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ABSTRACT

Scenario-guided foresight processes are increasingly used to engage a broad range of stakeholders in sharing knowledge, reflecting, and setting priorities to respond to present and future climate change related dynamics. They are particularly useful to inform agricultural policies and planning in the face of a changing climate. Such participatory approaches are key to integrating multidisciplinary expertise, perspectives, and viewpoints, and ensuring that the multi-faceted vulnerabilities and the development needs of diverse groups are addressed in the design, planning, and implementation of climate adaptation policy. However, in practice, ensuring meaningful participation in the policy process is far from straightforward. In this paper, we examine the integration of gender and social inclusion considerations in 15 scenario-guided foresight use cases across Africa, Latin America, and Southeast Asia to determine the ways in which gender and social inclusion dynamics were considered and integrated at different stages of scenario-guided planning processes. To inform the analysis, we use qualitative data from key informant interviews, interviewing scenario coordinators and a gender and social inclusion expert who was engaged in one of the cases; we also review associated reports and outputs. The results suggest that few scenario-guided planning processes centred gender and social inclusion considerations from an early stage and consistently throughout the interventions, translating often into low diversity of stakeholders and insufficient depth reached in the content produced. A number of common challenges are reported including time, budget, and human resource constraints, as well as existing power and institutional dynamics. The latter includes, for instance, low women's representation in technical organizations or important hierarchical social norms structuring discussions. While the focus on the future can disrupt established modes of doing, the complexity of foresight methods can also undermine effective participation leading to important trade-offs. Innovations in the modes of engagement and parallel processes with diverse groups can be important leverage points for inclusion within policymaking processes.

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Key policy insights:
- Gender and social inclusion should be prioritized from the onset and integrated at different stages of scenario-guided planning processes, notably by allocating more time, human, and financial resources to ensure inclusiveness.
- Parallel consultations among diverse organizations and groups can provide effective spaces for often-sidelined or marginalized groups' interests and needs to be integrated into policy decision-making given the existing power structures that regulate access to many workshops and related discussions. Multi-scale engagements with different networks also help deepen understanding and reconcile gaps across scales of decision-making (e.g. from local level to national level).
- Practitioners should further their use of foresight processes and development of tools and methods for integrating gender and social inclusion in these as part of the policy process, as well as strengthen the capacities, expertise, and role of conveners.
- Promotion and dissemination of existing gender and social inclusion research and documentation as well as support for learning and reflection to refine identified leverage points can lead to improved success.

1. Introduction

Effective planning for climate resilient development pathways requires addressing long-standing socio-economic inequities, since climate change impacts reinforce vulnerabilities linked to deeply rooted patterns of inequality (Schipper et al., 2022). Adaptation and mitigation interventions can also deepen or redistribute existing vulnerabilities (Atteridge & Remling, 2018; Eriksen et al., 2021). The design and implementation of interventions to successfully address multi-faceted vulnerabilities is constrained by a lack of marginalized groups' participation in adaptation planning efforts (Eriksen et al., 2021; Singh et al., 2022). Instead, climate change planning efforts have often remained top-down and technically oriented, lacking context specificity (Arthurson & Baum, 2015; Nightingale et al., 2020). In the agricultural sector, such exclusion leads to inadequate understanding of the conditions of heterogeneous communities and the complex social relationships shaping everyday practices within rapidly changing contexts (Gonda, 2016; Rao et al., 2019). In particular, consideration of differentiated needs, values, priorities, agency, and abilities remain insufficient. This is especially the case for groups less-involved in formal decision-making and planning processes such as women smallholders in lower-income countries, whose everyday realities and differing experiences are often overlooked or oversimplified by policymakers who consider women a homogenous group (Rao et al., 2019).

Climate change has also been termed a 'wicked problem' by policymakers and planners, not only due to the complexity in framing and understanding climate change within dynamic socio-ecological systems, but also for contextualizing and pinpointing solutions amid competing interests and across multiple scales (Termeer et al., 2013). Scenario-guided processes[1] are increasingly used to interpret these challenges and trade-offs and inform decision-making, climate policies, and planning (Bizikova et al., 2014; Butler et al., 2016; Valdivia et al., 2021; Nalau & Cobb, 2022). The Intergovernmental Panel on Climate Change (IPCC) broadly defines a scenario as a 'plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces […] and relationships' (Möller et al., 2022, p. 39). Similarly, participatory foresight processes often involve both quantitative modelling of key variables across time and the creation of a set of qualitative narratives of possible future changes by a group of selected stakeholders (Amer et al., 2013; Kahane, 2012; Bizikova et al., 2014). Collaborative research, policy, institutional, and governance approaches may use participatory scenario-guided planning processes to support transformational changes toward desirable climate resilient development pathways[2] (Oteros-Rozas et al., 2015; Hebinck et al., 2018).

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[1]We use 'scenario-guided' and 'foresight' processes interchangeably to refer to approaches in participatory planning that develop plausible future scenarios to visualize different trajectories of change and adapt efforts according to the desired outcomes.

[2]For the purpose of this article, we define climate-resilient development as the 'process of implementing greenhouse gas mitigation and adaptation options to support sustainable development for all', according to the IPCC Sixth Assessment Report Working Group II (Schipper et al., 2022, p. 2657).

These scenarios are instrumental to explore the ramifications of key drivers of change across scales and time, and to identify leverage points for transformation (Oteros-Rozas et al., 2015).

