgrounds and regions across the world serves as a beacon for international scientific cooperation to inform policy, participation has historically shown a pronounced bias towards Minority World or Global North (GN) experts over those from the Majority World or Global South (GS) (Figure 1). This imbalance creates microcosms that reflect traditional biases and hierarchies inherent within global academia and research.

This phenomenon is not unique to the IPCC, and reflects a systemic pattern where institutional structures and organizational practices perpetuate existing power imbalances and justify the privileging of dominant identities [1]. In scientific discourse, mechanisms of

epistemic injustice and cumulative advantage determine whose claims are trusted and cited, reinforcing established speakers and institutions [2,3]. Evaluation and funding practices shape what counts as authoritative knowledge and whose expertise is recognized as legitimate. Because these practices are predominantly calibrated to GN norms [4-6], they reinforce the Global North hegemony over international research agendas.

Climate science, because of its global and cross-disciplinary nature, offers a rare lens into the social dynamics and power structures that shape scientific knowledge co-production, particularly for those who are from the Global South, persons of colour (POC), women and other marginalized groups. Although the practice of exclusion based on geography, race, social location, gender, and class within science is *not exclusive to the IPCC*, the diversity of the IPCC AR6's Working Group II (WGII) team offers a 'laboratory space' to document how systemic collaboration for knowledge co-production operates in practice and initiate an open discussion toward improving equity and social inclusion in the assessment process.

We recognize and appreciate ongoing efforts within the IPCC's WGII to enhance diversity, equity, and inclusion (DEI) across many dimensions, including making efforts to increase the diversity of authors from around the world based on gender, ethnicity, disability, discipline, and geographical origin/representation, which was significantly improved in the AR6 cycle. Increased diversity of knowledge and respect for one another has been emphasized periodically during the development of AR6 as summarised, for example, in the 'Survey of gender bias in the IPCC' publication [7]. However, we demonstrate that these were not enough to deliver a diverse and inclusive collaborative environment. We further argue that this diminished the integration of expert opinions from GS and minority group authors comes with serious implications for emerging messages from the reports.

Our survey focuses on geography, race and gender but does not cover other often overlooked dimensions of disability, gender identity, and sexual orientation. However, we recognize that colleagues with disabilities and other marginalized identities—both visible and invisible—also experienced a pervading lack of awareness and/or accessibility, underscoring how structural inequities extend across multiple dimensions of identity.

Systemic imbalances occur throughout academia - beyond gender

Much of the discourse on global knowledge production continues to be focused on gender, overlooking other intersecting factors, including ethnicity, disability, and age—that create compounded barriers for scholars with intersecting social identities [8-12]. This narrow focus is particularly problematic because it inadequately addresses how these intersecting identities compound exclusion within existing power structures. Moreover, it perpetuates the masculine norms that continue to dominate research priorities and methods within climate knowledge production [7,13].

Beyond gendered norms, the impact of intersecting identities becomes particularly evident where scholars are persons of colour, hold certain nationalities or come from different knowledge communities. Such identities create additional compounded barriers [14-17]. These barriers are often obscured by the 'meritocracy myth'—the belief that success reflects

purely individual merit rather than structural advantages [18]—which allows privileged individuals to claim recognition while ignoring how systemic factors shaped their opportunities. When multiple marginalized identities overlap, they compound the experience of exclusion, particularly within institutional settings—contributing not only to limited agency, but also to internalized stress, stereotype threat, and underperformance due to identity-based threat responses (e.g., [19]). For example, studies have consistently shown that women, particularly those from the Global South, are underrepresented in influential academic rankings and face significant obstacles in advancing their careers [20].

There is growing evidence that scientists of colour experience multiple forms of inequity and discrimination, leading to an underrepresentation of their voices in how science is conducted, reported, reviewed and disseminated. There continues to be implicit bias (i.e., unconscious attitudes and stereotyping), which gives rise not only to racism on an individual basis but also to structural racism within academic and other institutions [21,22]. For example, a recent global study shows that POC scientists appear on fewer editorial boards of six major publishers [23]. POC scientists also face extended delays between manuscript submission and acceptance, and their published works receive fewer citations than would be expected based on textual similarity. These inequities have historical roots that are expressed today as psychological, interpersonal, and structural factors that impede racial equity in academia, including lower resources and funding as well as the perpetuation of stereotypes [24,25]. Such inequities in opportunities, research funding, and publishing continue to generate significant barriers that hinder and stifle the academic growth of scholars of colour, and ultimately reduce their voices within the scientific world.

