

Advancing gender equality in coral reef social-ecological systems

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Abstract

Gender equity is considered to be a foundation for the resilience and wellbeing of people dependent on coral reef social-ecological systems. Nonetheless, gender inequality persists, and many interventions are still struggling to meet in practice the commitments they make on paper. Gender transformative approaches (GTAs) are considered the frontier of gender research and development because they challenge and shift the invisible social constructs that underpin and perpetuate inequities. A collaboration between the ARC Centre of Excellence for Coral Reef Studies at James Cook University, WorldFish and CARE International sought to determine the extent to which GTAs have been applied alongside of or within the management and conservation of coral reefs.

We commenced with a review of published grey and peer-reviewed literature. We then facilitated inputs from a range of experts to develop a good practice guide and a policy brief to increase and improve the use of GTAs and other gender-sensitive actions in coral reef social-ecological systems. Here, we summarise the key findings of the literature review, the good practice guide, and the policy brief. The intent of our work is to increase awareness of and knowledge about GTAs among funders, researchers, development agencies, and fisheries and conservation stakeholders who seek to advance gender equality in coral reef-social ecological systems.

Introduction

Acting in synergy with a range of anthropogenic drivers, climate change is threatening the sustainability of coral reefs, undermining food systems, decreasing fisheries productivity, and increasing the vulnerability of people who are dependent on reefs for their livelihoods (Hoegh-Guldberg et al. 2019). These social and ecological changes are distributed unequally between different societies, with those contributing less to over-consumption and climate change experiencing many of the costs (Wolff et al. 2015). Within societies, the impacts and costs of climatic and other pressures on natural systems are also gendered, in that different men and different women experience effects to greater or lesser extents (de la Torre-Castro et al. 2017; Lau and Ruano-Chamorro 2021). Gender – which refers to the social meaning and expectations society holds about what it is to be a woman or man – shapes how individuals experience opportunities, challenges and losses in

social-ecological systems. For instance, women tend to have less access to and control over assets and resources to sustain their livelihoods than men (Meinzen-Dick et al. 2011). Women experience greater constraints to their mobility, are responsible for more domestic labor (Boudet et al. 2013), and in some coral reef-dependent contexts, face greater challenges in their capacity to adapt to social-ecological change (e.g. Cohen et al. 2016). Furthermore, the way in which women and men engage with programmes and policies that seek to overcome social-ecological impacts and improve livelihood resilience (i.e. capacity to adapt and recover from shocks and stresses in a way that reduces chronic vulnerability (USAID 2018)) is also influenced by gender norms, relations and beliefs. In certain coral reef contexts, program delivery tends to give men more access to support and information than women (Cohen et al. 2016) and tends to favor men's networks and ways of learning and meeting (Dyer 2018). In addition, in certain coral reef contexts, women tend to have less flexibility to participate in adapted or alternative livelihoods (Cohen et al. 2016; Locke et al. 2017) and face more difficulty participating in decision-making processes (Kleiber et al. 2018; Lawless et al. 2019). Thus, to realise equitable and resilient livelihoods, it is critical that conservation, development or management interventions in coral reef social-ecological systems meaningfully address gender inequality.

Approaches seeking to increase gender equality tend to fall across a spectrum; from interventions that seek to reach participants (i.e. inform them, ensure they attend) to interventions that seek to permanently transform participants' experience of opportunities and agency (Fig. 1). "Reach" approaches tend to focus on ensuring women are included in interventions (e.g. ensuring equal numbers of women and men participating in activities or interventions); and 'benefit' approaches focus on providing individual access to resources and benefits (e.g. increase productivity or income generation). Interventions that only seek to reach or benefit participants tend to focus on visible gender inequalities, or those that sit above the (metaphorical) waterline and target the *symptoms* of gender inequality (Fig. 1). This can lead to some improvements to gender equality, but often these changes may not be sustained once an intervention ends (CGIAR Research Program on Aquatic Agricultural Systems 2012; Kantor et al. 2015). In the worst cases, efforts to ensure equal reach (without addressing the less visible aspects of gender inequality) can even lead to perverse outcomes such as increasing women's workload or reinforcing

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gender stereotypes (e.g. reinforcing that women cook and women ultimately hold responsibility for domestic labour) (Lentisco 2012; Lau et al. 2021b). “Empower” approaches focus on building women’s and men’s ability to make and act on their own decisions, such as the ways in which they earn and use money. However, given that women in some contexts tend to have relatively less say than men, there is also a tendency for empower approaches to focus primarily on women without transforming society’s or men’s views or promoting acceptance of women’s increased agency, power and authority. In the worst instances, this has led to domestic violence against women (Govinda 2012).

