



Research

A framework to guide research engagement in the policy process, with application to small-scale fisheries

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ABSTRACT. Research-engaged decision making and policy reform processes are critical to advancing resilience, adaptation, and transformation in social-ecological systems under stress. Here we propose a new conceptual framework to assess opportunities for research engagement in the policy process, building upon existing understandings of power dynamics and the political economy of policy reform. We retrospectively examine three cases of research engagement in small-scale fisheries policy and decision making, at national level (Myanmar) and at regional level (Pacific Islands region and sub-Saharan Africa), to illustrate application of the framework and highlight different modes of research engagement. We conclude with four principles for designing research to constructively and iteratively engage in policy and institutional reform: (a) nurture multi-stakeholder coalitions for change at different points in the policy cycle, (b) engage a range of forms and spaces of power, (c) embed research communications to support and respond to dialogue, and (d) employ evaluation in a cycle of action, learning, and adaptation. The framework and principles can be used to identify entry points for research engagement and to reflect critically upon the choices that researchers make as actors within complex processes of change.

Key Words: *action research; dialogue; governance; partnerships; policy reform; power*

INTRODUCTION

Governance of stressed social-ecological systems is complex for multiple reasons. Data are often scarce, particularly in low and middle income countries and marginal contexts. Capacity of state agencies is often limited relative to the scale and scope of the governance challenge (Morrison et al. 2020). Social demands typically involve distinct, if not competing, aims of livelihood improvement and poverty alleviation, economic growth and revenue generation, food and nutrition security, and conservation and ecosystem integrity (Jennings et al. 2016). In the case of small-scale fisheries (SSF), moreover, proximate and distal pressures on resources frequently stem from outside the sector (Andrew et al. 2007, Chuenpagdee and Jentoft 2019). As competition for resources intensifies, the geographic and political space that SSF occupy is often contested (Cohen et al. 2019). In inland systems, efforts to leverage land and water management for economic growth and climate adaptation often focus first on crop agriculture and industry, at the expense of SSF (Welcomme et al. 2010, Youn et al. 2014, McClanahan et al. 2015, Cooke et al. 2016).

Policy-engaged research has an important role to play in navigating such complex challenges toward resilience, adaptation, and transformation of stressed social-ecological systems. The SSF sector is a particularly useful social-ecological system in which to examine the role of research in this challenge because of a shared normative policy framework, the result of one of the most deeply participatory global efforts to guide sectoral policy development, the *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication* (FAO 2015, henceforth the SSF Guidelines). The SSF Guidelines recognize the competitive context and systemic nature of the challenges faced, the limitations of data, the diversity of

knowledge systems and values, and the consequent need to directly engage stakeholders, within the sector and beyond, to strengthen policies, institutions, and governance (Jentoft et al. 2017).

However, to undertake social-ecological research that is relevant and influential in policy decision making and reform, social-ecological researchers must recognize their roles not only as observers but also as actors within these complex change processes (Georgalakis and Rose 2019). In the domain of SSF in particular, the interactive fisheries governance framework calls for innovation in research and institutional partnerships “at local and national scales that facilitates interactive and transformative learning” (Said et al. 2019:417). Multiple research efforts have applied such principles to assess both the cross-scale interactions that affect the resilience and scope for transformation in SSF systems (e.g., Frawley et al. 2019) and comparative analysis to identify building blocks for governance reform (e.g., Rocha and Pinkerton 2015, Andrachuk et al. 2018). This is problematic because, although SSF research and development communities converge on the need for such engaged approaches, there remains a dearth of practical guidance on how to assess opportunities for responsive research engagement and design effective research partnerships. Addressing this void is important to increase the opportunity for impact, reduce dependency on external expertise, address local research needs, and enhance locally led research efforts (Stefanoudis et al. 2021).

In this paper, we address this gap by proposing a new conceptual framework to assess opportunities for research engagement in the policy process, building upon research on power dynamics and the political economy of policy reform. We retrospectively examine three cases selected to span geographies, one at national level (Myanmar) and two at regional level (Pacific Islands region

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and sub-Saharan Africa), to illustrate the application of this framework and highlight different modes of research engagement. We then draw from this analysis to articulate a series of principles for designing research that responds to and engages with policy and institutional change: (a) nurturing multi-stakeholder coalitions for change at different points in the policy cycle, (b) explicitly focusing on relations of power and spaces of engagement, (c) embedding ongoing research communications to support dialogue, and (d) employing evaluation in a cycle of action and learning to strengthen research engagement.

