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An inequity assessment framework for planning coastal and marine conservation and development interventions

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Sustainable development should promote equity with benefits for coastal communities. Many conservation and development initiatives promise to contribute to an equitable future without being designed to do so. Here, we promote an assessment tool to help interventions plan to promote equity through forecasting and evaluating the risks of contributing to inequities, in order to plan against them. Building from rich literatures of impact assessment, procedural justice, postcolonial studies, critical race theory, and fields in sociology studying the accrual of advantage and disadvantage among different groups, we propose the assessment framework follow key principles that center on understanding how interventions affect marginalized people, and assess how planning, implementation, and outcome decisions build on each other and reflect (or work against) broader systemic contextual pressures that perpetuate inequities. In forecasting and monitoring potential inequities, coastal communities and proponents of interventions should be able to plan against the realization of these adverse impacts. We show how the framework can be used in three case studies: 1) a climate adaptation project; 2) marine protected areas; 3) a debt relief program. Sustainable development is about promoting equity, but only with methods employed to confront and understand inequitable consequences can interventions do so.

KEYWORDS

social equity, sustainable development, interventions, risk assessment, affected communities, planning, monitoring evaluation and learning

1 Introduction

The recent history of globally agreed on sustainable development goals has placed an emphasis on economic programs, conservation efforts, and social policy that promote equity through increasing quality of life while responsibly use natural resources (Singh, 2020; Ota et al., 2022). Early research that informed sustainable development focused on projecting resource supply and consumption to analyze how resource use could sustain

later generations (Robinson, 2004; Meadows et al., 2018), considering a definition of equity as an issue of the distribution of access to resources over time. This intergenerational-equity focus is best enshrined in the 1987 Brundtland Report definition “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). At the same time, international development has focused on poverty reduction, hunger elimination, and public health initiatives to uplift the most marginalized people in the world (Sen, 2001). More recent focuses of sustainable development, most notably the Millennium Development Goals and especially the Sustainable Development Goals (SDGs) emphasize equity both intragenerationally and intergenerationally. For example, key targets within the SDGs go beyond the distribution of resource supply to promote “the social, economic, and political inclusion of all” (SDG 10.2) indicating a recognition that not all people have equal status or ability to influence decisions, and that having fairness and equal roles in decision-making is a current key consideration of the modern definition of sustainable development. In line with these procedural and distributional considerations in sustainable development, an operational definition of equity should include considerations of fairness and equal treatment of people regarding the benefits and risks of development, as well as a consideration to redress historic and social inequalities that maintain unfair exclusions and power relationships between people (Bennett, 2022; Crosman et al., 2022). This approach to equity within and among generations, inclusive of having a voice in decisions and addressing fairness in the distribution of benefits and risks is laid out by the SDGs vision of “no one will be left behind” (UN, 2015).

However, many interventions (projects and programs) promised to contribute to sustainable development have not been designed to address equity, even when their promises extend to producing a more equitable world (Cisneros-Montemayor et al., 2019b; Ota et al., 2022). Rather, many have been documented to produce inequities and negatively affect coastal communities (Cisneros-Montemayor et al., 2019b; Singh et al., 2021; Ota et al., 2022). These interventions are often either a carryover of environmental-harm reduction approaches to sustainability (Robinson and Cole, 2015; Ota et al., 2022) or initiatives designed to exploit new economic opportunities, such as through “Blue Economy” plans for ocean development (Cisneros-Montemayor et al., 2019b; Cisneros-Montemayor et al., 2021). For example, the list of Blue Economy sectors include coastal energy development (including coastal oil and gas, as well as emerging coastal renewable energy development), aquaculture and fisheries, ecosystem restoration and marine protected area networks, as well as emerging sectors of marine genetic resources, and seabed mining.

Recently, national and international agencies have decried the tendency of governments and agencies to “greenwash” their policies and plans, by overemphasizing the benefits that come from interventions towards sustainable development goals and underemphasizing (or even ignoring) the negative impacts (UN High-Level Expert Group, 2022). These concerns are compounded by the fact that many coastal and ocean development initiatives are

self-monitored, meaning that the organizations responsible for implementing these initiatives and delivering social equity outcomes are not accountable to the recipients of equity initiatives or a third party (Crosman et al., 2021; Williams and Decker Sparks, 2023).

Here, we advance a framework to prospectively project potential risks of development on equity outcomes, which can prevent organizations from claiming that they were unaware of equity risks of their initiatives – that is, we advance a framework to prevent “equity-washing” and protecting coastal communities from unintended adverse effects. This framework can also be used retrospectively to monitor the consequences of an intervention, which can be used to keep organizations accountable to the effects of their programs and allow for adaptive changes. Understanding and proactively predicting harms from interventions to help prevent them has a history in a variety of disciplines. In medicine it is called “iatrogenics” to study when a treatment causes more harm than benefit (Wiener, 1998), from the Greek *iatros* which means “healer”. In development studies, the Do No Harm approach is meant to promote the wellbeing of people from interventions while reducing harms (Wallace, 2015). The history of using this approach shows that many impacts of development are indeed predictable (Wallace, 2015). Within coastal management and marine studies there are also developing perspectives coalescing into a field of “social oceanography” critically examining interventions and proposed solutions to socioecological issues (Narchi et al., 2018). Our approach builds from and complements some of these related fields by focusing on equity concerns as they relate to sustainable development and incorporate critical perspectives from equity and justice literature.

2 Considering history and power in assessment

Inequities are the result, in part, of historic and contemporary processes that disproportionately affect some groups more than others (Blank, 2005; Small and Pager, 2020; Crosman et al., 2022). Legacies of colonial actions and policies, persistent racism and sexism are all examples of the kinds of processes that create and reinforce the inequities faced today (Crosman et al., 2022). Importantly, historic impacts can have consequences for future equity potentials. That is, advantages and disadvantages felt by groups are cumulative and path-dependent, making a procedural, dynamic lens important to understand how interventions may affect equity (Blank, 2005; DiPrete and Eirich, 2006; Kurlychek and Johnson, 2019; Crosman et al., 2022). We are careful to note that historic causality is not always straightforward (especially over long time periods) and include complex interactions among societal, environmental, and economic dimensions that can lead to competing interpretations and are subject to historiographic analysis (Poulsen, 2012). However, any consideration of contemporary inequalities excluding the cumulation of advantages and disadvantages is likely lacking and may further contribute to inequities (explored below).

The cumulative aggregation of (dis)advantage is a pervasive phenomenon, showing up in studies as specific as disparities in scholarly prestige – where eminent scientists get disproportionately more credit than less known scientists for similar contributions (Merton, 1968) – to broad and diverse studies on health disparities (Willson and Shuey, 2019), economic inequalities (Blank, 2005; DiPrete and Eirich, 2006), inequities in criminal justice (Kurlychek and Johnson, 2019), and inequalities in political power (Rigney, 2010). Cumulative advantage and disadvantage manifests in social mobility and in virtuous and vicious cycles propagated by structural reward systems where material benefits often accrue to those already in positions in prestige and power (Blank, 2005; DiPrete and Eirich, 2006; Small and Pager, 2020). These dynamics have been explored to show value of early advantages over time, as benefits compound over time through someone's life (Blank, 2005; Kurlychek and Johnson, 2019). Perhaps more importantly, these dynamics also play out intergenerationally and can explain disparities between groups of people (such as between Black and White Americans), through mechanisms such as differences in financial inheritance and how White Americans often start life advantaged relative to Black Americans, and allow for the accrual of socioeconomic resources – such as access to better resourced schools – across generations (Blank, 2005; Small and Pager, 2020).

The aggregation of (dis)advantage reveals important limitations of viewing equity through a static (that is, ahistorical) egalitarian or distributional lens (Blank et al., 2004; Kurlychek and Johnson, 2019). Importantly, measures of equity applied to an intervention that focus on the equal treatment of participants, ignoring that some participants may be beneficiaries of cumulative (dis)advantages, can be fundamentally inequitable (Blank et al., 2004; DiPrete and Eirich, 2006; Small and Pager, 2020). For example, where equity has been explored in contributing to conservation, “equity” has been treated as giving equal representation to all stakeholders despite the existence of power differentials (Klein et al., 2015). In some cases conservation success would likely peak where interventions favor current power structures, and allowing both powerful and less powerful groups decision-making power (without special considerations or capacity provided to less powerful groups) can lead to inequitable outcomes (Klein et al., 2015; Tafon, 2018). Similarly, a marine protected area led by a well-funded environmental non-governmental organization (NGO) and implemented in an impoverished coastal community may see equal representation of NGO and community members on the planning committee to represent an equitable process, but may neglect that the NGO has more resources and dedicated staff towards planning while the community may not and may have a history of having their knowledge discredited (Hill et al., 2016; Gorris, 2019; Crosman et al., 2021). Seeing the intervention as starting from a level playing field, therefore, may inadvertently contribute to inequities.

As such, it is important to recognize that the data we use to monitor inequities (the indicators) are often not the prime interest of equity goals. For example, many common equity-focused indicators (such as Gini coefficients) are reflections of the symptoms of inequities and provide little to no information on the causes or potentially effective remediations of inequities (Blank, 2005). Rather, what is of interest is to understand and reflect the processes that generate the data. That is, any intervention designed

to address or promote equity should clearly connect indicators with the processes contributing to inequities (Crosman et al., 2022). How do interventions act to stymie these processes? Do the interventions instead risk enhancing inequities through these processes?