Structural differences in academia between the Global South and Global North

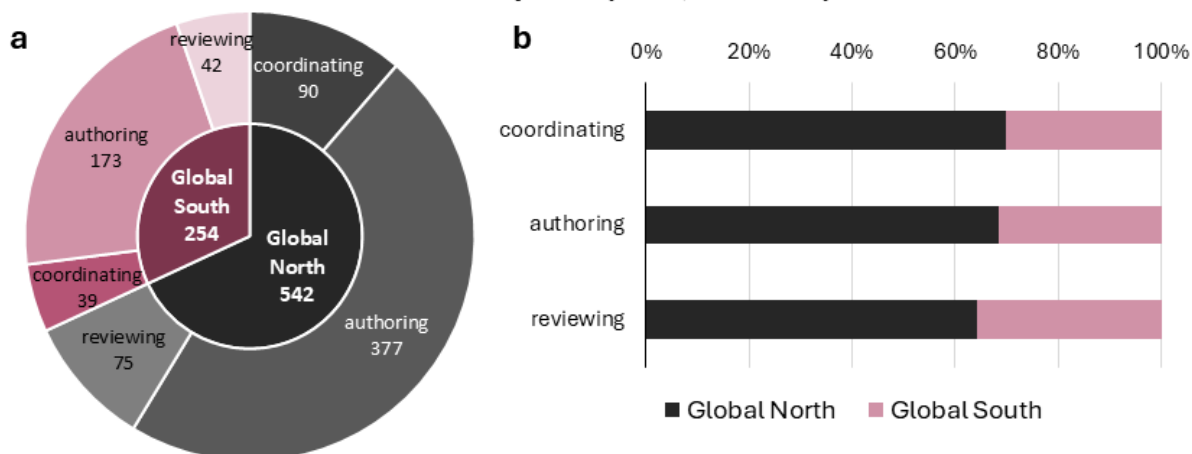
Across this landscape of scientific inequity, geographical disparities between the Global North and South further deepen the divide. Conducting scientific research is expensive, and most scholars from countries in the GS lack adequate funding sources. Mascarello et al. [26] reveal that unequal power dynamics often mark collaborations between countries like Brazil and Germany because of funding discrepancies, where scholars from the GS are relegated to peripheral roles, with limited (if any) autonomy and intellectual ownership and design in research projects. In addition to little financial support, scholars in the GS, especially those from marginalized communities, often lack institutional support necessary to engage fully in global academic networks, exacerbating the inequalities [27]. Moreover, financial disparities further reinforce the North-South inequities within the realm of scientific publishing. Open-access publication models, often hailed as democratizing tools, tend to reinforce the divide between scholars in higher-income and lower-income countries due to the associated costs [28,29].

These disparities are not just financial but also linked to the epistemological dominance of the GN in setting research agendas and standards [30]. Colonial legacies remain embedded in scientific collaboration and knowledge production patterns [31]. For example, the conventional use of English as the common language in science perpetuates unequal power

dynamics [32-35]. This reflects a broad colonial structure wherein academic imperialism from the GN influences the types of research that are prioritized and funded [36], resulting in dominance over not only *what* is considered legitimate knowledge, but also *who* gets to produce it and *how* to communicate it [37,38].

This systematic marginalisation constitutes epistemic injustice. The literature has long highlighted how marginalized individuals are systematically discredited as knowers—both through testimonial injustice, where their knowledge is dismissed, devalued or worse, is appropriated as GN intellectual property—and hermeneutical injustice, where interpretive frameworks to understand their perspectives are lacking. This not only reinforces the Global North’s intellectual property dominance and hermeneutical exclusion [2], but also echoes the kind of structural reproduction of hierarchy described by Freire in *Pedagogy of the Oppressed* [39]—where those in privileged academic positions may unconsciously sustain the very hegemonies they once may have resisted, mirroring colonial patterns of gatekeeping, knowledge ownership and exclusion [40].

AR6 main reports (WGI, II and III)



AR6 Summaries for Policymakers (WGI, II and III)

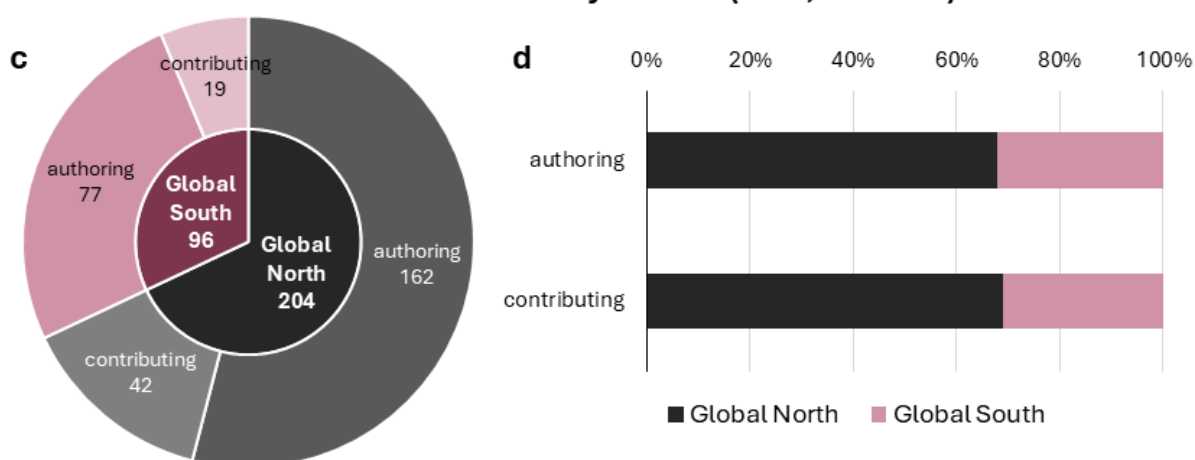


Figure 1. Distribution of AR6 products authorships by author role and global North/South for the main working group reports (a-b), and summaries for policymakers (c-d). ‘Authorships’ refers to the total number of author-products for the main reports or summary products, where an individual author may contribute to more than one product and thus represent more than one authorship (North et al., 2022). Author roles were divided into ‘coordinating’ (i.e., coordinating lead authors or leads), ‘authoring’ (lead authors, authors, or drafting authors), and ‘contributing’ (drafting contributing authors, only for summary products). Review editors were captured under ‘reviewing’. Authors’ were coded as being from the Global North or South based on the country they represented for their IPCC work, and applying the World Bank country classification for the 2025 fiscal year (GN = ‘high income’, GS = all the remaining; not equivalent to UNFCCC Annex-I vs non-Annex-I countries).

DEI concerns: Drawing from narratives based on our lived experiences

This essay first took form from an internal IPCC white paper on DEI concerns that was developed by a diverse group of 32 authors from the IPCC AR6 WGII. These authors were distributed across twelve chapters and four cross-chapter papers of the WGII report, and represent 23 countries¹.