CONCEPTUAL FRAMEWORK

Policy and institutional change is a messy and nonlinear process (Brock et al. 2001, Abers and Keck 2013). Disparate stakeholders, with diverse values, interests, and agency, seek to influence policies and institutions in highly visible and also invisible ways (Morrison et al. 2017, 2019). Actors may draw upon research to build narratives in an often highly contested and politicized context (Raakjaer 2009, Dubois et al. 2016, King and O'Meara 2019). Researchers are not objective observers outside these networks or governance processes; rather, they are deliberately or unavoidably implicated in the construction, interpretation, testing, verification, and communication of policy and institutional knowledge (Flyvbjerg 2001). In the process of deciding how and why to engage in research oriented toward policy and institutional change, researchers must reflect upon the characteristics of the research itself and the ways it might link to broader decision-making processes.

On the basis of a systematic review, Belcher et al. (2016) identify four key factors that constitute research quality: relevance, credibility, legitimacy, and effectiveness. Relevance addresses the social significance and applicability of the research to key problems of policy concern. Credibility encompasses the traditional criteria of scientific rigor, including soundness in use of data, analysis, and presentation. Legitimacy, in addition to questions of research ethics and fairness, considers the equitable representation of stakeholder interests in the research process. These build upon the three factors proposed earlier by Cash et al. (2002), which addressed bridging the boundaries between science and policy. The fourth factor, effectiveness, is dependent upon the preceding ones.

Making the leap from research that is relevant, credible, and legitimate to research that is also effective in influencing policy and institutional change in purposeful ways requires that researchers develop an awareness of the political economy of the policy process, the relations of power within it including their own, and the ways that research may engage these. Unlike neoclassical approaches that see economic and policy processes as a series of rational decisions, an institutionalist political economy lens highlights the role of social norms, cultural biases, and institutional pathologies, making power, in turn, central in how policies are shaped, adopted, and enacted (Chang 2002). Consider, for instance, the distinction between *de jure* power, referring to the distribution of statutory authority, and *de facto* power, which is “possessed by groups as a result of their wealth, weapons, or ability to solve the collective action problem” (Acemoglu and Robinson 2008:268). Where the policy process is concerned, attention to both *de jure* and *de facto* power is essential in creating more inclusive policies that increase social equity and ecosystem resilience. An institutionalist political economy lens

that is sensitive to the dynamics of power is therefore a useful foundation for a framework that seeks to expand opportunities for research engagement in the policy process. This is because such a framework affords researchers the chance to point out the multiple contextual factors that shape policy decisions, while also making them aware of the power dynamics that constrain and open possibilities for influence.

To that end, we introduce here a framework to help guide critical reflection on the role of research and researcher engagement aimed at positively influencing policy and institutional change. The framework is intended for use by researchers whose work is relevant to policy and institutional change (including aspects such as biodiversity conservation, economic development, and food and nutrition security), as well as those whose work is oriented toward specific aspects of policy and governance. The framework is structured around three questions: (1) What phases of the policy process should researchers prioritize and address? (2) What policy spaces and places of engagement should researchers seek to enter? (3) What forms of power operate within and across these spaces and places that shape opportunities for research engagement?

What phases of the policy process?

Identifying opportunities to respond to and meaningfully influence policy requires first understanding the processes of policy design and implementation in any particular setting. A variety of frameworks have characterized sequential stages to the policy process, yet in practice the stages are rarely, if ever, sequential (Howlett et al. 2017). The “kaleidoscope model” introduced by Resnik et al. (2015, 2018), conceives phases of the policy process as shifting and overlapping rather than sequential, and capable of producing an infinite variety of patterns (thus the metaphor of a kaleidoscope). The five phases are:

- **Agenda setting:** This concerns the identification and prioritization of issues considered salient and worthy of policy attention. Distinct government ministries, parliamentary bodies, civil society networks, and industry associations may all be vying to shift this agenda. Influencing factors include explicit advocacy but also underlying norms and beliefs about whose voices matter (Sabatier and Jenkins-Smith 1993, Irwin and Michael 2003).
- **Design:** This entails connecting policy goals to particular instruments or tools meant to achieve selected objectives in support of those goals (Howlett 2019). Power dynamics affect “which interests groups will win and which will lose as a consequence of different designs, and how important they are in terms of their voting weight, financial clout, and ability to engage in mass mobilization” (Resnick et al. 2015:33).
- **Adoption:** The relative power of policy advocates and key decision makers, termed “veto players” (Tsebelis 2003), critically influences which policy instruments are ultimately adopted. Assessing this requires some familiarity with the incentives driving policy decision makers, who “must balance political consequences, policy objectives, administrative convenience, media attractiveness, and their own place in history” (Bridgman and Davis 2004:106).
- **Implementation:** Analysts of implementation capacity often focus exclusively on government agencies. Yet successful policy implementation requires networks that foster the

Table 1. Five phases of the policy process (Resnick et al. 2015, 2018) where there is a potential role for research engagement in the context of small-scale fisheries (SSF) governance.