3 Inequity assessment framework for anti-inequity interventions

Effectively linking policies and projects with systemic processes that maintain or deepen inequities can allow an assessment process to aid planning towards equitable outcomes (Blank et al., 2004; DiPrete and Eirich, 2006). We propose a framework for promoting equity that starts by diagnosing the processes of inequities that structurally influence interventions. That is, we propose a framework that promotes “anti-inequity” interventions by understanding potential adverse effects in order to plan against producing inequities. The field of impact assessment offers pragmatic and theoretical considerations for structuring an assessment to help plan against unintended effects or tradeoffs (Bond et al., 2012; Pope et al., 2013). Additionally, structuring an assessment framework reflective of historical and power relationships should benefit from insights that specifically study these structural forces and power relationships such as procedural justice (Rawls, 2020), critical race theory (Delgado and Stefancic, 2023), and postcolonial theory (Said, 1979) (Figure 1).

Beyond the focus on power relationships and ensuring a historic lens, these insights in particular are important for the assessment of inequities from rights-based considerations because they focus on highlighting the respecting the personal rights, liberties, and equality of people based on their relationship to more powerful groups. Some of the most important inequities to guard against compromise key human rights associated with basic freedoms, dignity, cultural identity, political equality, health, and adequate standards of living. For example, such rights have been documented to be commonly claimed by fishers (Figueroa et al., 2023). Similar concerns on rights have been invoked by world leaders regarding treatment of fishers (FAO, 2017).

Impact assessment for sustainability often takes the form of a predictive or exploratory exercise to forecast adverse effects of an intervention in order to plan mitigation and avoidance strategies against them (Pope et al., 2013). While both positive and negative effects can be assessed, we stress that adverse effects should be actively explored and the burden of evidence be placed on proponents of interventions to show that positive effects are likely (Bond et al., 2012). While this strategy essentially gives greater weight to adverse effects, we emphasize that this process has been established to guard against “equity washing”. Some negative effects of conservation and development interventions are probable and routinely predictable – for example when proponents of marine protected areas in Mexico adopt paternalistic models and did not include local communities in planning, which negatively affected local fishers and de-legitimized the process (Torre and Fernández Rivera-Melo, 2018) – we stress including considerations of less probable but possible negatives in order to help protect against surprises.

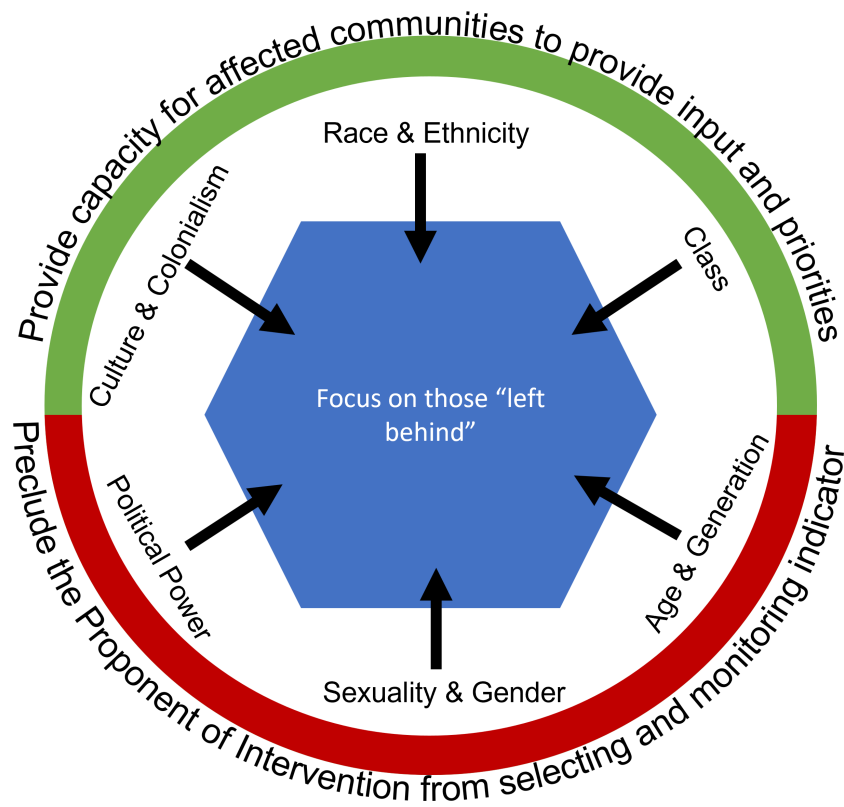


FIGURE 1
The principles of conducting an inequity assessment.

3.1 Evaluate cumulative (dis)advantage dynamics

Any intervention can be broken down into different stages, containing input (including planning and implementation stages) and outcome considerations, and inequities may be produced through these stages through cumulative (dis)advantage dynamics (Cisneros-Montemayor et al., 2019a; Crosman et al., 2022). For example, limiting the roles of groups in planning of a project often means that their priorities are not reflected in the how a project functions and the outcomes may not even be monitored, which can prevent adequate feedback for continued planning of a project, which can continuously neglect some groups (Gorris, 2019).

3.2 Determining historical context

Given the importance of a historical perspective, the first step in this procedural assessment is to understand the context of inequity. That is, understanding the dominant systemic issues and SDG areas of focus for the inequity assessment. For example, initiating a coastal development initiative in an area with persistent racial disparities should evaluate inequities in relation to marginalized racial groups. The SDGs provide one framework for systematically structuring an assessment around equity and inequity (Ota et al., 2022). In this way, a procedural lens to developing indicators for

equity requires context-specific considerations but follow common planning principles.

To help put an assessment in historical context, an assessment of inequities must consider who will be the subject of an assessment – that is, who is considered “left behind” or lacks socioeconomic and political power. Given that the SDGs focus on uplifting the most vulnerable people (especially as pointed out in SDGs 1, 2, 4, 8, 10), an equity assessment process should align with this vision of the SDGs. According to prominent theories of procedural justice, equal opportunity needs to be established, and once that is established, equity is promoted when an intervention serves those least-well off (Rawls, 2020). While “equal opportunity” can be interpreted to mean that all parties are involved in any specific intervention, a procedural justice lens may promote exclusivity in specific opportunities if it serves to benefit systemically marginalized groups who have historically lacked those opportunities. For example, applying this procedural justice lens to school and job recruitment policies can promote affirmative action policies even though such a policy explicitly does not treat everyone equally, because affirmative action seeks to enhance the opportunities faced by historically marginalized groups (Nagel, 2003). Applying this principle of procedural justice means focusing the assessment on those “left behind”. Importantly, we do not suggest that a procedural justice lens (as advocated by Rawls, 2020) should be imposed on all groups. Some communities may be culturally indisposed to the complete framework of justice as

presented by Rawls, but we argue that application of the principles that first lead to equal opportunities for people and second serves the least well-off (known as the difference principle) align with the central sustainable development principle of “leave no one behind”.

3.3 Utilizing intersectionality to focus on those “left behind”

Identifying those “left behind” is not trivial. The SDGs themselves give some directions for which demographic criteria and identity markers help determine who should be the subject of an assessment. For example, SDG 1 focuses on those in extreme poverty, SDG 4 focuses on gender inequities, SDG 8 has specific targets around poverty and youth employment and human trafficking, and SDG 10 focuses on least developed nations and small island states (who often face colonial legacies). Many people can simultaneously hold multiple facets through their identities, and systemic social and political processes can differentially affect the power and vulnerability of people based on their identity (Ryder and Boone, 2019; Kuran et al., 2020). Initially applied to legal settings, the framework of “intersectionality” was proposed to understand how systems of power and privilege work across multiple facets of identity (Crenshaw, 1989), and has expanded to consider the impacts of broad policy (Ryder and Boone, 2019). Crucially, programs and policy that intend to reduce inequities can instead reproduce inequities when intersectional identities are ignored, as important differences are ignored (Cho et al., 2013; Ryder and Boone, 2019). For example, policies that promote gender equity may backfire if people are only considered in a binary “male/female”, or if White women are seen as representative for all women, neglecting experiences of women of color and peoples of differing gender identities outside the binary (Ryder and Boone, 2019). In operationalizing this principle, we suggest that any evaluation include considerations of people along dimensions relevant to the SDGs, and we suggest the following six mutually constitutive dimensions (Cho et al., 2013) – though other dimensions may be relevant. These dimensions are: 1) race and ethnicity; 2) class; 3) sex and gender; 4) age and generation; 5) culture and colonial legacies; 6) political power.

These six dimensions are not mutually exclusive but also not fully substitutable. Considerations of race and ethnicity means thinking about which racial/ethnic groups have been historically oppressed or faced limited opportunities in favour of dominant groups. Considerations of class focus on which socioeconomic groups (either through hereditary titles, economic inheritance, or purchasing power) have historically benefitted/disbenefitted from policy and have been able to set policy towards their own interests. Age and generation focus on the lack of opportunities presented to the young or elderly, and considerations for how impacts may impact future generations. Sex and gender considerations recognize that in most cultures, there have been (and continue to be) differential impacts of policy (and differential roles in leadership) between genders and sexual orientation, partly because European imperialism and Abrahamic religions have radically changed gender norms in some regions, favoring heterosexual males

(Berger, 2003; Ireland, 2013; Baskin, 2020; Depelteau and Giroux, 2022). Culture and colonial legacies recognize that colonial histories have reshaped normative notions of how society should be structured, often suppressing the philosophical, political, and cultural practices of colonized groups (Pictou, 2020; Singh et al., 2021; Alexander et al., 2022). Political power recognizes that in every decision context, some group have a greater role in decision-making than others (Berbés-Blázquez et al., 2016; Singh et al., 2021).