We highlight three main themes along which DEI concerns occurred during the development of the AR6. These are: Process, Behaviours, and Constraints. Process issues refer to procedures in organising author teams and assigning responsibilities which in turn, affected DEI. Behavioural issues include power dynamics, interactions and transactions between individuals and groups of individuals [41]. Constraints were barriers faced by individuals and groups of authors that affected their ability to participate in contributing to the WGII report. We also highlight here that because identifying DEI concerns often requires an intersectional lens, we did not link individuals to a single social identifier such as race/skin colour or gender.

Theme 1: Process

This theme addresses processes—particularly regarding the management of author teams during the report's production within the AR6 cycle. The major sub-themes identified include: 1) how authors were organised and selected for different portions of the report, 2) their understanding of and approach to their roles and responsibilities, and 3) the inclusion of GS perspectives in the report.

Many of the negative experiences were related to the organisational structure of Working Group II author teams, including where authors were positioned within the report structure, their roles and responsibilities, and their understanding of these roles (see Figure 2 for an illustration of the structure of the IPCC and the AR6 structure for the WG2 Report). The roles and responsibilities of these positions are outlined in several documents that guide the IPCC [42]. However, lived experiences, especially during the less formal internal processes within the author meetings differed substantially. The selection processes for different teams,

¹ These categories are not discrete – e.g. Some authors represent more than one country, and may contribute to both chapters and cross-chapter papers

authors' awareness and perceptions of these processes, and the perceived elitism of certain positions such as Coordinating Lead Authors (CLAs) and Vice Chairs affected interactions among authors. This mixed hierarchical organisational structure increased stress among the authors [43]. The experiences described are also related to the value authors felt they were accorded as team members.

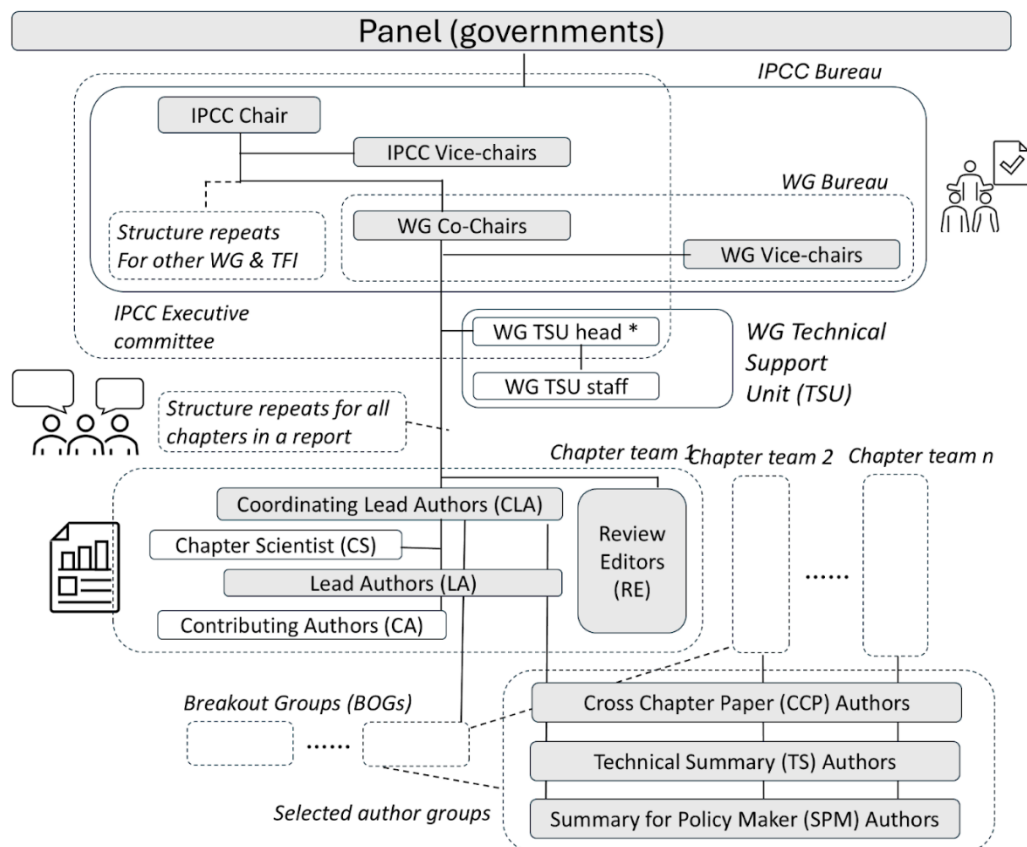


Figure 2: Organisational structure of the IPCC and hierarchies/perceived power roles (in grey), adapted with permission from Figure 1 of Slade et al (2024). The structure repeats with minor variations across WGs, chapters and the Taskforce for National Greenhouse Gas Inventories (TFI). How authors are selected into these roles is often not considered transparent. This lack of transparency, when combined with Global South/Global North and other hierarchies that are pervasive in academia, can lead to lack of representation as well as marginalization of perspectives at all levels of this structure.

Selection Process

The selection process for leadership in Chapter and sub-topic groupings reinforced white GN hegemony. Break-out groups (BOGs) were relied upon during author meetings to make progress on specific cross-cutting topics and eventually form the basis for cross-chapter boxes. It was noted that the BOGs were **{1}** "typically run by northern colleagues". Additionally, the process for selection of authors (and their roles) for the summary products

such as the Summary for Policy Makers (SPM) was considered to be {2} "very opaque and skewed toward author representation from the GN..." and constituted a {3} "room for 'elites'".