At the furthest end of the spectrum are “transform” approaches that seek to challenge underlying gender norms, relations and structures that underpin gender inequalities. Gender-transformative approaches (GTAs) provide a pathway towards realising gender equality. GTAs are considered gender best practices because, unlike other gender equity approaches, they deliberately target underlying and invisible gender inequalities that exist below the metaphorical waterline, such as discriminatory social norms and unequal power relations (Fig. 1). GTAs are holistic strategies that build agency, change relations and transform structures

concurrently to promote gender equality (CARE 2018, 2019a) (Fig. 2). By targeting both the symptoms and root causes (i.e. inequitable structures, gender norms and beliefs, and unequal power relations) of gender inequalities, GTAs can realise more transformative and long-lasting changes toward gender equality. However, there is little evidence of GTAs being applied within or alongside interventions in coral reef social-ecological systems (Lau and Ruano-Chamorro 2021).

Coral reef social-ecological systems attract billions of development and conservation investments each year. In line with global policy (e.g. Aichi Biodiversity target 11, and 14.5 of the Sustainable Development Goals), 134 projects invested USD 1.9 billion in the conservation, development and management of coral reef social-ecological and associated systems between 2010 and 2016 (UN Environment et al. 2018). Particularly, interests in financing gender equality in coral reef social-ecological systems are also increasing. Gender equality is a key principle of The Global Fund for Coral Reefs, a United Nations Multi-Partner Trust Fund for Sustainable Development Goal 14 (life below water) which was launched in 2020.⁵ The Global Fund for Coral Reefs aims to raise USD 625 million in capital by 2030. The budget allocation