3.4 Include affected groups in indicator selection

The SDGs also recognize that historically, decisions that affect coastal communities are not always reflective of the concerns these communities hold. SDG 10 emphasizes the need to increase the political leadership of Small Island Developing States and coastal communities who have historically lost political power due to colonial and hegemonic practices, while SDG 16 emphasizes the importance of inclusive decision-making and enhancing the role of developing nations in decision-making. A central concept in post-colonial studies holds that our understanding of the world is largely a reflection of the interests and perspectives of the global West and North (Said, 1979). Most contemporary academic institutions, individuals, and works are Western and legacies of European colonial powers (Singh, 2022). Acknowledging that any academic, philosophical, scientific, or artistic pursuit can never be truly objective, because research priorities and perspectives on information are interpreted through specific cultural lenses, means that our understanding of much of the world does not reflect the understanding of the people who inhabit it (Said, 1979; Singh et al., 2021; Ota et al., 2022). Crucially, this concept holds that much of what we understand of the global East and South are constructs and impositions of European academic legacies, and this binary power relationship between the subjects and objects of knowledge act to suppress the voices of whole groups of people (McEwan, 2008). In Brazil, oceanography was explicitly employed to devalue artisanal fisheries in efforts to industrialize the sector, showing that scientific knowledge can be championed as authoritative when doing so serves the political interests of powerful groups (Moura, 2017).

Colonial legacies have therefore set up contexts where the marginalized in any relationship are less likely to have their priorities realized in research and policy, much less their interpretation of the world (Alexander et al., 2022; Crosman et al., 2022). The effect of colonialism often robs entire groups of people the agency to set goals for the future (Alexander et al., 2022; Crosman et al., 2022). Creating space for local people to take part in assessment of effects on themselves also opens opportunities for processes that can better reflect local priorities and realities that are often invisible in official reporting. This explicit consideration of representation of and exploration of the multiple voices of people (especially those who are often ignored) is known as multivocality (Rodman, 1992). To operationalize this principle, we suggest that any selection process of indicators must include representation from the groups that equity-serving interventions are supposed to

serve (Singh et al., 2021). Neglecting to include these groups during prioritization and decision-making risks selecting indicators that do not reflect the priorities of the groups whom interventions are supposed to serve (Singh et al., 2021; Alexander et al., 2022; Reimer et al., 2022). Engaging with these groups will often require capacity-building or enhancing measures to allow these groups to take part in these decision processes, and the utilization of social scientists who are trained in facilitating and eliciting perspectives of groups of people (Singh et al., 2021).

We often justify the framework as it connects to the SDGs. While the SDGs were unanimously agreed on by all UN member states, they were agreed on by national leaders and not necessarily by the people directly affected by interventions purported to serve the SDGs. As such, specific considerations should be made towards whether local communities will see interventions couched as serving the SDGs, or indeed commitments to elements of the SDGs (such as the continued commitment to dominant economic growth perspectives and in how poverty is framed economically), will be perceived as a colonial-style imposition (Briant Carant, 2017). Indeed, commitments to global sustainable development initiatives have led to questionable measurement even in cases where the goals themselves are deemed important (Attaran, 2005). Instead of emphasizing any specific or technical commitment to the SDGs, we wish to showcase the importance of equity in its various dimensions to the SDGs, and use these as ways to structure the assessment. Nevertheless, here again we think providing capacity and roles for local people to plan and monitor assessments can help in the planning of interventions, since they may provide other ways or dimensions for consideration not covered by the SDGs.

3.5 Limit the role of proponents of interventions in monitoring

Effective institutions and partnerships require fair and transparent processes that are accountable. SDG 16 emphasizes the importance of fair, accountable, and transparent decision-making, while SDG 17 emphasizes the role of effective partnerships based on shared knowledge and power. Ensuring fairness in partnerships can be subverted by unacknowledged power differentials (Berbés-Blázquez et al., 2016; Crosman et al., 2021). The theory of interest convergence recognizes that gains made to marginalized groups usually only materialize when they align with the interests of groups with the power to affect policy and lead interventions (Bell, 1980; Belanger and Walker, 2009; Tysiachniouk et al., 2020). While this principle can theoretically help predict which interventions can lead to equity gains, this principle has often described how politically powerful groups only promote marginalized groups as it benefits the powerful (Bell, 1980; Belanger and Walker, 2009; Feldman, 2011; Crowder, 2013). In fact, many studies of interest convergence argue that the interests of marginalized groups are only promoted to the extent that they align with powerful groups (Bell, 1980; Heckler and Mackey, 2022).

Of particular concern are cases where powerful groups may want to minimize change to their modes of practice and instead

highlight the perception of their contributions to equity. That is, if a powerful proponent of an intervention can make reputational gains without substantive contributions to equity, they may opt for the former rather than the latter, especially if the former is less costly (Crowder, 2013; Heckler and Mackey, 2022). This kind of reputation-gaming may be more likely by proponents of interventions with poor histories of equity-based governance within their own organizations (Heckler and Mackey, 2022). Therefore, to guard against the risks that interest convergence presents, we suggest operationalizing this principle by limiting the role of proponents of interventions in selecting and monitoring indicators of success (unless the proponent is the community seeking equity gains themselves). There should be checks against potential conflicts of interest whereby a proponent monitors its own performance, as monitoring equity should be in the service of the group who should gain from equity and not the group promising it through an intervention of their own interest. We recommend that capacity-building measures should be provided for the affected community to monitor equity or have a third party in charge of monitoring equity throughout an intervention (Singh et al., 2021).

3.6 Consider multiple dimensions of equity

Within and across each stage of an intervention, assessing inequity can be made against multiple dimensions. We propose three dimensions often referenced in the academic literature: recognitional equity, procedural equity, and distributional equity (Bennett et al., 2019; Kelly et al., 2022). Recognitional equity is about the equity in the representation of given groups of people, knowledge systems, norms and priorities in decision making. Procedural equity is the fair and transparent roles, responsibilities, and input in the process of an intervention. Distributional equity refers to the distribution of risks and benefits that are produced through and from an intervention. An example framework is presented in Figure 2.

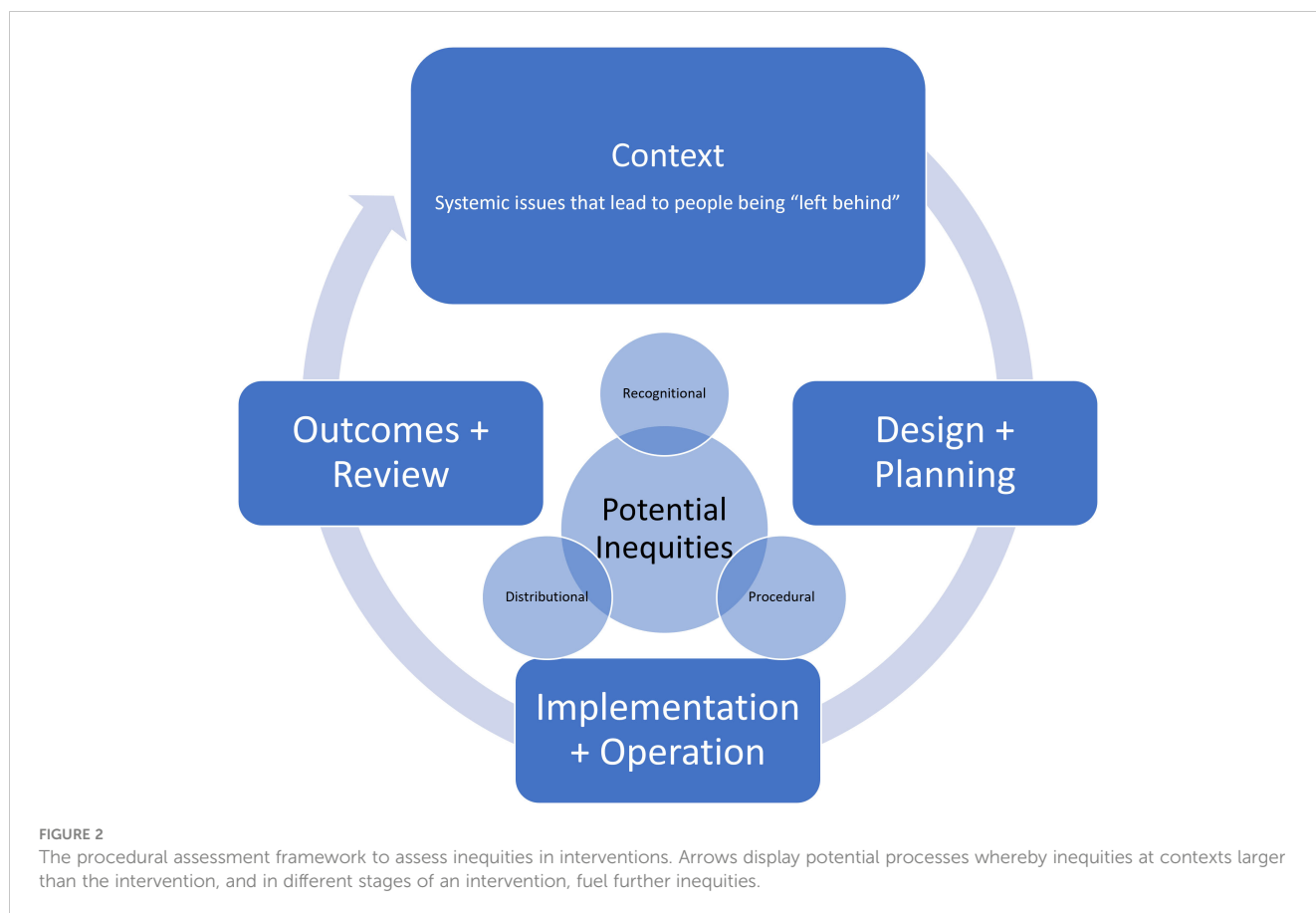
This procedural focus can be implemented prospectively, whereby an intervention is assessed for potential or anticipated impacts. In this way, the assessment can form part of a robust future-oriented planning tool. The procedural assessment can also be implemented retrospectively as part of an *ex post* evaluation form of monitoring, allowing for an intervention to learn what inequities have been felt, and course corrections can be made in further implementation. We illustrate our process of inequity assessment through a series of case studies (with further details presented in the Supplement).