One author queried:

{4} "How many people of colour - especially from the Global South - were actually selected to: (a) lead/facilitate BOGs or other important meetings; (b) participate as non-CLA authors within the Summary for Policymakers (SPM) ; (c) lead sections of the SPM? "

Understanding of roles and responsibilities, especially of leadership positions

Author comments generally pointed to a lack of clarity about the level of authority that different authors within the WGII structure had to determine and approve the text. This lack of clarity led to potential for unequal power dynamics and the exclusion of authors in finalizing the text. One person stated that

{5} " ... chapter meetings were run by CLAs, who acted more as an employer or boss rather than a colleague, and who made decisions in a hierarchical way rather than through consensus." Another person noted that {6} "a CLA ... who was a white male from the GN ... behaved as if he was the owner of the chapter." They added: "This CLA [an older white GN male] had continuously targeted, contested and questioned text that had been developed by this female author [POC from the GS] - text which the other members of our group found to be of excellent quality..."

Some authors commented on the lack of facilitation and/or ability to navigate challenging power dynamics within chapter teams. {7} "Out of three CLAs, only one was effectively able to lead an interdisciplinary team, and the other two simply didn't have the skills and or the willingness to act as a CLA".

Additionally, in some cases, coordinating or lead authors failed to deliver the required written material, and there was limited ability to take action in those cases:

{8} "No repercussions when a Lead Author did not fulfill their obligations and instead very clearly sidestepped responsibility, delegating most of their duties to me [a young female Chapter Scientist] ... [they] did not even try ... to excuse themselves or explain why they couldn't participate, or even delegate thoughtfully ... At LAM2² [Lead Author Meeting], when asked for their approach on their section, they asked me to present my approach to the other authors. This is the moment when I stopped thinking of myself as 'helping' and started to realize that the entire responsibility for the section was being subtly offloaded on to me ".

² Lead Author Meetings - during which authors of the working group congregate in person to discuss and develop progress on the report

Process for inclusion of GS perspectives in the report

This situation of white GN hegemony resulted in inequalities in the treatment of authors from the GS, particularly those who are POC. One white GS author noted that {9} *"As a white GS author - it has been impossible to ignore that my GS colleagues who are people of colour did not receive the same degree of professional attention or respect for their opinions and that when they did attempt to voice their perspectives - these were mostly ignored by GN white authors"*. Another author added {10} *"...let's stop pretending that all GS authors are treated the same ... the POC are at the bottom of the ladder - often representing regions of high vulnerability. Yet their voices remained largely ignored within the AR process"*.

Another author queried: {11} *"Why do my opinions carry less weight than my GN colleagues - especially when they are not experts in the field being discussed - while I AM?".... I was often requested by CLAs to provide more evidence to support my points than were my GN colleagues"*

As an example of the type of mistreatment experienced, several GS authors related experiencing that their suggestions or comments were {12} *"completely ignored and glossed over"*, while *"a few minutes later, someone from the GN made the same suggestion - it was immediately complimented, picked up and integrated into the discussion"*. An author's sense of frustration was mirrored in their reaction that they {13} *"don't know why ...[they] even bothered to try in the first place..."*.

This frustration helps to explain the noticeable lack of GS and non-native English-speaking authors in many of the online discussions, particularly those conducted during the COVID-19 pandemic {14} *"... Why are the rest of us even attending these meetings in the first place? Very insulting and a waste of time and energy..."*

This disparity in value given to authors continued to the summary products where a GS author noted {15} *"It became quickly obvious that my opinions weren't being acknowledged - so I stopped ... It was more productive for me to focus on other external tasks instead of IPCC meetings and work"*.

Even when CLAs recognized the issue and sought to foster inclusivity, the strong presence of GN white male LAs in meetings was often difficult to manage, and despite efforts to encourage broader participation and diverse perspectives, these power imbalances persisted (see quotation 22).

Although the WGII TSU noted that there was a gender focal person during AR6, one author commented:

{16} *"It might also be an idea to let authors know from the start (and at repeated intervals e.g., via emails) that there are avenues to turn to if they feel that they are being subjected to academic discrimination, imperialism or other difficult to prove issues - which is external and independent of chapter/CCP³ leadership ... as sometimes, leadership may be the offending party"*.

³ Cross-Chapter Paper (CCP)

Theme 2: Behaviours

Problematic processes identified by the authors were linked to challenging behaviours, which reinforced inequalities and exclusions in the writing process. We identified three main types of behaviours described by respondents, namely a lack of respect or trust, intersectional barriers/structuralism, and overt racial or sexual discrimination.

Lack of Respect and/or Trust

A number of authors described ways in which their professional expertise and contributions were undervalued, ignored or actively undermined, in ways that they had not previously experienced. These various individual behaviours reinforced a lack of respect and/or trust in their expertise overall in the AR6 process. One author noted:

{17} *"I was shocked when one CLA asked me "Are you a professor?", when we first met, because I look young. The CLA treated non-native [English-speaking] colleagues as school students during our meeting. If they could not understand high-speed discussions in English, the CLA asked them "Explain what we discussed now" in front of everyone. The person is a really famous great scientist in their research field, but the CLA didn't respect them due to difficulties in language".*

The IPCC process requires that chapter authors reach consensus on the text, but the process by which consensus was reached is not well documented. This lack of transparency allows meaningful disagreements to be obscured by power dynamics, which a number of authors described as operating throughout the decision-making processes for draft submissions.