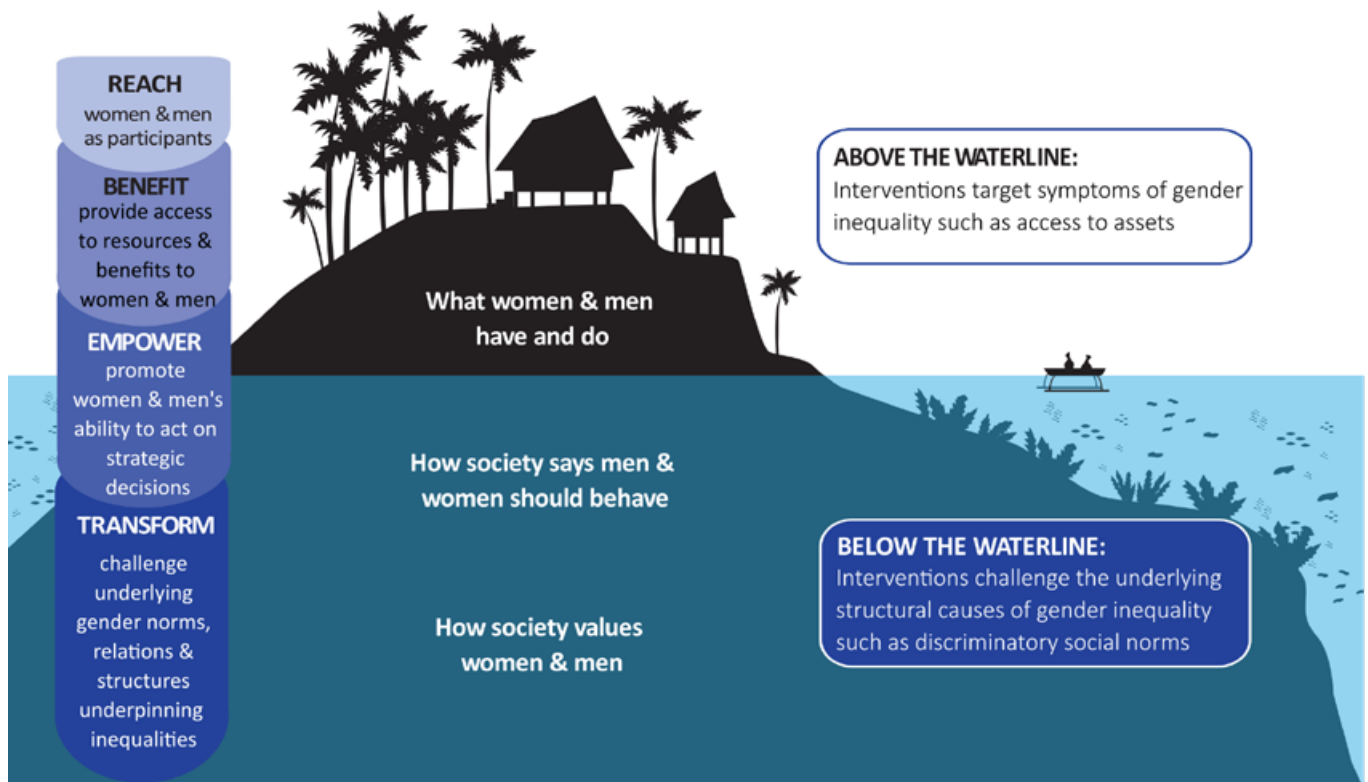


Figure 1. Coral atoll island representing the different ways gender is considered and approached in management, conservation and development interventions. Most interventions engage above the waterline to change what women and men have and do, thus treating only the symptoms of gender inequality. These interventions fall on the “reach”, “benefit” and sometimes “empower” aspects of the spectrum. In contrast, “transform” approaches or GTAs engage with gender specifically below the waterline, ultimately seeking to change social expectations and values around gender. Figure from Lau et al. 2021a.

⁵ See <http://globalfundcoralreefs.org>. 2021

for gender, the gender expertise employed to support this ambition, and the application of gender-sensitive approaches and GTAs is currently in a formative stage.

Advancing gender equality in coral reef social-ecological systems requires addressing three critical gaps. First, more information is needed on the extent to which GTAs (established best practices) are being applied; second, guidance and case studies on what best practices look like in coral reefs is lacking; thirdly, recommendations for policy-makers is absent.

Partnerships are essential to advance gender equality and promote equitable resilient livelihoods in coral reef social-ecological systems. This article describes the outputs from a collaboration between the ARC Centre of Excellence for Coral Reef Studies, WorldFish and CARE International as part of their partnership with the Coral Reef Rescue Initiative (CRRRI) led by the World Wildlife Fund. CRRRI is a global partnership of scientists, non-governmental organisations and influential partners working in collaboration with communities and governments to protect and regenerate coral reefs, food security and livelihoods against climate change.⁶ This collaboration seeks to: 1) provide synthesis and guidance about GTAs in coral reef social-ecological systems;

CARE'S GENDER EQUALITY FRAMEWORK

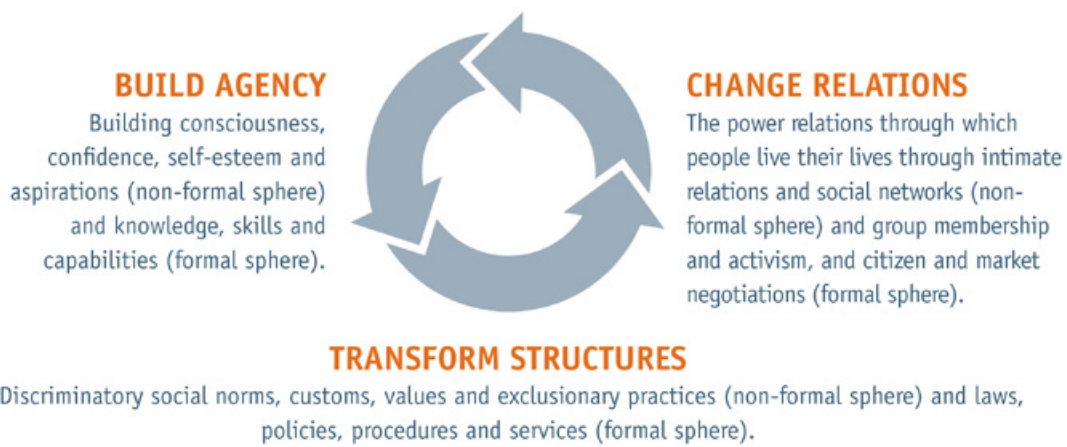


Figure 2. CARE's Gender Equality Framework (CARE 2019a) is transformative because it seeks to move beyond technical and surface-level approaches to gender equality. The framework is being widely used in agricultural livelihood and climate change adaptation programmes. Figure from CARE 2019b.