Policy process phase	Description of issues relevant to this policy process phase in the SSF context	Potential roles for research engagement
Agenda setting	The concerns and priorities of individuals and communities most dependent upon SSF for food and livelihood are frequently marginalized from decision-making processes. ¹ A review of the research on SSF, for instance, reveals a significant quantitative data gap on the role of women, leading to both partial scientific understanding and an imbalanced view of what “representation” in a policy change process might look like. ² Stakeholders with greater economic or political influence, such as developers of coastal tourism and trade infrastructure, or inland hydropower and irrigation systems, are better positioned and often dominate the policy narrative. ³	Research choices can reinforce imbalances in the issues prioritized in the policy agenda or, alternatively, raise attention toward the perspectives and priorities of marginalized groups.
Design	If prompted by a crisis event, such as coastal redevelopment in the wake of natural disaster, ⁴ the policy instrument may be designed with speed and efficiency paramount. Conversely if the problem is a “chosen issue,” aimed at addressing a longer term or emerging challenge, there may be opportunity for a more measured and planned design process, such as the effort to apply the principles of the sustainable-livelihoods approach to SSF policy. ⁵	Research can undertake assessment of the potential outcomes of alternative policy design options, highlight underlying biases, and inform multi-stakeholder deliberation.
Adoption	For researchers analyzing the ecological, economic, social, or institutional dynamics affecting SSF, understanding the institutional, legal, financial, and political context for decision making can increase the chances of influence on policy adoption. These factors were critical, for example, in the partnerships between civil society, non-governmental organizations, and researchers that promoted adoption of a human-rights-based policy on SSF governance in South Africa. ⁶	Research can document and communicate the social distribution of anticipated costs and benefits from policy adoption and assist historically marginalized groups to increase their voices in influencing policy decisions.
Implementation	In SSF, many policies fail because of inadequate capacity and commitment on the part of government agencies at different levels, as well as inadequate capacity and commitment of community groups and civil society organizations. ⁷ Policy implementation should consider not only the objective resources available to support implementation and the skills of actors but also the alignment of values and interests that motivate collective action. ⁸	Research partnerships can aid in the assessment of institutional capacities needed for policy implementation and support capacity building among both state and non-state actors.
Evaluation and reform	Evaluation research may indirectly influence the availability of resources, for example, by influencing a shift in the policy agenda that translates into budgetary decisions. A more direct opportunity, however, concerns evaluation research that influences the ideas and beliefs of policy advocates and veto players, notably through well-grounded evidence on the progress and implications of policy implementation, challenges encountered or new opportunities identified, and lessons learned. In the SSF space, this includes sub-national or national outcome evaluation studies as well as cross-country comparative analysis. ⁹	Research engagement can help assess the outcomes of policy implementation, including the variety of outcomes in different geographies and for different social groups, and generate lessons to adapt or reform policy instruments.

¹Nayak et al. (2014), ²Kleiber et al. (2014, 2015), ³Morrison (2017), ⁴Ingram et al. (2006), ⁵Allison and Horemans (2006), ⁶Sowman et al. (2014), ⁷Jentoft (2005), ⁸Crosby (1996), ⁹e.g., Evans et al. (2011).

emergence of multiple types of leadership, across levels, inside and outside of government, with capacities to employ available policy instruments to achieve social and environmental goals (Westley et al. 2011, Evans et al. 2017).

- Evaluation and reform: Evaluation of past policy choices sometimes involves formal review. Decisions to modify or replace past policy decisions are also shaped by changes in ideas or beliefs of veto players; the availability of resources because some policy implementation requires considerable ongoing financing; and institutional shifts such as changes in political office holders (Resnik et al. 2018).

In Table 1 we identify the potential roles of research engagement throughout each of these five phases of the policy process in the context of SSF governance. These phases form the horizontal rows of the framework.

What spaces of engagement?

The concept of space is widely used in the political sciences with policy spaces defined as “the moments and opportunities,” institutional channels, discourses, actions, and interactions “where citizens and policy makers come together” (McGee 2004:16). If our interest as researchers is to respond to and foster evidence-based dialogue in policy decisions of public consequence, then we need to pay attention to the “substantial differences as to how different dialogue spaces emerge and

function ... who participates in such spaces and under what conditions” (Seufert 2017:5). For example, a formative evaluation of policy implementation may highlight implications for stakeholder groups typically marginalized in policy debates. Kawarazuka and Béné (2010), for instance, analyzed how redistribution of access rights to fishing opportunities for female-headed households had direct impacts on girls’ nutrition. Substantiating such connections can open space for new actors (in this case, those focused on girls’ health and nutrition) as legitimate participants in policy debate.