{18} *"... this was the most excruciating professional experience I have had to date due to what feels like constant academic imperialism and oversight...My text was actively picked on by one CLA and required me having to continuously defend [it]. It felt like a viva defense lasting years instead of hours!... My submitted, already chapter [team] approved text was literally, on multiple occasions, deleted and edited without my (or anyone else's) knowledge by this CLA... I would see the changes only after the official draft was out for review".*

Cases of antagonism and clear disrespect were also reported:

{19} *I was called stupid by a white GN colleague during a meeting in front of [senior IPCC leadership]: [but there was] no [further] word about it."*

{20} *An older white male from the GN [from senior IPCC leadership] has on several occasions exhibited condescending behaviour to me - a female POC from the GS ... [On one occasion while] I was in the middle of making a point when he simply started to speak over me - cutting me off in mid-sentence. I did not pause but asked him to let me finish speaking - but he did not stop and just kept on speaking - ignoring my voice altogether. I again spoke in a louder tone saying 'please let me finish making my point' - but he did not and simply kept talking away until he had finished making his point. Afterwards he did not apologise or even refer to this event. His behaviour is rather contrary to another similar event - which occurred when he once tried to speak over the only other female in our chapter. Like me - she stood her ground and told him that it was not good practice to cut her off by speaking over her.*

Unlike with me, he later apologised to her in that meeting. While she and I are both females from the GS - there were also a couple of clear differences: (i) she is white and (ii) occupied a position of power (CLA)."

Intersectional Barriers/Structuralism

The lived experiences documented below underscore the existing structures that facilitate the domination of discussions by white, western, often masculine authors while (perhaps at times inadvertently) allowing for actions/behaviours which lead to GS authors perceiving their views to be consistently ignored or undervalued.

*One author shared the response of a CLA to their observation that plenary sessions seemed to be dominated by older, white males from the GN: **{21}**" ... that's because all of the experts are from America and Europe."*

Another CLA noted:

{22} *"Although I have quite a lot of leadership experience using participatory facilitation methods, the dominance of white male LAs in the meetings was extremely difficult to manage. My fellow CLA... and I spoke about it many times and tried to strategize ways to encourage others to speak and share their views, but we were not able to fully overcome these power dynamics".*

*Other authors noted these consistent patterns, in which POC from the GS were undervalued or ignored, and not given leadership roles (see quotations **4, 9, 10, 11 and 12**).*

Another author described the frustrating experience they had in having text deleted, reflecting a lack of transparency in decision-making and reaching consensus:

{23} *"... one of my GN CLAs took [it upon themselves] to edit and delete content from the final text submitted for a cross-chapter box that I led, and which had gone through numerous editing rounds and consensus reached with the actual authors involved from across the WGII report. ... To me, this CLA simply did not know their role, or chose to ignore it... or not trusting me, a scholar who identifies as coming from the GS, and who was leading the CCB?"*

Authors described their lived experiences around consistent structural inequalities and frequently observed these happening to others. One author noted this pattern of inequity and exclusion:

{24} *"I had a bad [experience] with a CLA who was a white male from the GN... He also treated authors differently, with a clear hierarchy which placed white male authors from the GN on top, and authors of color, young and woman on the bottom. For the "lesser" authors, lesser tasks: just review the literature from your own geographic region. For the "worthy" authors, the most intellectually challenging task: talk about the conceptual basis and the broader issues at hand. "Lesser" authors who tried to participate in more intellectually challenging tasks were quickly discouraged to do so. Under this logic, the young woman of color in the team was at the very bottom of the hierarchy and, no wonder, her work was constantly scrutinized and asked to be run through by the "worthy" authors ... I saw a*

proposal made by a "lesser" author being quickly disregarded, and the very same suggestion made 10 minutes later by a "worthy" author being praised and incorporated. I have never experienced anything like that in my entire career. I have read about and thought it was something from the past. It took me some time to realize that what was going on was pure and simple academic imperialism".

Overt Discrimination

Less common, but still present, were examples of overt gender or racial discrimination. One author, for example, described the dynamics operating in their chapter. We quote at length to create a full picture of these discriminatory experiences.

{25} *"Our small group contained just one female author from the global south who is also relatively young and is a person of color. I have witnessed our CLA (an older white GN male) on more than one occasion imply that this female author was attractive... this CLA had continuously targeted, contested and questioned text that had been developed by this female author - text which the other members of our group found to be of excellent quality... This clear targeting of the female author's work continued until the end ... It was obvious, from the behavior of the CLA to the other authors from the global south on the chapter that he believed their opinions to be inferior to authors (especially white males) from the GN. But his targeting of this female author's work clearly went much beyond his usual sidelining of global south opinions".*

Theme 3: Constraints

Issues related to process and behaviors are further complicated by the existence of tangible constraints that several authors reported in the survey. The ones that emerge more prominently are language barriers and challenges accessing online libraries and the software necessary for the completion of the report, as were visa issues, workload, and childcare.

Language as a barrier was heavily featured in the survey as an issue for non-Anglophone speakers who, although fluent in English as a second language, reported difficulties in following meetings given the speed and complexity of what was being discussed. The situation did not improve when the discussion took place online:

{26} *"In virtual sessions, it was even more difficult to follow the oral discussion, as it took place in parallel with the discussion in the chat."*

A lack of empathy from both IPCC leadership and co-authors related to this issue was also reported in the survey:

{27} *"[Someone in a senior leadership position] once commented that non-native authors who couldn't follow authors meeting well should study the minutes later to catch up. But this alludes that non-native speakers just have to follow what's decided among native speakers during the meetings and discourages them from actively getting involved in the decision making. Those who led teams were generally not considerate enough for non-native and introverted authors, not acknowledging that language is a huge handicap for non-native speakers to follow the process and respond even in meetings and even emails."*

Institutional imbalance creates a dynamic that enables GN actors with disproportionate power through their dominance over critical resources such as funding, access to literature, and editorial authority—leaving GS contributors structurally dependent and often voiceless [44-46]. Such resource disparities were particularly evident in the practical barriers facing GS authors including accessing scientific literature behind paywalls, and licenses for necessary software such as EndNote (a reference management software package). Authors had to resort to asking their chapter co-authors to share literature sources with them, as requests for publications from the UNEP library would take days to arrive. Such delays were not viable when deadlines loomed, thereby setting up a {28} “...strong hierarchy”. Others used freely available sources on copyright-breaking websites:

{29} *“I had to resort to Sci-hub in order to get my work done. This has been the first and only time I have ever broken any laws in my life - all for the sake of the IPCC's assumption that all of their authors are employed in academic or research institutions. This assumption in itself is indicative of the blatant hierarchy that lies within - that so many of us have encountered in one way or the other.”*

Another array of tangible constraints emerged in the survey. Visa issues represented a hindrance to participating in meetings, as reported:

{30} *“Multiple Africa chapter authors couldn't make the Faro LAM [3rd Lead author meeting] because they were not issued visas in time.”*

GN authors could also face constraints, often related to their intersectionality. Funding for some GN authors attending the meetings just covered flights, but not local transport or accommodation, and these additional costs were at least implicitly expected to be taken out of the author's research funding or their home institution, but were just as likely to come out of their own pocket. These circumstances are another example of how the work for the IPCC is an additional workload that becomes particularly heavy for those that are not well-endowed with resources, and particularly those who are practitioners, as explained in this quote:

{31} *“It is one thing volunteering for IPCC when you are at a well-resourced university and you benefit in terms of grants and postdoc projects and introduction into powerful collaboration networks as a lead author. There is much less incentive to stick with it when you cannot access these benefits as easily, get added as a middle author, and your time on the report is not supported.”*

This situation becomes even more unsustainable financially and personally if you are a primary care-giver, since childcare was not provided during Lead Author Meetings (LAMs), as explained by this GN author:

{32} *“As a single mother of a 3 yrs old baby I was not able to attend the first LAM because I didn't know to [with] whom/where to leave my 3 yrs old during the LAM, and, in any case, my university/my government would not pay for my daughter's tickets.”*

Beyond the inability to meet the work and family life responsibilities, while contributing to AR6, this overall lack or limit of resources reduces the possibility for researchers, mainly women, those from the GS, and junior scholars to actively take part in the IPCC process.

These constraints, the survey shows, undermine diversity and inclusion, effectively depriving the report from important perspectives.

Overarching Implications of GN Hegemony on evolving climate science narratives

In an era of increasing populism and nationalism, there are growing efforts to undermine climate science and its call for urgent, transformative action. Simultaneously, there are mounting attempts to question the legitimacy of and even dismantle DEI frameworks. Within this context, the development and publication of this paper serves as a 'transgressive act'.

Here, we the authors, coming from a diversity of backgrounds and nationalities, have stepped out of traditional comfort zones to share our personal experiences—not only to emphasize the value of DEI within global scientific reports, but also its necessity. We highlight that repeated patterns of exclusion, invisibilization, and hierarchical control are not isolated incidents but are indicative of deeper systemic and psychological structures. These structural, often unspoken barriers to participating in scientific assessments must be addressed to deliver the best available science.

While recognizing important progress in the AR6's WGII diversity initiatives to increase representation, our analysis reveals that barriers of race, location, language, knowledge type and gender continued to substantially negatively impact content contribution in the report. Despite better quantitative diversity metrics on paper, there continues to be a GN hegemony within many parts of the report—including highly visible and politically influential text such as the Summary for Policy Makers (SPM). This imbalance distorts the validity and value of the content for certain regions, and potentially undermines the credibility and legitimacy of some key overall messages. Consequences extend far beyond representation: the sidelining of GS, POC, and other minority group voices in global climate science not only delivers a skewed GN narrative to the public, but also fails to incorporate the critical perspectives of scientists living on the front lines of climate change. These scientists are uniquely qualified to combine scientific theory with their first-hand lived observations of increasingly frequent and intense climate impacts and resulting vulnerability [47].

Continued epistemological imperialism supporting this status quo reflects existing gaps in understanding the inherently colonial and patriarchal structures within global scientific reports such as those produced by the IPCC. These structures silently enable non-inclusive individual behaviours that prevent adequate and meaningful incorporation of GS, POC and other minority group voices. While some individuals are guilty of silencing marginalized perspectives, their behaviours are enabled and maintained by the rules of participation, which can provide space for unofficial hierarchies and power structures to emerge.

Recognizing the difference between individual value systems and the institutional structures that uphold them is crucial. Discourses around inclusivity often ask that we simply recognize others' worldviews as different but equally valid. However, this perspective fails to

acknowledge that some worldviews—particularly non-Western perspectives and disciplines such as social sciences and other non-physics-based fields—are not merely different but are actively *subjugated* and perceived as less legitimate than 'objective' science [47-49]. These alternative forms of knowledge become acceptable only insofar as they can be verified through reductionist, positivist scientific methods of western science and thus are often downplayed. This devaluation extends beyond knowledge systems themselves—as evidenced in the lived experiences above: GS contributions were frequently downplayed even when discussions were centered on 'objective' science.

Beyond its obvious myopia, this continuing near-sole focus on physics-first 'objectivity' within climate science has proven both expensive and resource-intensive, resulting in continued knowledge and technology transfers from GN to GS [50,51]. Due to inadequate integration of GS contexts within the science, this approach often produces an overly narrow understanding of both problem and solution landscapes. Moreover, this status quo creates power and resource differentials that have resulted in dependencies and limits autonomy over *what* is researched and *who* conducts, designs, and contributes to such research.

Some costs of inaction if inequity within science remains unaddressed

This power and resource differential between the GN and GS, POCs and other minority groups goes beyond an ethical problem, it is also a strategic problem. GN hegemony of climate science will likely result in a continued paucity of *relevant* science that drives *effective* action across the Global South—which is home to the majority of our world's population and particularly to those with high climate vulnerabilities [52,53]. Inadequate and unequal co-production with GS and other minority groups scientists will continue to result in skewed, narrow reviews of science that are unrepresentative of the global picture, and which may not only yield non-or-limited actionable solutions, but worse, may mislead with potentially harmful consequences [54,55].