Figure 3. The four impact pathways through external interventions seek to improve livelihoods opportunities and outcomes for women and men living in coral reef-dependent communities. Regardless of the pathway(s) pursued, GTAs are applicable and relevant within each pathway. Figure from Lau and Ruano-Chamorro 2021.

⁶ See <https://coralreefrescueinitiative.org>

and 2) increase the level of awareness and knowledge among CRRRI partners and the wider development and conservation communities. More broadly, the project aims to contribute to policy, and practice discourse on equitable livelihoods and sustainable natural resource management.

How have GTAs been applied in coral reef social-ecological systems

To assess the extent that GTAs are applied in coral reef social-ecological systems, we conducted a literature review on coral reef interventions in Tanzania, Madagascar, Philippines, Fiji and Solomon Islands (Lau and Ruano-Chamorro 2021). These countries were selected because they are CRRRI focal countries. We assessed peer-reviewed and grey literature, and found four major pathways through which these countries sought to improve outcomes (Fig. 3). We then categorised each of these interventions against CARE's Gender Equality Framework (Fig. 2). Approaches that targeted the three dimensions – building agency, changing relations, transforming structures – were categorised as gender transformative.

We found that two interventions (i.e. the Tanga Coastal Zone Conservation and Development Programme, and Integrated Population and Coastal Resource Management Project,) (Van Inghen et al. 2002; D'Agnes et al. 2005; FAO 2017; Lau and Ruano-Chamorro 2021) did not use the word transformative, but had several elements that can be considered transformative according to the definition of GTA (e.g. promote critical consciousness regarding inequitable gender norms in a way that shifts constraining gender attitudes and challenges unequal household power relations) (see Lau et al. 2021a) (Fig. 2). Most approaches (n = 28) targeted only the symptoms of gender inequalities that exist above the waterline (see Fig. 1).

More specifically, for all five countries, conservation, management, and development approaches pursued strategies that fell across the different categories of the “reach, benefit, empower” spectrum. Examples of reach approaches included promoting women's inclusion in management (e.g. women as fish wardens or quotas for women in fisheries management committees). Examples of benefit approaches included those that sought to improve the material lives of women; for instance, developing alternative livelihood initiatives for women (e.g. seaweed farming, pearl shell farming, handicraft-making, tourism); and providing access to microfinance. Examples of empower approaches included those that sought to build women's capacity through training-of-trainers workshops. In these workshops women were trained to spread key messages about marine resource management, and assist women in meetings. This increased women's confidence to speak up about issues that affect them and their families, and promoted their engagement in fisheries management. In addition, an empower approach aimed to create conditions for equitable participation in implementation and decision-making of a coastal resource management project by providing gender-responsive training to local government and community-based institutions (i.e. to sensitise and educate them about the role of women in

fisheries, and the importance of women's participation in management). While these examples were clear, in many cases, the articulation of the rationale and/or outcomes of these approaches was sometimes lacking and, therefore, difficult to make these assessments.

Consistent with analyses in other coastal contexts, our review found that the use of GTAs in coral reef social-ecological systems was rare, suggesting that there are significant opportunities to increase the quality and prevalence of GTAs in coral reef social-ecological systems.

How to increase the quality and prevalence of GTAs in coral reef social-ecological systems, interventions and programming

Operationalising GTAs in coral reef social-ecological systems will require more conservation, development and management stakeholders to understand and engage with the key underlying principles (Table 1), treating GTAs as an iterative process (Fig. 4) that makes the most of key learning and research opportunities. There is not a rule book for applying GTAs because they need to be adapted to specific contexts, but they are based on a set of principles that we outline in the best practice guide (Table 1). They seek equality for all and do not impose particular visions on how to promote gender equality, but rather facilitate critical awareness and questioning of gender norms and roles. Implementing GTAs is a challenging process that takes time, long-term planning, evaluation and capacity (e.g. facilitation skills and self-critical reflection from staff and partners). GTAs need to be embedded in all levels of project design, and require partnership and buy-in across all levels of an intervention. Ultimately, the willingness to engage in GTAs needs to come from the agents of change themselves, for example communities and families.