To advance scenarios that consider a range of future possibilities, we need to examine the complex system in question from broad range of viewpoints/perspectives, including how it may change in the future (Kahane, 2012; Oteros-Rozas et al., 2015; Pereira et al., 2021). More inclusive engagement in foresight processes translates to scenarios that are more likely to be plausible and acceptable, speaking to heterogeneous communities and diverse contexts, and thus useful for meaningful planning (McBride et al., 2017; Allan et al., 2022). Participatory scenario-guided planning processes can also better consider the interplay of climatic and non-climatic bio-physical, socio-economic, social and cultural factors shaping people's adaptive capacities and development needs (Bizikova et al., 2014). The question of who designs the tools and who is in the room to create those visions of the future is crucial. A review by Nalau and Cobb (2022) of 62 future scenario processes used for climate change adaptation planning found that information on the selection of stakeholders involved is mostly unavailable, with few reporting on participants' age or gender for instance. Limited attention has also been paid to understanding power dynamics in the broader sustainability transformations literature (Rutting et al., 2023).

Approaches and an understanding of how to integrate different social groups into foresight processes remain limited, while the design of scenarios that consider diverse interests and concerns and what outcomes can reasonably be expected from foresight often remain unexplored (McBride et al., 2017; Nalau & Cobb, 2022). Challenges are often mentioned in passing, with insufficient reflection on how the lack of stakeholder diversity and power dynamics alter the scenario content produced and the capacity to direct transformation towards climate resilient development pathways. Using participatory scenario-guided planning processes conducted and implemented by several CGIAR[3] research centres and their partners across different regions and countries as case studies, we take stock of the way gender and social inclusion (GESI) considerations were integrated within the case studies reviewed, and draw lessons learned from integration successes and challenges at different levels. Reflecting on lessons learned helps inform better models for participatory approaches to policy-making and planning (Hebinck et al., 2018; Wiebe et al., 2018).

We set out the following research questions: (i) How did the selected case studies integrate GESI considerations in the process of designing, setting up, implementing, and using scenario-guided workshops? (ii) What are the emerging leverage points that can be identified for effective inclusion? (iii) What are the trade-offs to consider in these participatory modes of engagement? Based on the growing literature on gender, equity, and participation in climate change policymaking and planning spaces (e.g. Gumucio & Rueda, 2015; Ampaire et al., 2020), in addition to the literature detailing lessons learned, we adapted a framework and applied it to analyse 15 case studies selected across five regions. The guiding framework enabled us to point out key participation and inclusion dynamics and challenges across the cases. Our approach highlights key opportunities for meaningful stakeholder participation, GESI in foresight processes, while also raising potential trade-offs in the engagement processes towards more inclusive climate resilient development policies and planning.

2. Participation in climate change policymaking, planning, and foresight processes

In this article, we use the term 'participation' to refer to public governance processes that seek 'the direct involvement – or indirect involvement through representatives – of concerned stakeholders in decision-making about policies, plans or programs in which they have an interest' (Quick & Bryson, 2016, p. 1). Defining what effective and meaningful participation entails remains challenging and debated in the literature. We build on Few et al. (2007, p. 47)'s definition of participation as 'securing the active involvement of a broad range of stakeholders in decision-making and action' to form our understanding of meaningful and effective participation. In the context of participatory scenario-guided planning processes, it refers to enabling more diverse viewpoints to be brought forward and reflected in the development of scenarios and associated discussions, and defines how they can translate into actions / planning efforts that may better reflect differentiated

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[3]CGIAR (formerly Consultative Group on International Agricultural Research) is a global research partnership for a food-secure future dedicated to transforming food, land, and water systems in a climate crisis.

needs and capacities. Enabling participation in decision-making and policy processes has a long history in the development field from which lessons can be learned (Tschakert et al., 2016). The growing literature on knowledge co-production, participation, and engagement in climate decisions, policy, and planning processes highlights key benefits of inclusion. Participation is instrumental in opening the space for dialogue and deliberation in the context of uncertainty on future climatic conditions (Tschakert et al., 2016). Citizen engagement can also lead to increased achievement of climate targets (Cattino & Reckien, 2021). Participatory planning processes that engage wider stakeholder groups – including underrepresented groups such as Indigenous Peoples – can allow more creative, diverse ideas, and forms of knowledge to emerge and to be considered in policy-making spaces (Garcia et al., 2021). Participation can also serve as capacity-strengthening for the stakeholders involved (Bizikova et al., 2014), for instance through knowledge exchange across disciplines which contributes to improving adaptation literacy (Nalau & Cobb, 2022). Participatory approaches also contribute to ensuring the transmission of inter-generational knowledge, thus reducing losses of Indigenous knowledge (Magni, 2017).

Scholars have also highlighted the drastic consequences of the lack of consideration of specific groups and actors' interests, values, and priorities at different scales, as well as recurrent challenges hindering inclusion in stakeholder engagement processes and their associated outcomes (see for instance Totin et al., 2021). Some of the climate actions often supported, such as increasing smallholder production for commercialized production for smallholders, can reinforce gender inequalities. Formalizing sales linked to commercialization can alter income decision-making patterns and lead to loss of control for women (Gumucio & Rueda, 2015; Tavenner & Crane, 2018). Technologies branded as 'adaptation' can also reinforce patriarchal gender roles and prevent more transformative progress (Gonda, 2016). Policy efforts also tend to focus more on the public domain and associated productive responses, overlooking adaptive strategies enacted within the private or reproductive spheres (Rao et al., 2019). Another structural challenge is that policy decisions are made at global and national levels, whilst many climate actions are made by smallholders at the local level and are specific to farming systems. Current climate policy efforts, e.g. National Adaptation Plans (NAPs), can lack downscaled context-specific projections and interpretations. Moreover, while such documents refer to the importance of differentiated vulnerabilities, they mostly fail to address their structural roots and to acknowledge and integrate differentiated knowledges, roles and agencies (Huyer et al., 2020). Global targets on gender equality such as SDG5 often fall short of understanding the multidimensionality and intersectionality of adaptation outcomes (Roy et al., 2022). Designing socially inclusive decision-making processes underlies achievements in gender and social equity within adaptation and mitigation efforts.