4 Case studies

4.1 Case Study 1: climate adaptation projects in Lagos, Nigeria

4.1.1 Context

Lagos has massive housing deficits, causing nearly 70% of its population to live in slums, with many slums built on wetlands and



floodplains which face recurrent flooding (Ajibade and McBean, 2014). Climate change-induced storm events have tripled the death rate from rising sea levels, and increased flooding and storms have disproportionately impacted vulnerable and marginalized populations (Thomas and Warner, 2019).

In response to the threats of increased flooding and rising sea levels, the Eko Atlantic project was presented as a potential solution, providing climate impact adaptation, including an 8km long sea wall (Eko Atlantic, 2012). This sea wall is intended to create additional lands for economic development, with land reclamation of areas previously eroded, through the dredging of the seabed (Eko Atlantic, 2022). The project is backed, in part, by the Chagoury brothers, notorious in Nigeria for their association with the former dictator Sani Abacha, who was involved in mass evictions of slums (Akhaine, 2012; Adetayo, 2020).

4.1.2 Assessment process

Given the high socioeconomic disparities and slum conditions of many residents, as well as the associations with political powers that historically marginalize the poor, especially efforts to forcibly evict coastal communities, we identify one population of interest for equity assessments to be the poor coastal communities adjacent to the Eko Atlantic project.

The design stage of this Project was exclusive, in that Eko Atlantic was meant to be a haven for the wealthy. That is, distributinal inequities were planned into the project. Developers, backed by industry and politicians, completely

ignored Nigeria's Environmental Impact Assessment (EIA) processes (Lukacs, 2014), as the dredging of the seabed began in 2009, before an impact assessment had been conducted, in violation of the EIA Act (Environmental Law Research Institute, 2021). When an EIA was conducted, it was limited in scope regarding phases of the project considered and there were limited public consultation periods held, and no specific consultation with vulnerable populations most at risk from the Eko Atlantic project (Environmental Law Research Institute, 2021). The dredging and construction of Eko Atlantic increased the wave-related erosion and other impacts to surrounding communities, so that the project acted to displace climate impacts from areas occupied by the wealthy to areas occupied by the poor (Thomas and Warner, 2019).

For example, the Okun Alfa community – a community of fishers, farmers and traders – faced increased exposure to wave-related impacts caused by the Eko Atlantic project which impacted livelihoods and infrastructure (Environmental Law Research Institute, 2021). Dredging for the project amplified ocean surge events; for example, a massive surge occurred in July 2011, destroying the only health centre and access road, in addition to several electricity poles. Within a year the community also lost its mosque, in addition to its bore hole for clean water becoming contaminated by sea water.

The inequitable processes that began at the design phase of this Project have ensured that already vulnerable populations will remain at most risk from unmitigated project impacts, including increased wave speed and strength. These risks present threats of

economic and infrastructure loss, in addition to loss of life. By protecting only those who can afford to live in Eko Atlantic, this project has effectively left all others at the whim of climate change and climate disaster, and in contributing to increased flood damage to vulnerable areas (Figure 3).

4.2 Case study 2: population-health-environment and marine protection initiatives in Madagascar

4.2.1 Context

Coastal Malagasy communities have managed their coastal resources for thousands of years through spiritual beliefs and locally implemented laws known as *dina*, which are recognized by the national government (Epps and Benbow, 2007). Madagascar’s government regulates commercial fishing of shrimp and tuna, leaving limited capacity to surveil traditional and artisanal fisheries (Epps and Benbow, 2007).

In response to sustainability concerns, Blue Ventures (a non-governmental organization) focused on restoring ocean through the

creation of marine protected areas (MPAs), in addition to improving the livelihoods of fishing communities (Blue Ventures, 2022) through population-health-environment (PHE) initiatives. PHE initiatives focus on the intersection of health, population and environment in order to address biodiversity degradation, resource scarcity, and health concerns through population regulation (Baker-Médard and Sasser, 2020). Blue Ventures’ specific PHE program in Madagascar is called Safidy, and it is focused on family planning and birth control as part of an assumed linkage between local population size and environmental degradation (Robson and Rakotozafy, 2015). Along with PHE programs, Blue Ventures also works to establish MPAs alongside communities, though traditional knowledge was not centered in MPA planning and was sidelined to a Western science understanding of management and climate impacts (Baker-Médard and Sasser, 2020).

4.2.2 Assessment process

Because of the presence of foreign intervention on Malagasy communities that utilize policies that place unequal burden on women, we identify one population of interest for equity assessment to be Malagasy women.

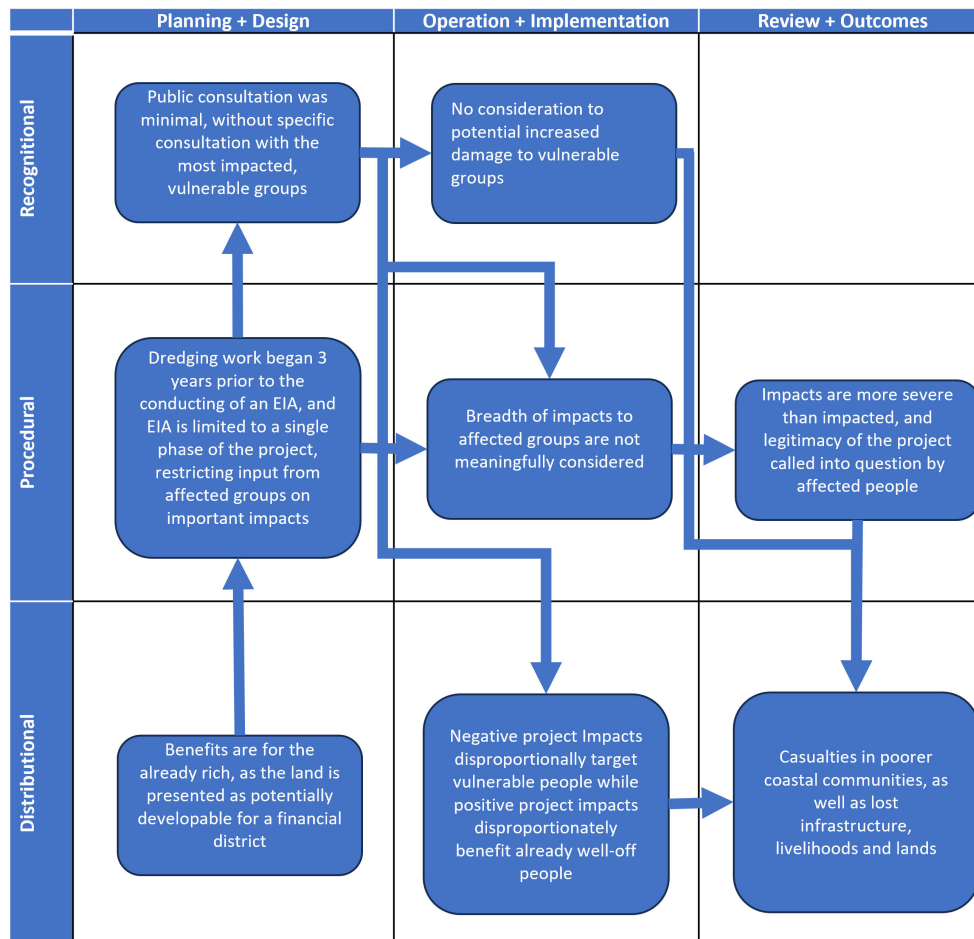


FIGURE 3 An inequity assessment of Eko Atlantic climate adaptation project in Lagos, Nigeria. Arrows display potential processes whereby inequities at earlier stages of an intervention fuel inequities at later stages.