Embed GTA principles from the outset

GTAs need to adapt to context; a GTA that has been successful in one situation may fail if replicated in a different context. Implementing GTAs thus requires following a set of principles and good practice steps (Table 1) that provide guidance for the development of gender transformative livelihoods in coral reef social-ecological systems, rather than implementing a blueprint approach.



Table 1. GTA principles of good practices.

Principle	Explanation
1. Understand the context and conduct gender analysis	It is critical to understand how contextual power dynamics and social norms lead to gender inequalities and how these intersect with multiple identities (e.g. age, ethnicity, social status) and inform GTAs.
2. Focus holistically on transforming structural barriers, building agency and changing relations	GTAs aim to promote gender equality by focusing on the three dimensions of CARE's GEF (building agency, changing relationships and transforming structures) (Fig. 2). Deep and enduring change happens when structures are transformed, and "what emerges is fundamentally different from what [it was] before" (Brookfield 2012:131 in Kantor and Apgar 2013).
3. Ensure project activities meet the needs of people of all genders	Pay attention to gender differences regarding needs, risk and inequities (identified in the gender analysis), promote safe and inclusive project access to all participants, and address discrimination.
4. Adopt participatory approaches	In GTAs, communities work shoulder to shoulder with conservation and development organisations and other stakeholders. GTAs ensure meaningful participation of all gender, transparent information sharing, meaningful opportunities to be involved in decision-making, and accessible, safe and reliable response feedback mechanisms.
5. Internalise and practice gender equality principles in facilitating organisations	Facilitating agencies (e.g. NGOs, governments) should take time to self-reflect and embrace GTA principles within their work and organisational culture.
6. Instigate reflective processes	Reflective processes are learning processes that aim to shift mental models, values and beliefs (Cole et al. 2014; Wong et al. 2019), such as those that reproduce gender inequalities. GTAs promote cycles of critical reflection to challenge oppressive norms, behaviours and power dynamics (Kantor et al. 2015; FAO et al. 2020).
7. Engage women, men, and non-binary people across a range of identities	Being a woman or a man – or identifying as non-binary- intersect with other identities (such as age, marital status, ethnicity and class). These different identities shape individual experiences and outcomes, thus engaging the diversity of identities in GTAs is important.
8. Engage stakeholders at multiple scales	Gender inequalities are produced and reinforced at multiple scales (household, communal, institutional and social scales). Thus, GTAs should engage with actors and institutions operating at different scales (Kantor 2013; Cole et al. 2014).
9. Monitor and evaluate throughout	Collect sex and age disaggregated data; consider and adapt to needs, safety and security risks and vulnerabilities issues (e.g. gender-based violence or GBV), measure unintended consequences, and monitor changes in gender roles and relations.

Table from Lau et al. 2021a, and based on CARE 2019c; FAO et al. 2020; McDougall et al. 2020.

The iterative GTA process

In intervention programming, GTAs are iterative processes through which the “doing” provides knowledge that informs learning and better implementation of GTAs over time (Fig. 4).

Begin with social and gender analysis that provide insights on the social, cultural and gender context (e.g. gender norms, power dynamics in the household and value chain). In the case of coral reef social-ecological systems, gender analysis can provide information on specific sectors such as markets, nutrition, access to resources, power in management, and vulnerability and adaptation to climate change. Understanding what the factors are that lead to gender inequalities in coral reef social-ecological systems – and how gender interacts with other social factors such as ethnicity, age, caste and status (i.e. intersectionality) – is critical to informing the design and implementation of GTAs. Gender analysis must be an ongoing process because contextual factors, such as gender norms and power dynamics, can change over time. In addition, social and gender analysis can inform monitoring, evaluation and learning (e.g. monitor shifts in gender norms).