More efforts are now being put towards facilitating inclusion and diversity in formal policy-making processes, for instance, through experimenting with participatory workshops to redress existing bias (Chingarande et al., 2020). Co-production, for instance, has become popular in climate change research but there are multiple different conceptualizations and associated expected outcomes co-existing (Bremer & Meisch, 2017). 'Co-production' is taken here to refer to participatory processes which bring together a broad range of stakeholders to produce knowledge for a determined aim. In the foresight space, co-production approaches are used to bring together different groups to facilitate a better informed and more dynamic understanding of future complexities including multiple socio-economic, social and cultural perspectives (Falardeau et al., 2019). Part of it may be done through workshops, such as one or several meetings through which diverse stakeholders come together for a given period virtually or in person to accomplish clear objectives. New actors can enter the debate with foresight becoming an instrument to broaden the range of actors engaged, bringing together both those who affect change and those who are affected by the change (Oteros-Rozas et al., 2015). These approaches are instrumental in facilitating the creation of partnerships and deepening connections between different groups of stakeholders but also a stronger integration of science and stakeholder-based knowledge and perspectives which enables priority settings and supports decision-making processes (Oteros-Rozas et al., 2015; Valdivia et al., 2021). Linking higher scale scenario processes (global, regional, national) with local storylines is also critical for coherent decision and policy processes (Valdivia et al., 2021). Cross-scale co-production helps to capture place-based knowledge in farming systems, identifying the most pressing problems specific to participants and institutional barriers, and working on an adequate enabling environment.

However, enacting sufficiently diverse and meaningful participation within participatory scenario-guided planning processes in practice is complex and challenging. Oteros-Rozas et al.'s review (2015) noted challenges

in getting some stakeholders involved, both in terms of powerful individuals such as established landowners or business representatives but also often marginalized groups such as women smallholders. A common barrier to inclusion, and which may limit active participation, is the use of technical language and knowledge which might be unfamiliar to participants from historically marginalized groups (Oteros-Rozas et al., 2015; Nalau & Cobb, 2022). The question of facilitation and managing the authority and voices of different stakeholders was also noted to be arduous with researchers' contributions sometimes reducing the active uptake of the process by other actors (Oteros-Rozas et al., 2015). Local participatory processes can also suffer from being viewed as government-led with technocrats from the city affecting local participation in the process (Cradock-Henry & Frame, 2021). Public perceptions of risk are also critically influenced by trust as some groups may be wary of established institutions based on their experiences (Tierney, 2012). Moreover, meaningful participation at the local level should not be readily taken for granted with the assumption that having people in the room will only have positive effects as existing power relations among participants might reinforce some forms of exclusion (Tschakert et al., 2016). Participatory processes also run the risk of potentially contradicting existing decision-making processes that have relevance and legitimacy in specific contexts (Tschakert et al., 2016). Butler et al. (2020) suggest an overall lack of appreciation of the existing political economy of decision-making within scenario-guided processes in diverse contexts. Common evaluation methods may also be unable to unpack power dynamics (Butler et al., 2016). This body of literature suggests the need for careful and nuanced reflexive approaches to participatory processes if there are to effectively redress social exclusion and marginalization patterns for more socially just agricultural planning.

3. Research design

3.1 Defining GESI and enabling participation in climate policy planning and foresight processes

Evaluating 'successful' participation is a complex endeavour in the participatory scenarios-based planning processes space where there exists a wide range of approaches, including different methods and a variety of planned as well as undefined outcomes (Nalau & Cobb, 2022). Scenario-guided processes facilitate a specific kind of science-policy engagement whose specificities and inherent constraints need to be acknowledged, for instance coming with the need to balance 'diversity and manageability' (Aguiar et al., 2020, p. 10), and diverse knowledges and experiences through adequate facilitation (Cradock-Henry & Frame, 2021). We explore these tensions and trade-offs further in later sections. But first, we draw from the rich and growing literature on GESI in climate policy making and planning spaces to develop a framework that allows us to compare and reflect on the ways that gender and social inclusion considerations were integrated within the selected foresight processes.

This literature emphasizes the need to facilitate participation in and analyse inclusion at different stages, including in the initial planning stage and the unfolding of the workshops but also in the decided content of the policy or strategy under development (Krizsan & Lombardo, 2013; Gumucio & Rueda, 2015). Gender scholars emphasize the need for early identification of key stakeholders who can be continuously engaged, such as representatives from women's groups, gender experts in ministries, and gender and equity-focused organizations (Gumucio & Rueda, 2015; Mulema et al., 2022). Stakeholder engagements require specific capacity strengthening and facilitation efforts to create a conducive environment and further the understanding of complex issues (Chingarande et al., 2020; Mulema et al., 2022; IUCN, 2011). In policy content, scholars point out that aspects of gender and social inclusion need to be considered and integrated from the problem identification part and alignment with current policies to the selection of priorities and all the way to the allocation of specific financial resources and implementation on the ground (Gumucio & Rueda, 2015; Ampaire et al., 2020; IUCN, 2011). Reflecting on the way that gender is portrayed is also key given its influence on the framing of solutions proposed (Gumucio & Rueda, 2015; Ampaire et al., 2020). Previous studies showed that there tends to be a continued lack of attention to structural issues, to relational dynamics and to intersectionality in some gender policies and in climate change ones (Krizsan & Lombardo, 2013; Rao et al., 2019).