Focusing on local resource closures and birth rates arguably limit the scope of problem solving and attempt to address resource issues with regional to global stressors (such as commercial fisheries, including foreign-owned fleets) through local intervention (Baker-Médard and Sasser, 2020). This is of particular concern since the fisheries closures (through MPAs) were set near poor communities and are likely to disproportionately affect women. For example, the octopus fishery closure disproportionately reflect male voices and reinforce gender inequities (Westerman and Benbow, 2013). Women are largely involved in octopus harvesting at low tide, and tidal height is often neglected in determining fishery openings (Westerman and Benbow, 2013).

PHE programs ask women to play the dual roles of both victim and savior by telling women to limit the amount of children they are having in order to lessen environmental burdens, adding responsibility onto women with promises of community benefits that are not guaranteed (Arora-Jonsson, 2011). Imposed western values of family size and notions of sustainability also directly conflict with Malagasy beliefs that life is based on growth in family and kin networks (Bendix and Schultz, 2018; Baker-Médard and Sasser, 2020), and ignores the history of colonization in the region. Madagascar is a former French colony, and during colonization France encouraged pronatalist policies, so that nation building could occur more rapidly (Baker-Médard and Sasser, 2020). A potential result from these policies is a higher than average fertility rate in Madagascar, at 6.7 children per woman (Erdman, 2014), which may not be adequately addressed through community fertility programs.

Therefore, the programs pose risks to stigmatize women for their sexual practices, and also involuntarily make women responsible for environmental conditions when environmental outcomes may not be effectively addressed at local levels (Baker-Médard and Sasser, 2020). Finally, these PHE programs may further colonial dynamics by stigmatizing the communities for demographic management, when the western nations where international NGOs are based do not address demographic issues, and who contribute greater to global and regional resource issues, including through demand for Madagascar's fish (Foster, 2014; Bendix and Schultz, 2018; Baker-Médard and Sasser, 2020).

The realized reproduction and future potential to continue to reproduce colonial, racial, and gender inequities through foreign NGOs simultaneously enforcing gender and racial disparities in decision-making, de-legitimizing local knowledge and management, and burdening coastal communities and women with regional resource issues, may undermine the legitimacy of MPAs and the Safidy program (Figure 4). Examples exist elsewhere of conservation organizations disrupting social settings and not adequately engaging with local and historic contexts effectively which actually backfire (Christie, 2004).

4.3 Case study 3: debt-for-nature swaps in Seychelles

4.3.1 Context

In 2008, Seychelles defaulted on payments of their \$406m national debt and had to be bailed out by the International Monetary Fund. In response, the Seychelles signed a debt-for-nature swap in 2015 with The Nature Conservancy (TNC). TNC took on almost \$22m of Seychelles national debt, on the condition of the creation of 13 new MPA's (Gerretsen, 2020).

MPAs cover 85% of Seychelles coral reefs and 88% of their shallow waters, and within MPAs fishing, oil exploration and other development is banned or severely restricted, though oil and gas development is still allowable in new "sustainable use zones" (Bolliger, 2020; Gerretsen, 2020). To ensure the long-term viability of the MPAs, TNC has established that all payments that the Seychelles government make toward the loan goes into a special trust, the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) to fund marine conservation and climate adaptation.

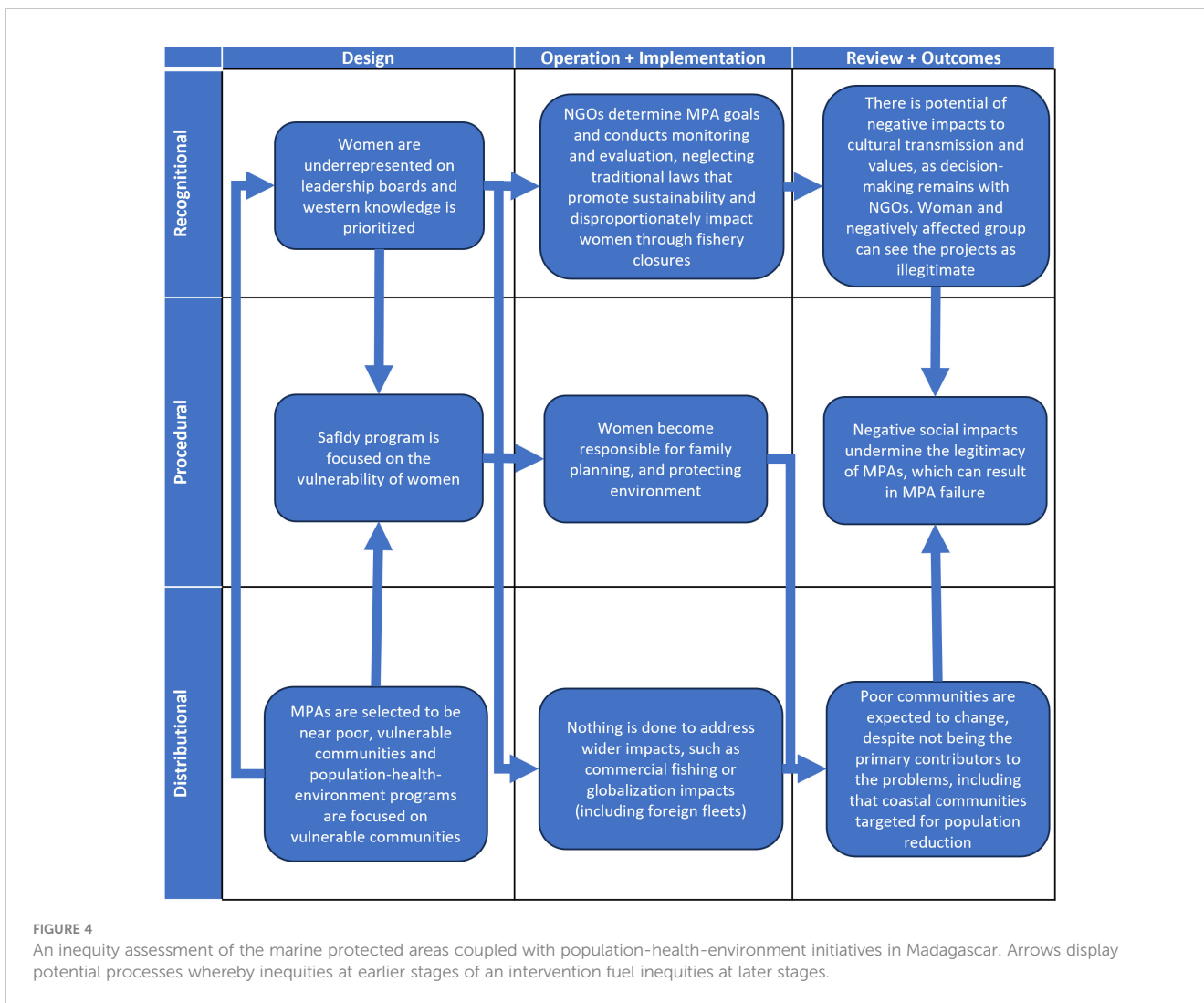
4.3.2 Assessment process

Debt-for-nature swaps have important implications for Indigenous communities (Knicley, 2012). Indigenous peoples commonly live in resource rich areas and are often politically marginalized, so these swaps can result in the inability of Indigenous peoples to access lands for the practice of their rights, or the actual displacement of Indigenous peoples from their lands, and they may not have a voice in the decision. Because of the unequal power relationships and differential restrictions applied to different sectors, we identify populations of interest for assessment to be Indigenous groups and fishers in Seychelles.

Debt-for-nature swaps carry greater human-rights risks than international loans. International loans can only be seen as permissible if they protect and do not undermine the human rights of peoples whose lives are affected by the loan (Hassoun, 2012). For example, if meeting the conditions of the loan prevents a debtor country from protecting its people from extreme poverty, the loan is impermissible. These considerations do not apply in debt-for-nature swaps.

These swaps are further criticized as they relate to sovereignty and the rights of Indigenous peoples (Knicley, 2012). In the 1980's many communities and commentators in South America declared debt-for-nature swaps to be external impositions resembling colonial control (Macekura, 2016). While foreign NGOs may not purchase areas, they still control how sovereign nations can use their own lands because NGOs supervise the use of funds by indebted nations, and act as official advisors for any programs developed and delivered (Alagiri, 1991; Knicley, 2012).

The level of protection of Indigenous rights varies between debt-for-nature swaps, but these interventions have been known to



work against Indigenous communities (Knicley, 2012). For example, the first ever debt-for-nature swap in Bolivia included no consultation with Indigenous people and displaced many from their lands in newly protected forests, as the debt-for-nature program determined that many Indigenous peoples’ traditional activities were detrimental to forest preservation (Alagiri, 1991).

In the case of the debt-for-nature swap in the Seychelles, there was limited transparency of consultation prior to the swap, though consultation occurred with fishers, petroleum companies, conservationists and tourism operators (Bolliger, 2020). Despite having been included in consultation, fishers felt that their voices had been diminished, and there is continued concern about the inclusion of petroleum companies and tourism operators in consultation as they can have outsized power to negotiate (Bolliger, 2020).