We highlight this repeating pattern using the output from the Integrated Assessment Models (IAMs) as a prominent real-world example. IAMs play an influential role in IPCC assessments and consequently in global climate policy. These models, which have been developed nearly exclusively by a select handful of modelling centres from the GN, reflect privileged implicit biases of a small group of predominantly male GN modellers while systematically disregarding input from a variety disciplines (e.g., social and political sciences) and other knowledge systems [56]. Concerns about IAM output are significant and multifaceted, ranging from misleading, counterproductive, and unsustainable policy recommendations (e.g., BECCS) to potentially supporting the advancement of narrow political agendas and power structures, including mitigation deterrence—such as where current emission reduction efforts are being delayed and undermined by reliance on speculative future carbon removal technologies [57-59].

Additionally, while the urgent need for transformative change was a key message from the AR6, how can such transformative change at the required speed and scale occur unless full diversity of often conflicting priorities are put on the table? With the current status quo highlighting for the most part, GN priorities, and with few counter-voices in the room, GS

planning and implementation of responses to the impending breach of the Paris 1.5°C threshold remains mostly muted [60]. As with the IAMs, within the limited but emerging literature on exceeding 1.5°C, there is again a striking paucity of participating GS scientists. This reflects the limited content on how exceeding 1.5°C and any attendant overshoot pathways could reshape implications for the GS—and particularly, how such foresight could enhance or even modify the development and implementation of current/future adaptation and resilience plans.

We believe it is critical to recognize that the causes of and solutions to chronic inequity within global science narratives and reports are complex and will require sustained effort, but must be addressed urgently, actively, and adaptively. This demands not only structural changes but shared responsibility across all scales, spheres, and levels of influence. Such a whole-of-society approach is essential to ensure improved collaboration practices, research funding structures and policy coherence. Equally vital is greater transparency in processes like the selection of authors for key summary products that significantly shape the messages reaching the policy community and the public at global, regional and local levels [56]. Such a comprehensive approach will improve accountability and help advance equity throughout global assessment processes.

Tactical progress moves forward ... but more is needed

We are encouraged by the IPCC's perseverance in addressing some DEI concerns. Post AR6, it has embarked upon various tactical initiatives, including updating its code of conduct, developing mechanisms to submit and address concerns, organizing an Expert Meeting on DEI, and allocating resources for author training. To support GS authors, the WGII TSU has secured funding for Chapter Scientists to assist Coordinating Lead Authors for the Special Report on Climate Change and Cities, with similar funding progress made for AR7. Additionally, the WGII TSU arranged direct online journal access for GS authors through Utrecht University for the Special Report, and is currently in discussions with libraries and publishers to extend this access for AR7. Moreover, the AR7 represents a historic milestone: for the first time in IPCC history, more than half (51%) of the experts selected for the AR7 come from developing countries and countries with economies in transition [61].

However, tactical responses represent only a small part of the responses that are needed. While the internal white paper from which this work is based provides suggestions to enhance inclusivity within AR7 based on our lived experience (Box 2), we caution against using such lists for potential 'box-ticking' exercises. For example, research demonstrates that isolated interventions, such as DEI training, may produce short-lived results and can even be counter-productive without systemic change [62,63]. Moreover, increased diversity in participation does not automatically translate into meaningful integration of diverse perspectives within the report's key messages [47].

To increase equity and inclusion within AR7, deeper cultural and value systems require parallel acknowledgement and integration within a holistic framework. For example, as the quotations above demonstrate, simply increasing the number of GS authors will not automatically reduce GN hegemony—and it will *not* ensure that GS, POC and other minority

group voices are equitably integrated into the evolving scientific narrative [64]. Failure to address deeper dynamics risks perpetuating unintended tokenism and treats symptoms rather than causes of this chronic situation.

Such integration presents significant challenges. Many Global South scientists—shaped by cultural norms, post-colonial conditioning, and similar factors—are often less self-promotional with their ideas than their Global North counterparts. The question then becomes: how can such cultural traits be successfully integrated into wider collaborative processes that currently reward self-promotion and assertiveness?

Our experience developing this work strongly suggests that GS scientists also have an important role to play in discontinuing the status quo that perpetuates skewed messages based on GN hegemony. Over 50% of GS colleagues we approached declined to participate in our survey, and this was the only group of minority voices to push back against the idea of this work. Many considered this endeavour as an unnecessary 'rocking of the boat' and 'trouble-making' behaviour that 'would not end well.' In contrast, the most supportive demographic consisted of female colleagues from the GN. These dynamics highlight how confronting inequity within global assessments is rarely clear-cut; the lines of support and resistance cut across geographies, positionalities and genders in complex ways. Yet, despite this observed reluctance, we recognize that GS scientists have also challenged these power structures outside of global reports through alternative networks, research approaches, and advocacy efforts that often remain largely unrecognized in mainstream academic discourse and media. The reluctance to engage in formal global report processes, however, reflects deeper concerns.

Personal communications with survey contributors and authors of past IPCC and other global reports reveal that fear of personal risk, pushback, and status endangerment is widespread. This helps to explain the limited literature on such risks. These concerns are well-founded: the recurring dismissal of GS voices, particularly those who are POC and women, can foster a climate of *learned helplessness* where even highly competent authors internalize futility and retreat from participation [65]. Organizational research shows that when people perceive their voices as non-instrumental in unfair settings, helplessness increases and speaking up declines [66]. Similarly, low psychological safety in expert teams suppresses voice—especially among lower-status members—despite capability and motivation [67]. Together, these dynamics help explain why some GS authors self-silence and why advocates encounter a dismissal even when their expertise is strong.