Gender refers to the roles, identities, behaviours and attributes that are socially ascribed to specific groups such as men, boys, women and girls (Office of the Special Advisor on Gender Issues, 2001). Being socially

constructed, gender identities are highly dynamic and evolve along changing circumstances (Fausto-Sterling, 2012). Gender relations are further shaped by intersecting power relations, which combine to affect one's engagement in agriculture and through it one's lived experience of climate change, including the effects of interventions and access to adaptation programmes and practices (Rao et al., 2019; Marty et al., 2023; Ranjitkar & Haukanes, 2022). Social differentiation markers include, among others, 'race'/ethnicity, indigeneity, gender, class, sexuality, geography, age, disability/ability, migration status, religion' but the salience of one or several markers to explain context-specific patterns of privilege and oppression should not be predetermined (Hankivsky, 2013, p. 2). Social inclusion efforts seek to redress exclusionary patterns by 'improving the terms of participation in society, particularly for people who are disadvantaged, through enhancing opportunities, access to resources, voice and respect for right' (United Nations, 2016, p. 17). In our framework, we operationalize social inclusion by looking at the attention paid to specific markers of social differentiation, notably gender, age, wealth, location, and disability as well as whether intersectionality is considered in the planning and implementation of scenario processes (Figure 1). In particular, as the growing intersectionality climate change scholarship highlights (Mikulewicz et al., 2023, p. 2), 'understanding and addressing the unique forms of inequality caused
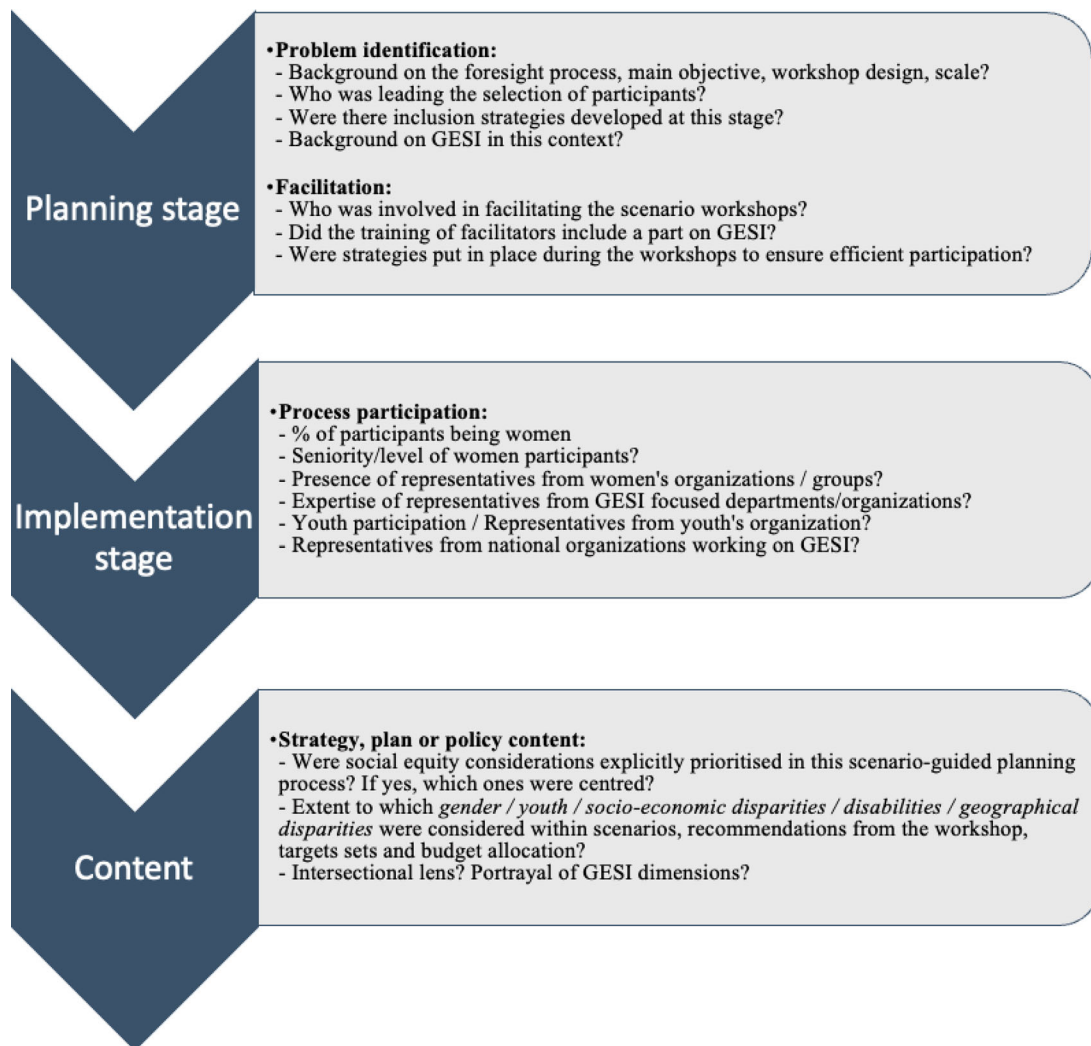

Planning stage

• **Problem identification:**
  - Background on the foresight process, main objective, workshop design, scale?
  - Who was leading the selection of participants?
  - Were there inclusion strategies developed at this stage?
  - Background on GESI in this context?

• **Facilitation:**
  - Who was involved in facilitating the scenario workshops?
  - Did the training of facilitators include a part on GESI?
  - Were strategies put in place during the workshops to ensure efficient participation?

Implementation stage

• **Process participation:**
  - % of participants being women
  - Seniority/level of women participants?
  - Presence of representatives from women's organizations / groups?
  - Expertise of representatives from GESI focused departments/organizations?
  - Youth participation / Representatives from youth's organization?
  - Representatives from national organizations working on GESI?