SeyCCAT has attempted to improve accessibility of the funds by providing applications in Creole, proactively approaching communities to apply, and offering training sessions on budget writing and project management (Commonwealth Secretariat, 2020). However, despite the efforts towards accessibility, the sovereignty of Seychelles is still constrained. Further, the process

seems inequitable to those most impacted by it (Bolliger, 2020). For example, there have been new bycatch law changes and new rules that make it more difficult for fishers to access fuel subsidies. In contrast, the inclusion of relatively powerful oil and gas voices in planning seems to have mitigated the limitations to oil and gas exploration and development, as regulation of these industries remains unclear (Bolliger, 2020) (Figure 5).

5 Implications

This proposal is of an inequity assessment focusing on historic context and power dynamics between the proponents of an intervention, those impacted by the intervention, and the broader societal context that the two operate in. As such, an equity assessment must critically consider not only the content and dynamics of the assessment process, but also the roles of who is doing the assessment (Singh et al., 2021). That is, in recognizing inherent power asymmetries and propensities for unaligned interests between those proposing interventions and those experiencing the effects of interventions, this equity assessment

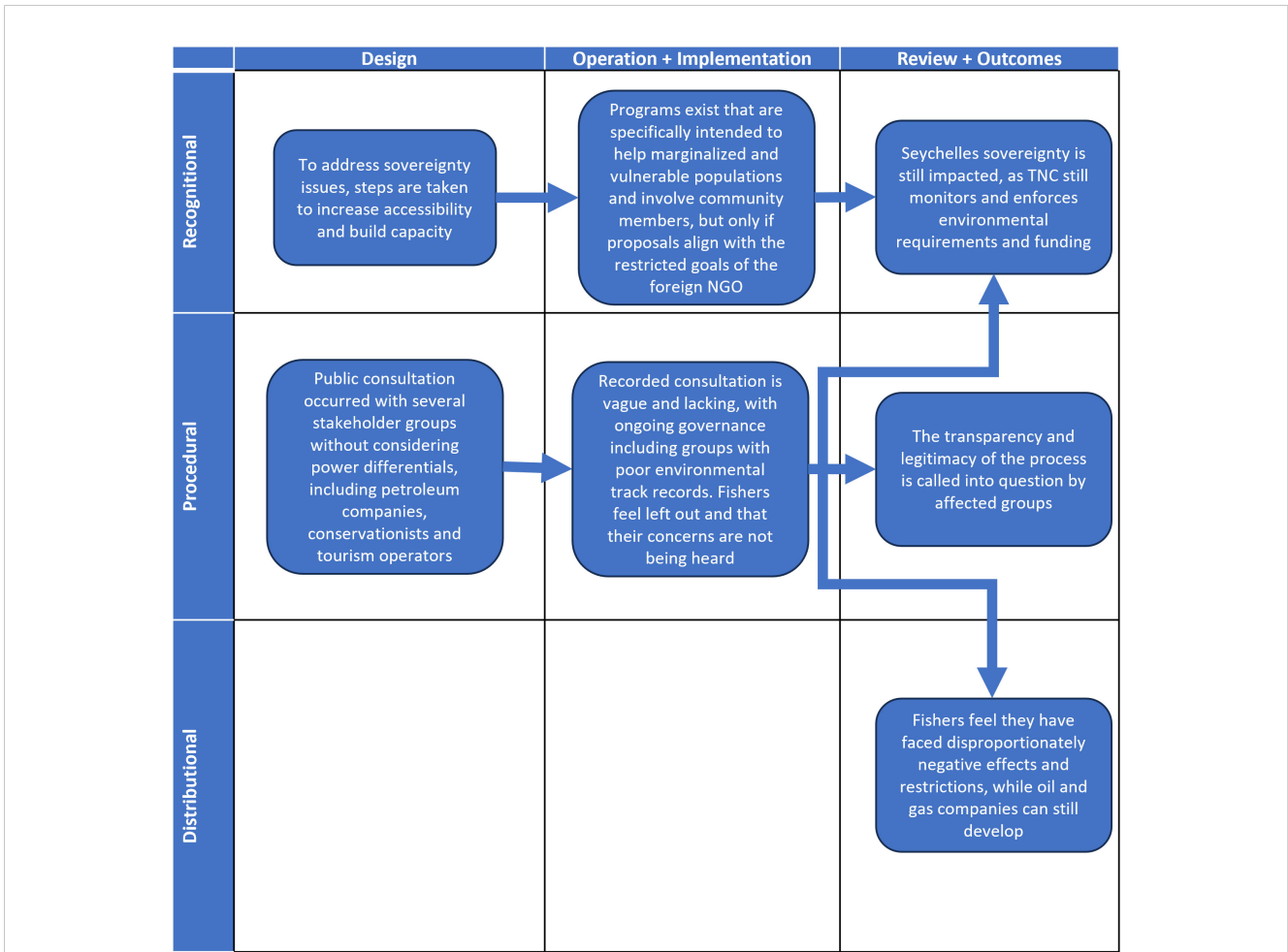


FIGURE 5
An inequity assessment of debt-for-nature swap project in Seychelles. Arrows display potential processes whereby inequities at earlier stages of an intervention fuel inequities at later stages.

cannot be a guidance equally applied by all actors, but rather care must be paid to the role of particular people in the assessment.

As a historically focused assessment largely generating a causal narrative of potential adverse effects (or reporting on experienced adverse effects), this framework is also not easily amenable to common indicator or scorecard style assessments (e.g. such as proposed by Hicks et al., 2016). Because what happens at early stages can influence what happens later stages, scorecards that allow for good practice in some criteria to make up for lackluster performance in other criteria may not easily map on to how inequities are experienced in real life. In fact, because this proposal is focused more on how inequities are experienced and not on generic best practices, this process may help planners determine context-specific best practices in order to avoid potential adverse effects.

The focuses on process and recognizing political asymmetry of this proposal may translate to difficulty in generating buy-in from proponents of interventions. Because this proposal effectively asks for power of assessment to reside outside of traditional expert

groups, taken on by affected communities and given up by proponents, this proposed assessment may be overlooked or may be applied only partially. It will also require capacity commitments for affected communities to take part, which will likely be costly and proponents may be unwilling to pay. Finally, this proposal hasn't laid out recommendations for how to mitigate or avoid potential inequities. Even if potential inequities are robustly forecasted or evaluated, inequities may still perpetuate because the assessment itself does not rectify power imbalances, and the already powerful may disproportionately benefit from any actions taken (Narchi, 2015). Nevertheless, the arguments of this proposal, that effective inequity assessment require consideration of power and history, effectively call into question the credibility and legitimacy of any assessment that does not adopt these considerations. Without considering power relationships and the dynamics of inequity through planning processes, assessments claiming to address social equity may just be equity washing development and conservation interventions.

6 Conclusions

Equity is enshrined as the overall aspiration of sustainable development, and yet there exists no systematic and repeatable processes for planning for and monitoring equity impacts of policy and projects on coastal communities. For interventions to effectively contribute to sustainable development, interventions must actively contribute to equity by addressing and confronting the kinds of systematic forces that produce inequities. By explicitly building a monitoring and planning tool aligned with key SDG goals, development and conservation interventions can more effectively contribute to global goals, and the overall aspiration “leave no one behind”. Conversely, to counter the trend for organizations to “equity wash” their projects and policies, accountability tools can help prevent organizations from potentially or even predictably contributing to inequities while claiming the impacts were unaccounted for, or to promise contributions towards equity without evidence.

While many development and conservation efforts may laudably act towards addressing some major global concerns, such as climate adaptation, conservation of coastal ecosystems, or debt relief for small islands, the lack of attention to equity in the planning can lamentably ask the global marginalized to shoulder the burden and pay the price on behalf of the rest of the world. Can such projects and policies be said to contribute to “the world we want”? Sustainable development has always been about equity, but only with methods employed to proactively confront inequitable consequences of interventions can we ensure that efforts to promote sustainable development do so.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary Material](#). Further inquiries can be directed to the corresponding author.

Author contributions

GS: Conceptualization, Formal analysis, Methodology, Project administration, Supervision, Visualization, Writing – original draft, Writing – review & editing. JK: Formal analysis, Investigation,

Methodology, Writing – review & editing. YO: Conceptualization, Funding acquisition, Methodology, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fmars.2023.1256500/full#supplementary-material>

References

- Adetayo, S. (2020). The ethics of state capture: Dangote and the Nigerian state. *Palgrave Handb. Afr. Soc. Ethics*, 371–388. doi: 10.1007/978-3-030-36490-8_21
- Ajibade, I., and McBean, G. (2014). Climate extremes and housing rights: A political ecology of impacts, early warning and adaptation constraints in Lagos slum communities. *Geoforum* 55, 76–86. doi: 10.1016/j.geoforum.2014.05.005
- Akhaine, S. O. (2012). *Encountering the Nigerian State* (New York: Oxford University Press).
- Alagiri, P. (1991). Give us sovereignty or give us debt: debtor countries' perspective on debt-for-nature swaps. *Am. UL Rev.* 41, 485.
- Alexander, K., Fleming, A., Bax, N., Garcia, C., Jansen, J., Maxwell, K., et al. (2022). Equity of our future oceans: practices and outcomes in marine science research. *Rev. Fish Biol. Fish.* 32 (1), 297–311. doi: 10.1007/s11160-021-09661-z
- Arora-Jonsson, S. (2011). Virtue and vulnerability: Discourses on women, gender and climate change. *Global Environ. Change* 21 (2), 744–751. doi: 10.1016/j.gloenvcha.2011.01.005
- Attaran, A. (2005). An immeasurable crisis? A criticism of the millennium development goals and why they cannot be measured. *PLoS Med.* 2 (10), e318. doi: 10.1371/journal.pmed.0020318