Design interventions that concurrently build agency, change relations and transform structures (Fig. 2). GTAs can be designed and implemented in all four pathways

(Fig. 3) and should be guided by GTA principles (Table 1). GTAs are implemented in combination with development, management or conservation initiatives through gender integrated programming or gender activities targeting agency, relations and structures (Fig. 2). GTAs engage men, women and non-binary people; and foster critical reflection discussions to challenge contextual social and gender norms and power dynamics that influence people's lives. GTAs involve participatory methodologies (e.g. participatory action research), promote gender transformative training and reflection by staff and ensure gender-based violence prevention and response integration. Finally, sharing lessons learned with others, replicating in other communities and creating partnerships at multiple levels to promote innovation and influence policy is also critical.

Monitor, evaluate and learn in order to track progress, evaluate changes in agency, structures and relations (Fig. 2), and assess negative unintended outcomes (e.g. backlash). Monitoring, evaluating and learning can also help to improve the design and implementation of future GTA interventions. Sex and age disaggregated data should be collected, analysed and used to adapt the project to changing people's needs, capacities and vulnerabilities, and ensure access to rights, safety and security (CARE 2019c). Transformative change is difficult to observe and measure, and often occurs over long periods. Therefore, assessing

Social & gender analysis

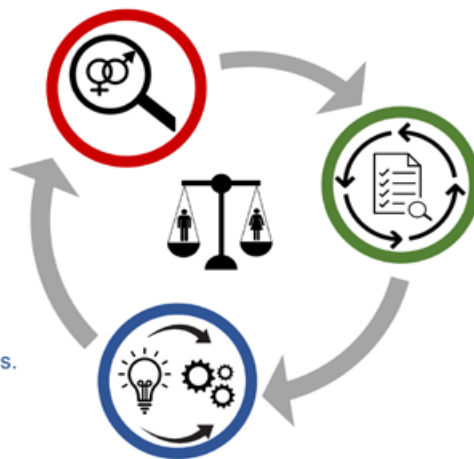
Understand contextual gender barriers (e.g. gender norms) and intersectionality. Gendered analysis in sectors of coral reef social-ecological systems such as markets, nutrition, and climate vulnerability and adaptive capacity.

Learning

Learn from success and failure. Improve and adapt future interventions.

Evaluation & monitoring

Use participatory approaches. Integration of methods for measuring social change, risk, negative change, backlash and sectoral outcomes. Use multidimensional and multiscale context-specific indicators. Personal transformation tracker for staff. Use theories of change.



Design

Build agency, change relations and transform structures, include gender integrated programming and specific gender activities to advance gender equality in agency, relationships and structures.

Implementation

Promote participation in project processes. GBV prevention and response. Engage women, men, and non-binary people across a range of identities (e.g., age, marital status, ethnicity, class). Include reflective processes and dialogues with major sectoral focus for coral reef social-ecological systems (e.g. markets, nutrition, technology adoption). Previous gender transformative reflection by staff.

Figure 4. GTA is an iterative process, whereby gender considerations inform and are accounted for during each part of the project cycle. The “doing” provides knowledge that informs learning and further action and reflection (Wong et al. 2019). Figure adapted from Cole 2021.

transformative change may require new ways of monitoring and evaluation (Hillenbrand et al. 2015; Wong et al. 2019; Lau et al. 2021a), and critically thinking about how transformative change is measured, because it can reinforce gender inequalities. Particularly, organisations should promote continuous critical reflection among staff (e.g. on their own positions and practices) and promote a working culture of innovation and learning (Hillenbrand et al. 2015; Wong et al. 2019).

Theories of change can be used to reflect on the assumptions made regarding the intervention and the expected changes and compare them with the changes observed (outcome evidencing) (see Van Eerdewijk and Brouwers 2014). Furthermore, transformative change should be measured as an incremental process and tracked at multiple scales (e.g. household, community, institutions) and dimensions to detect changes in individuals (e.g. income, time, labor), relations (e.g. level of family conflict, social networks) and structures (e.g. social norms, institutions). Both qualitative and quantitative approaches should be used to measure transformative change (e.g. the Project Women’s Empowerment in Agricultural Index (Pro-WEAI)), and indicators should be adapted to the context (see Hillenbrand et al. 2015; Barclay et al. 2021 for a complete list of potential indicators). In addition, for MEL processes to be meaningful, relevant and transparent, it should be participatory (e.g. engage stakeholders in data collection, evaluation, interpretation of results). Finally, monitoring and evaluation can provide useful information that should be used to improve and adapt GTA implementation (Fig. 4).

What are the current research and learning opportunities?