Content

• **Strategy, plan or policy content:**
  - Were social equity considerations explicitly prioritised in this scenario-guided planning process? If yes, which ones were centred?
  - Extent to which *gender / youth / socio-economic disparities / disabilities / geographical disparities* were considered within scenarios, recommendations from the workshop, targets sets and budget allocation?
  - Intersectional lens? Portrayal of GESI dimensions?

Figure 1. Guiding and analysing gender and social inclusion within scenario-guided processes. Variables are building on (Marty, 2021) and adapted from (IUCN, 2011; Krizsan & Lombardo, 2013; Gumucio & Rueda, 2015; Homann-Kee Tui et al., 2021; Howland et al., 2019).

by multiple sets of concurrent privileges and oppressions' is necessary for nuanced comprehension and for socially just and inclusive climate action. While the selected markers we focus on are not exclusive and their importance varies by context, they help draw attention to key axes of social differences and associated power relations that are often overlooked in adaptation policies and planning processes.

We use the framework as an analytical lens to guide our comparative analysis of the cases. Some of the dimensions appear as quantitative indicators, but we do not consider them in isolation as indicating 'success', and the adapted framework and table should not be seen as a checklist to follow for inclusion. Rather, we understand them holistically as pointing to some dimensions that are useful to reflect on, with each dimension needing to be understood in relation to the others and within the socio-cultural, political, or organizational environment within which these processes took place.

3.2 Materials and methods

We analysed 15 scenario processes across 5 regions which had a normative focus on climate and agricultural policy and project planning and were conducted and/or supported by CGIAR centres and their partners between 2014 and 2021 (Annex 1, see Supplementary Material). The selection of cases was done in consultation with the scenario-guided workshops coordinators and was further guided by the data availability for each case, i.e. participant lists, workshop reports, scenarios narratives and in some cases, policy or strategy outputs. All selected cases present some commonalities in how they were conducted as they relied on the development of scenarios narratives by a group of selected stakeholders which were then used to think, reflect, and generate evidence for policy priorities and planning or to review a draft policy under development. In many cases, some quantitative modelling of key indicators was associated to visualize trajectories of change. Annex 1 (in SM) provides more information on each case, including the list of and references to published outputs from the workshops.

To analyse the selected cases, qualitative interviews were conducted with the workshop coordinators and facilitators, and with a woman gender expert involved in one of the cases (n = 10).[4] Most interviewees had several years of expertise in engaging in science-policy stakeholder engagement processes but had less experience in running scenario-guided participatory processes. In most instances, several interviews were held with the same interviewee, starting from an exploratory interview, which helped to refine the case selection, while a later interview explored the cases in more detail with the respondent reflecting on the case's background, objectives, selection of participants, power dynamics observed, methods used and outputs. These interviews also provided space for reflections on opportunities and challenges and lessons for future engagements. Interviewees also supplied as much case documentation as was available. The material included participant lists, workshop reports and in some cases outputs such as policy documents and peer-reviewed journal articles. The interviewees, some of whom are also co-authors and thus were also participant-observers during some of the workshops, also reviewed the text and provided feedback on the interpretation of the material as well as the recommendations brought forward – notably while first written in detail per case (Marty, 2021). This reviewing process was instrumental in ensuring the validity of the findings and relevance of recommendations.

While all selected cases had participant lists that could be consulted, these were not always disaggregated by gender. In such cases, we use Genderize.io, an online gender detection tool which relies on usage frequency to make inferences based on names. Genderize.io has been used in multiple studies interested in analysing gender disparities, for instance in salaries or citation patterns among academics (Sebo, 2021; Lerman et al., 2022). Using an algorithm is, however, an imperfect solution given the margin of error and the fact that it assigns gender to names (Sebo, 2021). Each case was analysed separately before synthesizing across them. As we compare and draw lessons from across the cases, we are not able to go in-depth into analysing the specificity of each case and its national context – an important limitation of this study. Moreover, as most workshops took place several years ago, recall and retrieval of information were also constrained, which limited the exploration of some dimensions.

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[4]Some respondents led multiple scenario-guided processes in several countries; hence the number of interviewees is smaller than the number of cases.

4. Results

4.1 Characteristics on GESI integration within the selected scenario-guided planning processes

A few cases conducted more than one workshop (n = 4) resulting in 15 cases by location, and 27 workshops conducted in total (Annex 2, SM). Only two cases reached gender parity with at least 50% of women participants. Most cases and the associated workshops conducted had between 10% and 40% of women participants (n = 10). Most cases' workshops were conducted solely at the national level (9 out of the 15 cases). One case held workshops at the local level while another had a workshop at the regional level within the country. Another case had a workshop at the regional level between different countries of the Central American Integration System (SICA).[5] Three cases conducted workshops at different scales. Unfortunately, disaggregated data on youth participation and representation from youth or women's organizations are not readily available for most of the case studies. Similarly, details on the level of expertise of key representatives are also not available and most participant lists often contain facilitators and conveners which constrains the analysis. The participant lists consulted and insights from the interviews reveal that the diversity of stakeholders was far from being achieved in most cases with limited engagement with marginalized groups and in many cases, with limited reach beyond governmental actors.

4.2 Key challenges to achieving sufficient diversity and meaningful participation

As most interviewees reflected, gender and social inclusion considerations were not prioritized during the planning and implementation stages, that is the running of the scenario-guided workshops, in most of the cases. The lack of explicit attention was mostly attributed to competing priorities coming with the need to implement often quite complex and technical participatory scenario-guided processes with limited time and human and/or financial resources.