- Baker-Médard, M., and Sasser, J. (2020). Technological (Mis) conceptions: Examining birth control as servitization in coastal Madagascar. *Geoforum* 108, 12–22. doi: 10.1016/j.geoforum.2019.11.004
- Baskin, C. (2020). Contemporary indigenous women's roles: traditional teachings or internalized colonialism? *Violence Against Women* 26 (15–16), 2083–2101. doi: 10.1177/1077801219888024
- Belanger, Y., and Walker, R. (2009). Interest convergence and co-production of plans: An examination of Winnipeg's Aboriginal Pathways. *Can. J. Urban Res.* 18 (1), 118–139. <https://link.gale.com/apps/doc/A229218944/AONE?u=anon-2739ff94&sid=googleScholar&xid=b9f44ad6>
- Bell, D. A. Jr (1980). *Brown v. Board of Education and the interest-convergence dilemma*. *Harvard Law Rev.* 93, 518–533. doi: 10.2307/1340546
- Bendix, D., and Schultz, S. (2018). The political economy of family planning: Population dynamics and contraceptive markets. *Dev. Change* 49 (2), 259–285. doi: 10.1111/dech.12363
- Bennett, N. J. (2022). Mainstreaming equity and justice in the ocean. *Front. Mar. Sci.* 9, 873572. doi: 10.3389/fmars.2022.873572
- Bennett, N. J., Blythe, J., Cisneros-Montemayor, A. M., Singh, G. G., and Sumaila, U. R. (2019). Just transformations to sustainability. *Sustainability* 11 (14), 3881. doi: 10.3390/su11143881
- Berbés-Blázquez, M., González, J. A., and Pascual, U. (2016). Towards an ecosystem services approach that addresses social power relations. *Curr. Opin. Environ. Sustainability* 19, 134–143. doi: 10.1016/j.cosust.2016.02.003
- Berger, I. (2003). African women's history: Themes and perspectives. *J. Colonialism Colonial History* 4 (1). doi: 10.1353/cch.2003.0005
- Blank, R. M. (2005). Tracing the economic impact of cumulative discrimination. *Am. Economic Rev.* 95 (2), 99–103. doi: 10.1257/000282805774670545
- Blank, R. M., Dabady, M., Citro, C. F., and Blank, R. M. (2004). *Measuring racial discrimination* (Washington, DC: National Academies Press).
- Blue Ventures (2022). *What we do* (Blue Ventures). Available at: <https://blueventures.org/what-we-do/>.
- Bolliger, P. J. (2020). Seychelles: Beyond dramatic imagery. *Samudra Report* 82, 4–7
- Bond, A., Morrison-Saunders, A., and Pope, J. (2012). Sustainability assessment: the state of the art. *Impact Assess. Project Appraisal* 30 (1), 53–62. doi: 10.1080/14615517.2012.661974
- Briant Carant, J. (2017). Unheard voices: A critical discourse analysis of the Millennium Development Goals' evolution into the Sustainable Development Goals. *Third World Q.* 38 (1), 16–41. doi: 10.1080/01436597.2016.1166944
- Cho, S., Crenshaw, K. W., and McCall, L. (2013). Toward a field of intersectionality studies: Theory, applications, and praxis. *Signs: J. Women culture Soc.* 38 (4), 785–810. doi: 10.1086/669608
- Christie, P. (2004). "Marine protected areas as biological successes and social failures in Southeast Asia," in *American fisheries society symposium* (Bethesda, MD) 42, 155–164.
- Cisneros-Montemayor, A., Cheung, W., and Ota, Y. (2019a). *Predicting Future Oceans: Sustainability of ocean and human systems amidst global environmental change* (Amsterdam: Elsevier).
- Cisneros-Montemayor, A. M., Moreno-Báez, M., Reygondeau, G., Cheung, W. W., Crosman, K. M., González-Espinosa, P. C., et al. (2021). Enabling conditions for an equitable and sustainable blue economy. *Nature* 591 (7850), 396–401. doi: 10.1038/s41586-021-03327-3
- Cisneros-Montemayor, A. M., Moreno-Báez, M., Voyer, M., Allison, E. H., Cheung, W. W., Hession-Lewis, M., et al. (2019b). Social equity and benefits as the nexus of a transformative Blue Economy: A sectoral review of implications. *Mar. Policy* 109, 103702. doi: 10.1016/j.marpol.2019.103702
- Commonwealth Secretariat (2020). "Innovative financing – debt for conservation swap, Seychelles' Conservation and climate adaptation trust and the blue bonds plan, Seychelles," in *The Commonwealth Blue Charter*. Ed. C. Secretariat (London: Commonwealth Secretariat).
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *u. Chi. Legal J.* 139, 139–167. <http://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8>
- Crosman, K. M., Allison, E. H., Ota, Y., Cisneros-Montemayor, A. M., Singh, G. G., Swartz, W., et al. (2022). Social equity is key to sustainable ocean governance. *NPJ Ocean Sustainability* 1 (1), 4. doi: 10.1038/s44183-022-00001-7
- Crosman, K. M., Singh, G. G., and Lang, S. (2021). Confronting complex accountability in conservation with communities. *Front. Mar. Sci.* 8, 709423. doi: 10.3389/fmars.2021.709423
- Crowder, P. A. (2013). Interest convergence as transaction. *U. Pitt. L. Rev.* 75, 693. <https://ssrn.com/abstract=2792356>
- Delgado, R., and Stefancic, J. (2023). *Critical race theory: An introduction*. (New York: NYU press).
- Depelteau, J., and Giroux, D. (2022). LGBTQ Issues as indigenous politics: two-spirit mobilization in Canada. *Queerly Canadian: Introductory Reader Sexuality Stud.* 222, 222–237.
- DiPrete, T. A., and Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annu. Rev. Sociol.* 32, 271–297. doi: 10.1146/annurev.soc.32.061604.123127
- Eko Atlantic (2012). *Royal Haskoning: Enhancing Society. Environmental and Social Impact Assessment of the Eko Atlantic Shoreline Protection and Reclamation Project- A Summary* (Lagos: Eko Atlantic).
- Eko Atlantic (2022) *Prime Real Estate And Infrastructure in Africa*. Available at: <https://www.ekoatlantic.com/>.
- Environmental Law Research Institute (2021). "Eko Atlantic project report fact sheet," in *Environmental Law Research Institute* (Lagos: Environmental Law Research Institute).
- Epps, M., and Benbow, S. (2007). Community attitudes and perceptions of marine and coastal resources and sustainable management in southwest Madagascar. *Blue ventures Conserv. Rep.*
- Erdman, M. (2014). *Blue Ventures' Integrated PHE Initiative in Madagascar* (New Security Beat). Available at: <https://www.newsecuritybeat.org/2010/11/matthew-erdman-reports-on-blue-ventures-integrated-phe-initiative/>.
- FAO (2017). "The violation of human rights in the fishing sector," in *FAO dialogues*. (Rome: FAO).
- Feldman, S. M. (2011). Do the right thing: Understanding the interest-convergence thesis. *Nw. L. Rev. Colloquy* 106, 248. https://scholarship.law.uwyo.edu/faculty_articles/126
- Figuerola, I., Díaz, L. M. S., Satizábal, P., Noriega, G., and Mendoza, Y. V. (2023). Justice in fishing territories: Human rights violations in artisanal fisheries in the Constitutional Court of Colombia. *Rev. Estudios Socio-Jurídicos* 25 (2), 4. doi: 10.12804/revistas.urosario.edu.co/sociojuridicos/a.12518
- Foster, E. A. (2014). International sustainable development policy:(re) producing sexual norms through eco-discipline. *Gender Place Culture* 21 (8), 1029–1044. doi: 10.1080/0966369X.2013.810593
- Gerretsen, I. (2020). *The deal that saved Seychelles' troubled waters* (BBC).
- Gorris, P. (2019). Mind the gap between aspiration and practice in co-managing marine protected areas: A case study from Negros Occidental, Philippines. *Mar. Policy* 105, 12–19. doi: 10.1016/j.marpol.2019.03.006
- Hassoun, N. (2012). The problem of debt-for-nature swaps from a human rights perspective. *J. Appl. philosophy* 29 (4), 359–377. doi: 10.1111/j.1468-5930.2012.00573.x
- Heckler, N., and Mackey, J. (2022). COVID's influence on black lives matter: how interest convergence explains the 2020 call for equality and what that means for administrative racism. *Public Integrity* 24 (4-5), 364–374. doi: 10.1080/10999922.2021.2014203
- Hicks, C. C., Levine, A., Agrawal, A., Basurto, X., Breslow, S. J., Carothers, C., et al. (2016). Engage key social concepts for sustainability. *Science* 352 (6281), 38–40. doi: 10.1126/science.aad4977
- Hill, L. S., Johnson, J. A., and Adamowski, J. (2016). Meeting Aichi target 11: Equity considerations in marine protected areas design. *Ocean Coast. Manage.* 134, 112–119. doi: 10.1016/j.ocecoaman.2016.09.017
- Ireland, P. R. (2013). A macro-level analysis of the scope, causes, and consequences of homophobia in Africa. *Afr. Stud. Rev.* 56 (2), 47–66. doi: 10.1017/asr.2013.41
- Kelly, R., Foley, P., Stephenson, R. L., Hobday, A. J., Pecl, G. T., Boschetti, F., et al. (2022). Foresighting future oceans: considerations and opportunities. *Mar. Policy* 140, 105021. doi: 10.1016/j.marpol.2022.105021
- Klein, C., McKinnon, M. C., Wright, B. T., Possingham, H. P., and Halpern, B. S. (2015). Social equity and the probability of success of biodiversity conservation. *Global Environ. Change* 35, 299–306. doi: 10.1016/j.gloenvcha.2015.09.007
- Knicley, J. E. (2012). Debt, nature, and indigenous rights: Twenty-five years of debt-for-nature evolution. *Harv. Envtl. L. Rev.* 36, 79.
- Kuran, C. H. A., Morsut, C., Kruke, B. I., Krüger, M., Segnestam, L., Orru, K., et al. (2020). Vulnerability and vulnerable groups from an intersectionality perspective. *Int. J. Disaster Risk Reduction* 50, 101826. doi: 10.1016/j.ijdrr.2020.101826
- Kurlychek, M. C., and Johnson, B. D. (2019). Cumulative disadvantage in the American criminal justice system. *Annu. Rev. Criminol.* 2, 291–319. doi: 10.1146/annurev-criminol-011518-024815
- Lukacs, M. (2014). New, privatized African city heralds climate apartheid. *Guardian*.
- Macekura, S. (2016). Crisis and opportunity: Environmental NGOs, debt-for-nature swaps, and the rise of people-centred conservation. *Environ. History* 22 (1), 49–73. doi: 10.3197/096734016X14497391602206
- McEwan, C. (2008). *Postcolonialism and development* (London: Routledge).
- Meadows, D. H., Meadows, D. L., Randers, J., and Behrens, W. W. (2018). "The limits to growth," in *Green planet blues*. (New York: Routledge), 25–29.
- Merton, R. K. (1968). The Matthew effect in science: The reward and communication systems of science are considered. *Science* 159 (3810), 56–63. doi: 10.1126/science.159.3810.56
- Moura, G. G. (2017). *Guerra nos mares do sul: o papel da oceanografia na destruição de territórios tradicionais de pesca* (Sao Paulo: Annablume).
- Nagel, T. (2003). John Rawls and affirmative action. *J. Blacks Higher Educ.* 39, 82–84. doi: 10.2307/3134387
- Narchi, N. E. (2015). Environmental violence in Mexico: a conceptual introduction. *Latin Am. Perspect.* 42 (5), 5–18. doi: 10.1177/0094582X15579909
- Narchi, N. E., Cariño, M., Mesa-Jurado, M. A., Espinoza-Tenorio, A., Olivos-Ortiz, A., Early Capistrán, M. M., et al. (2018). El CoLaboratorio de Oceanografía Social:

- espacio plural para la conservación integral de los mares y las sociedades costeras. *Sociedad y ambiente* 18), 285–301. doi: 10.31840/sya.v0i18.1888
- Ota, Y., Singh, G. G., Clark, T., Schutter, M. S., Swartz, W., and Cisneros-Montemayor, A. M. (2022). Finding logic models for sustainable marine development that deliver on social equity. *PLoS Biol.* 20 (10), e3001841. doi: 10.1371/journal.pbio.3001841
- Pictou, S. (2020). Decolonizing decolonization: an indigenous feminist perspective on the recognition and rights framework. *South Atlantic Q.* 119 (2), 371–391. doi: 10.1215/00382876-8177809
- Pope, J., Bond, A., Morrison-Saunders, A., and Retief, F. (2013). Advancing the theory and practice of impact assessment: Setting the research agenda. *Environ. impact Assess. Rev.* 41, 1–9. doi: 10.1016/j.eiar.2013.01.008
- Poulsen, B. (2012). “Marine environmental history,” in *World environmental history* (Oxford: EOLSS Publishers).
- Rawls, J. (2020). *A theory of justice: Revised edition* (Cambridge MA: Harvard university press).
- Reimer, J., Glithero, L., Bodwitch, H., Ramachandran, A., Paul, K., Noisette, F., et al. (2022). *Towards a new ocean science : engaging with culture to promote sustainable development* (Ottawa: Canadian Commission for UNESCO).
- Rigney, D. (2010). *The Matthew effect: How advantage begets further advantage* (New York: Columbia University Press).
- Robinson, J. (2004). Squaring the circle? Some thoughts on the idea of sustainable development. *Ecol. Econ.* 48 (4), 369–384. doi: 10.1016/j.ecolecon.2003.10.017
- Robinson, J., and Cole, R. J. (2015). Theoretical underpinnings of regenerative sustainability. *Building Res. Inf.* 43 (2), 133–143. doi: 10.1080/09613218.2014.979082
- Robson, L., and Rakotozafy, F. (2015). The freedom to choose: Integrating communitybased reproductive health services with locally led marine conservation initiatives in southwest Madagascar. *Madagascar Conserv. Dev.* 10 (1), 6–12. doi: 10.4314/mcd.v10i1.S2
- Rodman, M. C. (1992). Empowering place: Multilocality and multivocality. *Am. anthropologist* 94 (3), 640–656. doi: 10.1525/aa.1992.94.3.02a00060
- Ryder, S., and Boone, K. (2019). Intersectionality and sustainable development. *Gender Equality Encyclopedia UN Sustain. Dev. Goals*, 1–11. doi: 10.1007/978-3-319-70060-1_51-1
- Said, E. W. (1979). *Orientalism* (New York: Vintage).
- Sen, A. (2001). *Development as freedom* (Oxford: Oxford Paperbacks).
- Singh, G. G. (2020). Determining a path to a destination: pairing strategic frameworks with the Sustainable Development Goals to promote research and policy. *Evolutionary Institutional Economics Rev.* 17 (2), 521–539. doi: 10.1007/s40844-020-00162-5
- Singh, G. G. (2022). We have sent ourselves to Iceland (With apologies to Iceland): changing the academy from internally-driven to externally partnered. *Front. Sustain. Cities* 4, 75. doi: 10.3389/frsc.2022.832506
- Singh, G. G., Harden-Davies, H., Allison, E. H., Cisneros-Montemayor, A. M., Swartz, W., Crosman, K. M., et al. (2021). Will understanding the ocean lead to “the ocean we want”? *Proc. Natl. Acad. Sci.* 118 (5), e2100205118. doi: 10.1073/pnas.2100205118
- Small, M. L., and Pager, D. (2020). Sociological perspectives on racial discrimination. *J. Economic Perspect.* 34 (2), 49–67. doi: 10.1257/jep.34.2.49
- Tafon, R. V. (2018). Taking power to sea: Towards a post-structuralist discourse theoretical critique of marine spatial planning. *Environ. Plann. C: Politics Space* 36 (2), 258–273. doi: 10.1177/2399654417707527
- Thomas, K. A., and Warner, B. P. (2019). Weaponizing vulnerability to climate change. *Global Environ. Change* 57, 101928. doi: 10.1016/j.gloenvcha.2019.101928
- Torre, J., and Fernández Rivera-Melo, F. (2018). Acción sin daño: un análisis de las intervenciones de una organización de la sociedad civil ambientalista en comunidades costeras del Noroeste de México. *Relaciones Estudios Hist. y sociedad* 39 (153), 69–97. doi: 10.24901/rehs.v39i153.391
- Tysiachniouk, M. S., Henry, L. A., Tulaeva, S. A., and Horowitz, L. S. (2020). Who benefits? How interest-convergence shapes benefit-sharing and indigenous rights to sustainable livelihoods in Russia. *Sustainability* 12 (21), 9025. doi: 10.3390/su12219025
- UN (2015). *Transforming our world: the 2030 Agenda for Sustainable Development* (New York, NY, USA: United Nations).
- UN High-Level Expert Group (2022). *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (NY, USA: United Nations New York).
- Wallace, M. (2015). From principle to practice: A user’s guide to do no harm. *CDA Pract. Learn. effective Int. action*.
- Westerman, K., and Benbow, S. (2013). The role of women in community-based small-scale fisheries management: the case of the southern Madagascar octopus fishery. *Western Indian Ocean J. Mar. Sci.* 12 (2), 119–132.
- Wiener, J. B. (1998). Managing the iatrogenic risks of risk management. *Risk* 9, 39.
- Williams, C., and Decker Sparks, J. L. (2023). Fishery improvement projects: A voluntary, corporate “tool” not fit for the purpose of mitigating labour abuses and guaranteeing labour rights for workers. *Mar. Policy* 147, 105340. doi: 10.1016/j.marpol.2022.105340
- Willson, A. E., and Shuey, K. M. (2019). A longitudinal analysis of the intergenerational transmission of health inequality. *Journals Gerontol.: Ser. B* 74 (1), 181–191. doi: 10.1093/geronb/gby059
- World Commission on Environment and Development (1987). *Report of the World Commission on Environment and Development: Our common future* (World Commission on Environment and Development).