The implementation of GTAs in coral reef social-ecological systems is nascent. Therefore, there is a substantial opportunity to trial and evaluate GTAs in these contexts (Lau et al. 2021a). Here, we suggest research and learning opportunities that can help advance GTA application in coral reef social-ecological systems:

- Testing and modifying GTA methods by trialling and implementing GTA principles in your own organisations. *How can we ensure GTAs become mainstream practice within individual organisations?*
- Design and evaluate GTAs at different levels of coral reef governance. *How can GTAs be implemented at multiple scales (e.g. household, community, societal)? How can GTAs be scaled up (i.e. beyond-households, including groups, organisations working on SFF, markets, policy, and legal arenas)?*
- Connect and map GTAs to CARE’s Gender Equality Framework (Fig. 2). *What are the key principles to consider when designing GTAs to ensure they work toward building agency, changing relations, and transforming structures? Which practical tools are best suited to facilitating these transformations in coral reef social-ecological systems?*
- Develop an understanding of the values and goals of people in coral reef dependent communities. *How does gender in the context of coral reef social-ecological systems, shape women’s and men’s gender roles, power, needs, decision-making patterns, access to and control over resources, benefits and impacts from fisheries and conservation, management, and development interventions? What GTA approaches can be designed and implemented to promote gender equity in the specific context you work? How can GTA outcomes be monitored and evaluated in that particular context?*
- Assess the extent GTAs applied in coral reef social-ecological systems can also drive improvements to the health of coral reefs and enhance broader sectoral outcomes. *How can GTAs be integrated across sectors to promote equitable resilience in coral reef social-ecological systems? What are the effects of GTAs on gender equity and social and ecological resilience?*

How can gender-transformative change be supported by the policies, laws, organisational procedures and processes associated with coral reef social-ecological systems?

Gender transformative change towards gender equality in coral reef social-ecological systems requires concerted policy support and investment across a range of scales (Fig. 5). In our policy brief, we provide recommendations for enabling gender transformative change through coral reef-related

policies, laws (i.e. formal global, regional, and national conventions, laws, plans and regulations), and procedures and processes of funders and implementing organisations. We contend that gender inequalities are produced and maintained at multiple scales – from the whole of society, all the way down to individuals within households (Fig. 5). These scales are nested and are influenced by each other. Efforts to enhance equality need to consider how gender inequalities are perpetuated, and can be addressed, at each of these scales.