Several factors were further noted. First, diversity of participants was more often thought about in terms of sectors or departments and less so in terms of demographics, although some efforts were made by organizers to push for wider participation, notably to include more women. Many scenario-guided processes were demand-led with government partners asking to use scenario-guided participatory workshops to review a policy or strategy under development. Demand-led scenario-guided processes ensure higher ownership and respond directly to identified needs but the selection of participants and scope of the scenario workshops can be constrained. In some cases, government partners were willing and even asked to involve a wider range of participants. The case of the Honduras workshop is an example, as there was an explicit desire from the initial stakeholders to invite farmers representatives. But in others, there was the wish for the workshops to remain more exclusive and participation was affected by existing socio-political dynamics, including existing civil society-government relations. Finally, participants recruitment often followed established government or in-country CGIAR centres' networks, especially in cases with limited prior work in the country by the workshops' organizing group. Interviewees reflected that these challenges combined made it difficult to enable meaningful participation, including in some cases, to target participants of the required seniority and expertise. Targeting high-level participants also reduced the possibilities given structural employment structures according to which such positions tend to be occupied by older men in many cases. Another respondent also highlighted the low level of women representation within technical organizations invited. Some workshops that targeted government technical officers of lower seniority such as for the Cambodia Conference Of the Parties training had a better gender balance and younger participants.

Integration of gender and social inclusion during the workshops and within the associated outputs seemed to be constrained by the breadth of aspects to cover in each workshop and difficulties in navigating existing power dynamics, including within institutions in some contexts – 'you can't put all of the departments in the same room with different level of hierarchy and think that they're just going to start discussing' (Female Interviewee, 10/09/21). To a large extent, probes to consider gender and social inclusion dynamics during

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[5]SICA is formed by Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Belize and the Dominican Republic.

the workshops depended on the sensitivity of the facilitators to these issues, their understanding of the context and the gender implications of the scenarios under development. Interviewees noted that most of the time, trainings given beforehand to facilitators focused more on ensuring that the foresight methods were sufficiently understood while stressing the need to facilitate lively discussions in which everyone contributes. The overall complexity of the approach, challenging for both facilitators and participants coming from different backgrounds, can also be limiting with difficulty to integrate diverse inputs and keep it manageable – notably when the main focus is not on gender and social inclusion.

> I have really tried to put a more specific focus on gender and social inclusion in a workshop and I found it very difficult to have people talk about issues related to that. I think maybe that's because first, we focus on agriculture and food systems, so we are not specifically only talking about gender, and second, when we have a scenario workshop, we want them to talk about a lot of different – what we call drivers, so we want them to talk about governance, about natural resource management, about water, about practices, power struggles, etc. So, we have this long list, we try to keep it to a maximum of 15 or 10 drivers of change, and the moment that we try to add these topics it suddenly becomes even bigger. (Female interviewee, 22/06/21)

This complexity often led conveners to seek to ease the process, for instance by considering only a few drivers of changes each time for the creation of the scenarios. In one case, imagining the multiple negative effects of some of the future scenarios created made the importance of gender equality be classified as a low priority by participants. Difficulties to bring up gender and social inclusion dynamics during the participatory scenario workshops also translate into the content with many interviewees expressing dissatisfaction with the depth reached. Draft policies often already have clearly delineated sections making bigger changes unlikely.

> If there is a paragraph about climate-smart agriculture, it is still going to be about climate- smart agriculture in the end. It is informed by the lessons learnt from the scenarios guided exercise, sometimes it adds elements but not that often, and I have to say that in most of the policies there is a little paragraph on vulnerable groups and stuffs like emancipation of women but that depends on the policy. (Male Interviewee, 8/07/21)

Gender and youth considerations are then considered but usually as cross-cutting issues with more generic statements on these specific groups' vulnerabilities and the need for capacity building notably in the education and employment sectors. Issues related to geographical disparities were more likely to be considered than other dimensions in many cases, notably because of important rural-to-urban labour force migration dynamics affecting agricultural production in most contexts. Efforts to quantitatively model some of the scenario narratives to visualize future developments were noted to be difficult to achieve for more socio-cultural factors such as changing gender relations. Few outputs considered the intersectional power relations that shape social differences or address structural differences in resource access and decision-making.

4.3 Leverage points for inclusion

While noting these significant challenges, interviewees nonetheless noted that scenario-guided workshops are instrumental in opening the discussion space for different views and understandings of the future of agriculture in the context of climate change to be integrated. Focusing on the future was for instance noted to have the potential to be liberating by allowing participants to disconnect from the present – 'Because we were looking at 2030, people got that kind of safe base of being able to interact more easily than just doing something that is linear' (Female Interviewee, 10/09/21). Forward-looking dialogues also provided opportunities for having conversations beyond disciplinary boundaries, forging common understanding. Nonetheless, ensuring that gender and social inclusion dimensions are also explicitly considered requires specific planning to add social dimensions to conversations that are often focused on technical aspects of agriculture and climate projections. In this section, we reflect on several leverage points that were described by interviewees and which can offer some solutions for wider inclusion and consideration of GESI dynamics at different stages of scenario-guided processes.

While scenario-guided workshops could aim to have broader participants during the main workshops themselves, a key intervention leverage point reported was to conduct parallel processes with often marginalized groups, such as rural youth in Bangladesh for the Zero Hunger/Zero Emissions initiative or elderly groups

during the review of the 2020 Intended Nationally Determined Contribution (INDC) in Costa Rica. However, organizing side processes necessitates factoring in sufficient time and funding. In the case of the workshops organized in Bangladesh to facilitate discussions around food security and climate change, partnering with an International Non-Governmental Organization (INGO) with an explicit focus on gender and social inclusion was helpful. The partner organization already had established contacts within the civil society and could identify relevant participants and organize side consultations with rural youth whose results were then fed into the main workshop at the national level. In Costa Rica, as the planning for the INDC occurred during the coronavirus pandemic, many consultations were done online, for those able to engage through digital means, which also broadened the number of people able to join and contribute to the discussions. A gender and social inclusion expert was also brought on board as a consultant. Engaging over time and through different formats, sometimes made possible through online means, also gives more space and opportunities to engage with more depth and refine one's strategy to approach certain topics. Engagement over time was for instance highlighted as very valuable for the Cambodia COP training of negotiators with facilitators adapting to participants' interests.