This phenomenon is often compounded by career reprisals faced by those who speak out. While ample literature documents the challenges faced by POC and women in STEM, there is less documentation in peer-reviewed journals on consequences of directly calling out sexism or racism. As one study noted of a black female graduate student in physics: "*Once you got the 'angry Black woman' reputation, that was kind of it for you*" [68]. Such dynamics illustrate the systemic, shared barriers that experts of colour—especially women of colour—face in progressing their careers and agency.

These dynamics, coupled with inequities in authorship selection, transparency, and workload, signal failures in organizational justice—specifically around procedural and

interactional fairness [69]. Ultimately, control over intangible (language, legitimacy) and tangible (funding, citations) resources reproduces colonial knowledge hierarchies, silencing diverse perspectives at the exact moment climate discourse demands plurality.

Final Thoughts

The voices documented in this essay reveal a profound contradiction at the heart of climate science: while we urgently call for transformative change to address the climate crisis, we maintain exclusionary practices that prevent the very transformation our science demands. When scientists whose communities face the most severe climate impacts are systematically silenced in the rooms where global climate messages are shaped, we do not just reinforce injustice: we impoverish our understanding of the very phenomena we claim to study.

Climate science that upholds Global North hegemony is not neutral science—it is partial science masquerading as universal truth. And partial science, as the failures of current assessment frameworks demonstrate, leads to partial solutions that may prove catastrophically inadequate at humanity's most critical juncture. The scientific community now faces a choice. We can continue with business as usual—celebrating diversity statistics while power structures remain unchanged—or we can embrace the difficult work of genuine transformation. This choice extends far beyond the IPCC to every major scientific collaboration, every editorial board, every hiring decision, and every funding decision, and every assessment report.

The transformation required also extends far beyond counting diverse bodies in authorship lists—it demands dismantling the power structures that determine whose voices are heard and whose knowledge shapes our planetary narrative. It requires acknowledging that the same colonial legacies that created the climate crisis continue to be a key overarching factor that shapes how we understand and respond to it. We need scientists with lived experience of climate impacts—not as tokens in our reports, but as full partners in understanding and responding to planetary crises.

The scientists whose experiences fill this research took enormous personal and professional risks to speak these truths. Realizing the potential of their insights requires translating them into the systemic and institutional changes our polycrises world now demands.

The time for genuine inclusion is now.

Box 2

Brief synopsis of selected DEI improvement recommendations from internal white paper submitted to IPCC at the end of the AR6

Diversity & Inclusion Office with an Ombudsperson

Create an independent TSU-based Diversity & Inclusion Ombudsperson to advise on repeat offences and guide authors in reporting discrimination, imperialism, or related issues.

Establish accountability mechanisms to address CLAs and LAs who fail to meet their responsibilities.

Selection of authors and CLAs

Equal representation isn't enough—actively include diverse expertise, perspectives, ideas, and knowledge gaps (beyond GN norms) in the narrative, ensuring equal active participation _

Select CLAs with proven skills in leading multidisciplinary, multicultural teams and fostering diverse input to help reduce bias and discrimination

Establish a mentorship system pairing new CLAs with experienced former CLAs to guide them through challenges and share best practices

Training

Require mandatory DEI training (online and in-person) for all authors before the first LAM, following best practices from leading organisations

Embed extensive interactive DEI training at the start of and throughout the IPCC cycle, with a full day in the first LAM and sustained refreshers at subsequent LAMs for all authors, leadership, Bureau, and TSU members

Prioritise Global South/Global North/other minority groups' cultural dynamics in diversity training, addressing cross-country and cross-cultural communication styles so differences are not misinterpreted as lack of expertise or confidence

Provide CLA-specific DEI training on cross-cultural communication, conflict management, equitable participation, and proper processes for addressing non-performing or exploitative LAs

Clarify consensus-building policies for entire Chapter and CCP teams, ensuring all voices are heard

Train facilitators for activities involving diverse regions, cultures, and languages (e.g., Summary for Policy Makers, Technical Summary, CCPs, BOGs, Cross-Chapter Boxes) with emphasis on cultural differences, ethics, and gender dynamics

Train Lead Authors on responsibilities, implications of failing them, and fair workload distribution without exploiting younger researchers and CAs

Include facilitators in chapter/CCP teams so meetings are effectively managed while allowing CLAs to focus on their expert role

WG Meeting planning and facilitation

Engage professional meeting planners/facilitators with expertise in diversity, facilitation, and team-building to design inclusive LAMs.

Design meetings for equal participation from the CCPs.

Reduce meeting stress by allowing more time for discussion, report-backs, and thoughtful contributions, making space for quieter and non-native English speakers.

Strategies regarding managing the writing process

Implement accountability mechanisms to ensure authors complete assigned work, prevent overburdening others, and withhold credit from non-contributors.

Strengthen oversight of CAs' contributions to match the level of monitoring given to Chapter Scientists, ensuring workload remains manageable as literature grows.

Hold regular CLA check-ins to build capacity, share experiences, and reinforce facilitation standards for interdisciplinary and cross-cultural teams, with deliberate inclusion of quieter voices.

Resources

Major transformation potential: Fund time for under-resourced authors and provide a Chapter Scientist for each chapter, with special focus on GS authors who face greater funding challenges.

Adopt an open bibliographic system accessible to all LAs, or provide temporary EndNote access for the AR process.

Provide temporary access to online libraries for all authors during the AR process.

Secure funding partnerships (e.g., IDRC, European Commission) to support authors facing participation barriers such as childcare or internet access, with an equitable application-based fund.

Create specific travel grants for parents with dependent children, which explicitly allow for the inclusion of caregiving-related costs

Offer translation and sign language services at LAMs.

Create an author reference booklet outlining key equity and inclusion issues, real experiences (positive and negative), and practical guidance on seeking help.

Include a diversity psychologist to provide psychological support within chapters and across the working group.

But note that this process starts with the governments' nominations. If they are not inclusive, then the IPCC Bureau has less of a choice to look for diversity.

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