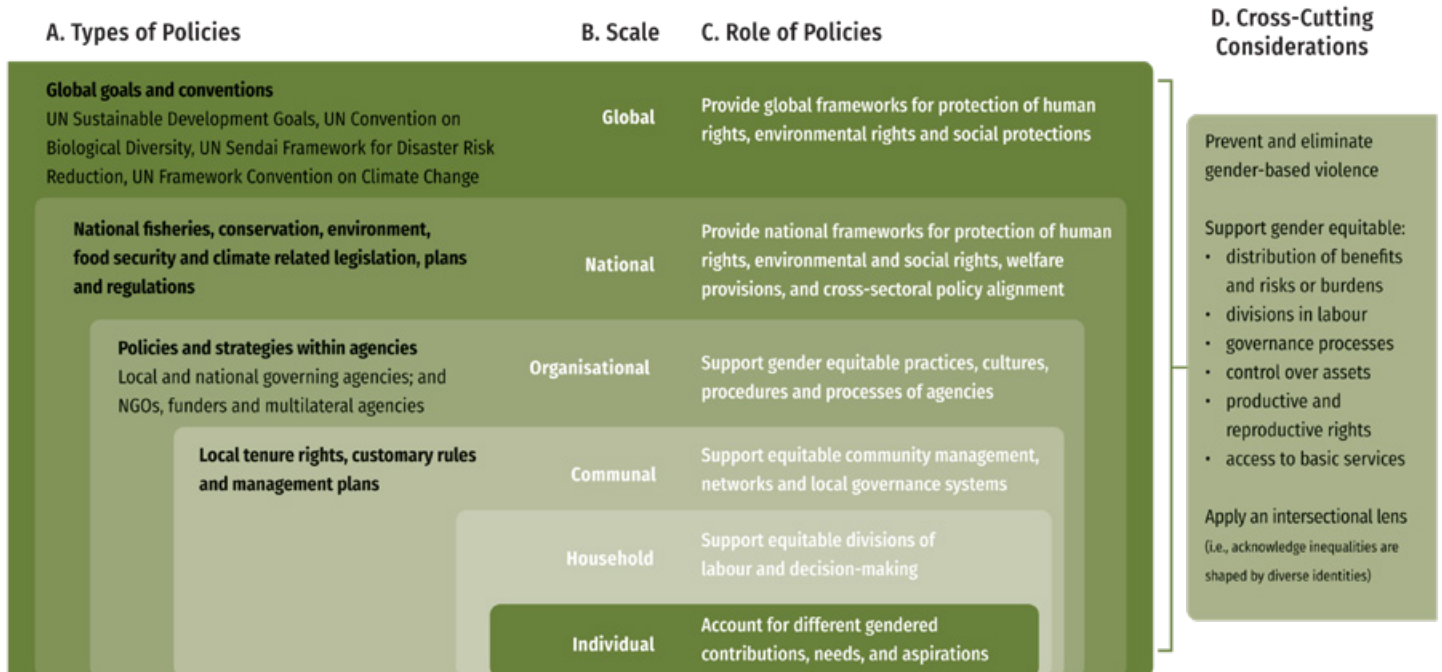


Figure 5. Examples of the a) types of policies, laws, procedures and processes at b) different scales, c) their role in enabling the conditions for gender transformation, and d) cross-cutting considerations across all scales. Figure from Lawless et al. 2021.

Recommendations for enabling gender transformative change through coral reef-related policies, laws, procedures and processes (Lawless et al. 2021).

- Enable the conditions for gender transformative change by identifying and addressing the informal and formal root causes of gender inequality, both above and below the waterline (Fig. 1).
- Seek to prevent and eliminate gender-based violence and support the protection of human and environmental rights at all scales of policy, including through gender equitable distribution of opportunities, benefits and risks; divisions in labour; governance processes; representation of all voices; control over assets; productive and reproductive rights; and access to basic services.
- Connect to existing gender equality laws, regulations or cross-cutting goals in other sectors.
- Consider how policies support gender equality as a goal, in and of itself. When gender equality is framed and pursued as an intrinsic goal, there is a greater likelihood of associated gender commitments and approaches leading toward equitable improvements.
- Ensure that policy-making processes themselves are gender equitable, ensuring that a diversity of voices are represented and that there is a balance top-down commitment to gender equality with a bottom-up inclusion. Inclusive dialogues and citizen-led accountability mechanisms facilitate the inclusion of perspectives of marginalised communities.
- Translate gender equality commitments into action by ensuring adequate funding, resources and timeframes, and connecting civil society groups with gender expertise to strengthen and transfer gender capacity.
- Collect and use gender data and information for decision-making and organisational change, and invest in research and knowledge generation for gender transformative development and conservation practice.
- Assess the extent to which coral reef associated policies are gender transformative by utilising established methodologies and assessment tools.

If gender inequalities below the waterline are not addressed by policy, they risk continuing to produce and reproduce unequal relations, outcomes and policies that aim to overcome gender inequality but may eventually fail (Lawless et al. 2021).

Conclusion

Commitments to gender equality are increasingly prevalent with and within investments and interventions seeking to work with coastal communities, coral reef societies, and island nations. The ongoing challenge remains to match these commitments with quality and integrity of practice that leads to increased wellbeing for women, men and other identities. There is substantial work remaining to meet even the most basic commitments to gender equality (e.g. meeting sex-disaggregated data standards). These efforts and early steps still need to be taken in many contexts. At the same time, it is critical to look at the frontier of gender and development practice and policy. GTAs are key to advancing gender equality and resilient livelihoods in coral reef social-ecological systems. Yet, GTAs are only just beginning to be applied in coral reef systems and thus, the underlying structures that reproduce gender inequalities have frequently remained unaddressed, likely hampering gender equality efforts. Nonetheless, expertise and willingness to promote GTAs in coral reef systems is growing. This collaborative project provided guidance for development and conservation practitioners and recommendations for policy-makers, and can directly make a positive impact through its direct connection to CRRI partners. Ultimately, pursuing GTAs holds great promise for more resilient livelihoods and the wellbeing of coral reef communities.

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