Different techniques can also be used to level the playing field as much as possible during the workshops. Interviewees explained paying specific attention to group compositions during breakout groups, with facilitators actively trying to avoid situations where one participant dominates conversations. Different conveners also experimented with varied and innovative methods. For instance, role plays were used during the scenario-guided review workshop on the Action Plan for Agriculture in Cambodia with participants asked to think about future developments and proposed solutions from a different standpoint. Alternating between discussions and moments where participants write on their own on sticky notes can also help to bring out different points of view to bear on the main conversation. One must also strike a balance between the use of quantitative indicators able to model long-term trends and giving time and space to develop and reflect on qualitative narratives, the latter better suited to think through evolving social relations.

In addition, conveners and facilitators also experimented with different approaches so that the social ramifications of the created following the created scenarios are actively discussed and considered. While the practical limitations of doing so are reflected on in the previous section, adding some contextualized social and cultural drivers of change in the list of developments to be considered to create the initial sets of scenarios can stir towards better consideration of the ways different social groups are likely to be impacted by these changes. In some cases, referring to existing international and national policies and strategies on gender and social inclusion endorsed by each country's government was instrumental to frame the rationale for these dynamics to be explicitly considered. In the case of the scenario-guided review of Ghana's livestock policy, maps were also used as key visual prompts to probe participants towards thinking of differentiated changes and impacts across different regions of the country. The capacity of foresight processes to consider geographic diversity was noted to be an important added value, enabling contextualized adaptation planning for example, and shaping policies to support diverse programs tailored to farmers' situations. Bringing the scenarios under development to bear upon concrete examples was also seen as critical, especially in cases where most participants tended to be from more technical backgrounds – 'You have to be very concrete' (Male interviewee, 20/04/22). The participation of gender and social inclusion experts as well as probes from facilitators with knowledge of the national context and sensitivity to these issues can be helpful to bring up discussions of impacts on specific groups while debunking common assumptions.

> Another discussion that emerged was the issue around the type of agriculture that we are practicing, which is almost like a zero-tillage type of agriculture […] where you actually dig holes […] but there is no initial ploughing. The issues of disability and elderly people came into play and being talked about and how this affects those kinds of households. […] It brought out all those dynamics and the assumptions that technical people make in their own spaces without consideration of social inclusion issues. (Female interviewee, 20/04/22)

Workshops conducted at different scales with diverse stakeholders, and in which there is a continued attention to gender dynamics among other dimensions, are also instrumental in illustrating the importance attributed to gender in climate policies and the consistency with downscaled adaptation and mitigation strategies, as well as challenges in local implementation. For instance, the multi-scale iterative approach used to develop a climate

change adaptation package and stir towards sustainable agricultural development pathways using scenario-guided methods in Zimbabwe raised discussions on how gender responsive institutions and policies can more effectively support agricultural production systems to evolve sustainably. The development of the adaptation package was done in consultation with farmers at the local level, with a stronger participation of women given existing household demographics and labour roles in a context of high men outmigration. Scenarios tailored to farming systems were then developed at the district/provincial level with a focus on bringing in experts with knowledge about the socio-economic and biophysical dimensions related to agriculture. Finally, those insights feed into national level scenario processes with attention paid to the coherence with district level realities and priorities. Participants were chosen for their capacity to influence existing policy processes and their knowledge of the thematic areas. While this was instrumental in highlighting gaps between different scales, a lesson learnt from the process was the need to examine more closely who participates and to increase engagements with civil society organizations.

Finally, many interviewees reflected that the attention paid to gender and social inclusion has grown over time following a global momentum. As facilitators become more at ease with the scenario-guided processes methodology, it becomes easier to make more targeted efforts in following workshops. Having well-developed relationships with key actors, notably within governments, is also key to being able to push for wider inclusion, such as in the participants lists but also to be able to know how to engage with salient power dynamics between different and within groups of participants. Revised national commitments also call for improved stakeholder participation in policy planning and implementation. In the case of Zimbabwe reflected on above, sending out an invitation to the Ministry of Women and Small and Emerging Enterprises led to improved relations and collaborations that are promising for future scenario-guided planning efforts. However, it was striking during some interviews that while gender is now often mentioned and reflected upon, there is less engagement with other markers of social differences, such as disabilities, and their interactions in shaping power relations.

5. Discussion

As the use of foresight is gaining momentum in informing adaptation planning, taking stock is essential (e.g. Nalau & Cobb, 2022). But there have been so far limited reflections on the potential and limitations to use foresight processes in furthering inclusive and socially transformative climate planning efforts. This study adds to the growing scholarship that contributes to further the understanding of enabling conditions for more participatory and inclusive agricultural policy planning in the context of a changing climate.

In the 15 cases examined, low integration often stems from low GESI intentionality amid competing priorities during the planning and implementation stages. Like Nalau and Cobb (2022), we found limited sex-disaggregated data available which constrains the analysis of who was in the room. Through interviewing convenors, we could gather qualitative insights into the workshops' composition and better understand employment structures and actual power dynamics during the workshops. Demand-led processes, existing employment structures favouring older, often male participants, as well as reliance on existing networks, for instance, constitute important obstacles. Moreover, attention to the content of the outputs associated with the case studies also shows that not much depth on GESI issues was achieved during the scenarios creation and in the consequent policy recommendations for most cases. Here again, limited time and space within the main workshops may restrict the possibilities for discussion and integration in the content, and thus for meaningful participation. Acosta et al. (2021) for instance found that local policy actors in Uganda adhered to global discourses around gender equality when designing context-specific solutions rather than address underlying local causes of inequality. It seems unlikely that participatory processes that targeted limited participants and did not meaningfully integrate GESI dimensions can lead to planning and actions that address social exclusion and marginalization. Indeed, as Cattino and Reckien (2021, p. 136) highlight, the 'recognition of all actors, roles, and portions of the population' as well as the 'clear and meaningful engagement in all stages of the decision-making process' are two of the necessary conditions for public participation to lead to transformative outcomes. Beyond the participation of underrepresented groups, there is a need for more participants with knowledge on and specific expertise on GESI issues.

However, several targeted efforts were made. In some of the cases presented above, committed and intentional efforts to ensure diversity and inclusion were far-reaching from the start and came from the explicit wish of all partners to be collaborative and inclusive, such as in the case of the Costa Rica 2020 INDC review process. In most cases, efforts were mainly made by individuals sensitive to these issues. As Roy et al. (2022, p. 2) conclude, 'proactive gender-sensitive adaptation planning' is critical to further gender goals. The analytical framework we bring forward in Figure 1 may be helpful in guiding more inclusive foresight processes. Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is also building tailored toolkits and both in-person and virtual training for interested partners in West and Central Africa regions (Neely et al., 2022; Chesterman et al., 2022). These efforts have structured a foresight training framework and embedded key examples and foresight methods around the thematic base of climate resilient agriculture to allow participants a deeper contextual understanding of the different methods (Neely et al., 2022; Chesterman et al., 2022). The capacity approach stressed the need for ensuring diverse and meaningful participation in scenario-guided planning processes. During the trainings themselves, equal participation of women and men was ensured, and opportunities were given to women to engage through co-facilitating sessions and support towards applying foresight in their institutional settings. Tools, such as the Climate Change & Food Security Vulnerability Assessment (Ulrichs et al., 2015) and the CARE Climate Vulnerability and Capacity Analysis Handbook (CARE, 2019), may also offer guidelines for assessing social inclusion and vulnerability aspects of climate processes for policy and programming.

Finally, reflections on challenges and opportunities for inclusion within scenario-guided policymaking and planning processes also highlight some trade-offs that need to be more carefully weighed. For instance, given resource constraints, there may be a trade-off between responding to specific needs, notably governmental policy-making processes or project planning imperatives that can be rigid, and making more space for exploration and more transformative processes in which other voices can be meaningfully integrated. There are always trade-offs on who to target and at which level for inclusive policymaking (Krizsan & Lombardo, 2013). Targeting people in positions of authority and seniority can ensure more buy-ins for the proposed policy or development plans while doing participatory scenario processes at a more local level can be instrumental in ensuring that local realities are integrated. The challenge of finding and then being able to implement meaningful participatory processes in top-down but also in bottom-up policy spaces remains a critical challenge and needs to be further addressed and researched purposefully.

6. Conclusion

This article has compared and synthesized findings on integrated gender and social inclusion considerations from 15 participatory scenario-based processes across five world regions. We identified key challenges associated with fostering inclusive policy and planning efforts through scenario-guided processes. For instance, the lack of proactive planning and competing priorities during the implementation limiting the time and space for discussion and integration of GESI issues. We also highlighted important leverage points that can be further built on. These leverage points included reviewing suggested participants lists and negotiating with the partners involved in advance of the event, being attentive to power dynamics, actively probing during the workshops – including with the use of visual prompts, the inclusion of sociocultural drivers of change to be considered by attendees and using creative methods such as role plays. When time and financial resources allowed, parallel processes conducted with often side-lined groups were found to be helpful to consult different social groups whose perspectives can then be highlighted in the main workshop. These findings align with Butler et al. (2016), who engaged stakeholders at different scales separately in an effort to mitigate power asymmetries.

Similarly, practices that can enable higher inclusion of diverse perspectives and needs should be more proactively and organizationally supported within foresight processes. Such planning would necessitate greater investment in human and institutional capacity to nurture the necessary skills and enabling structures, as well as to ensure coherence, for instance on the gender-sensitive analyses and messaging conducted at different levels. Having a GESI expert in the convening team is one way to ensure that GESI considerations are consistently included. The choice of methods used within scenario-guided processes is also critical for

inclusion in the content. Sophisticated tools provide new insights and make obvious some of the trajectories of change, but their complexities can be difficult to understand for different groups of participants. Strengthening capacity is critical, in making foresight tools and processes accessible to a wider audience. Multi-scale workshops present interesting opportunities to also bring forward and work towards reconciling gaps in understanding, planning and implementation between different actors and sectors such as researchers, policymakers and grassroots organizers but necessitates more time, human resources, and funding.

Our comparative analysis thus highlights several recurring challenges but also brings out leverage points for wider inclusion, with examples from which lessons can be learnt. However, trade-offs inherent to foresight scenario-guided processes and decision-making are also apparent. The processes help decision makers to identify discrepancies and inherent trade-offs for them to understand the outcomes of their decisions. Learning from practitioners also generates valuable knowledge on challenges, practical gaps and efforts made at different stages of the processes. Further working on making these efforts more systematic is crucial, however, equally important is the need to continuously interrogate these processes and foster reflections on the kinds of knowledge and insights produced, at what level, by whom and for whom. Staying with these questions and opening the space for debate and contestations is essential given that there are many different and diverse understandings of what 'successful' or 'effective' climate change adaptation consists of or what transformations should be (Singh et al., 2022). Future research should analyse further how scenario-guided processes can translate into effective policy formulation and implementation, whether allocation and releasing of budget for targets determined through consultations is secured, for instance, and how these planning efforts are then undertaken at different scales to steer towards climate resilient development pathways. Further research could also explore in more detail the GESI outcomes associated with different participatory scenario planning models.

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