The spaces themselves may be “closed” (e.g., behind-doors negotiations) or “invited” (e.g., a formal policy dialogue or consultation process). They may be established or newly “claimed” or “created,” as in social movements that organize public demonstrations and occupy public spaces to demand attention to neglected priorities of marginalized groups (Gaventa 2006, Cornwall and Coelho 2007). These spaces are neither static nor neutral. Their emergence and function are shaped by power relations and must be considered in relation to one another because spaces are “constantly opening and closing through struggles for legitimacy and resistance, co-optation and transformation” (Gaventa 2007:216).

Paying attention to how different dialogue spaces emerge and function, including the role that researchers themselves play in how they are shaped, logically opens debates on the “places,” or

arenas, where social, political, and economic power resides. Effective engagement requires an understanding of these local, national, and/or global arenas (and their horizontal and vertical interactions) as locations of power that are constantly shifting in relation to one another. Choices over which places and levels for researchers to prioritize must also consider that research quality criteria of relevance, credibility, and legitimacy (Belcher et al. 2016) may be contested given the variety of stakeholder interests and agendas and valued differently in one arena compared with another.

What forms of power?

As we examine the relationships of place and space, we must also examine the dynamics of power that shape their functioning and composition. Despite everyone possessing and being affected by power, understandings are often contentious, with some seeing power as a zero-sum concept, while others see it as more fluid, with actors having the capacity to create, share, or use power in multiple ways. Gaventa (2006) posits that the forms in which power are expressed may be “visible” (e.g., policy declarations and rule-setting), “hidden” (e.g., setting or influencing the agenda), or “invisible” (e.g., shaping beliefs and values). Additionally, certain stakeholders may be “marginal” or more actively “marginalized.”

Attention to each of these forms of power suggests different strategies for empowerment (Pantazidou 2012). Although visible forms of power may be the most obvious, in the increasingly complex settings that are typical of modern governance, hidden and invisible power dynamics are equally important (Morrison et al. 2017). This includes, for example, the role of local bureaucrats in interpreting, selectively choosing to implement, block, or manipulate aspects of SSF policy and guidelines through rhetorical adoption, co-optation, or other techniques (Morrison et al. 2019, 2020).

The framework visualized

Figure 1 presents the three questions in visual form. Within each policy phase, there are options for engagement addressing the three forms of power. Each of these is further categorized according to spaces of engagement. Using this framework, when we speak of a “mode” of research engagement, we are referring to a research approach that is formulated with recognition toward its position in relation to the three questions: phases of the policy process, spaces (and places) of engagement, and the forms of power operating within and across these. The way the different modes of research engagement are categorized in Figure 1 illustrates the diversity of approaches a researcher may employ.^[1] The objective of this framework is to encourage researchers to consider, and then actively pursue, a suite of opportunities to increase the relevance and effectiveness of their research.

How each approach is categorized depends on the research context. Consider, for example, research to measure the distributional outcomes of fisheries co-management under regulations permitting leasehold concessions to communities on a provisional basis. Such an effort at “documenting evidence from local innovation,” as shown in the middle cell of Figure 1, can be undertaken in collaboration with civil-society organizations and that may be outside of the formal policy decision process (created or claimed space) as a way of influencing decisions concerning the feasibility of policy adoption (hidden power). But, in another

context, the same approach could be used to support the policy design stage, as part of an open forum convened by government (invited space) or as a component of commissioned policy advice (closed space). We have not aimed to show all possible combinations in the Figure; the point instead is to illustrate the range of options that researchers may consider, and the considerations that should go into that choice.

CASE ILLUSTRATIONS

To illustrate the utility and application of the framework, we explore three case studies that illustrate alternative modes of policy-oriented research engagement. The cases show how such modes of engagement are combined in practice, and how these choices influence the outcomes achieved. In each case, more than one mode was employed (simultaneously, or in sequence), illustrating the complementarity of efforts across different phases of the policy process. Each case describes collaborative research undertaken within the CGIAR Research Program on Fish Agri-Food Systems, a cross-regional initiative with an explicit focus on “public sector policy improvement and institutional strengthening” as a pathway to supporting resilient SSF (WorldFish 2016). These cases were selected because they illustrate differences in the focus and role of research, the modes of engagement, and the outcomes of influence on policy change and/or strengthening of public sector capacity for effective policy implementation (Table 2).

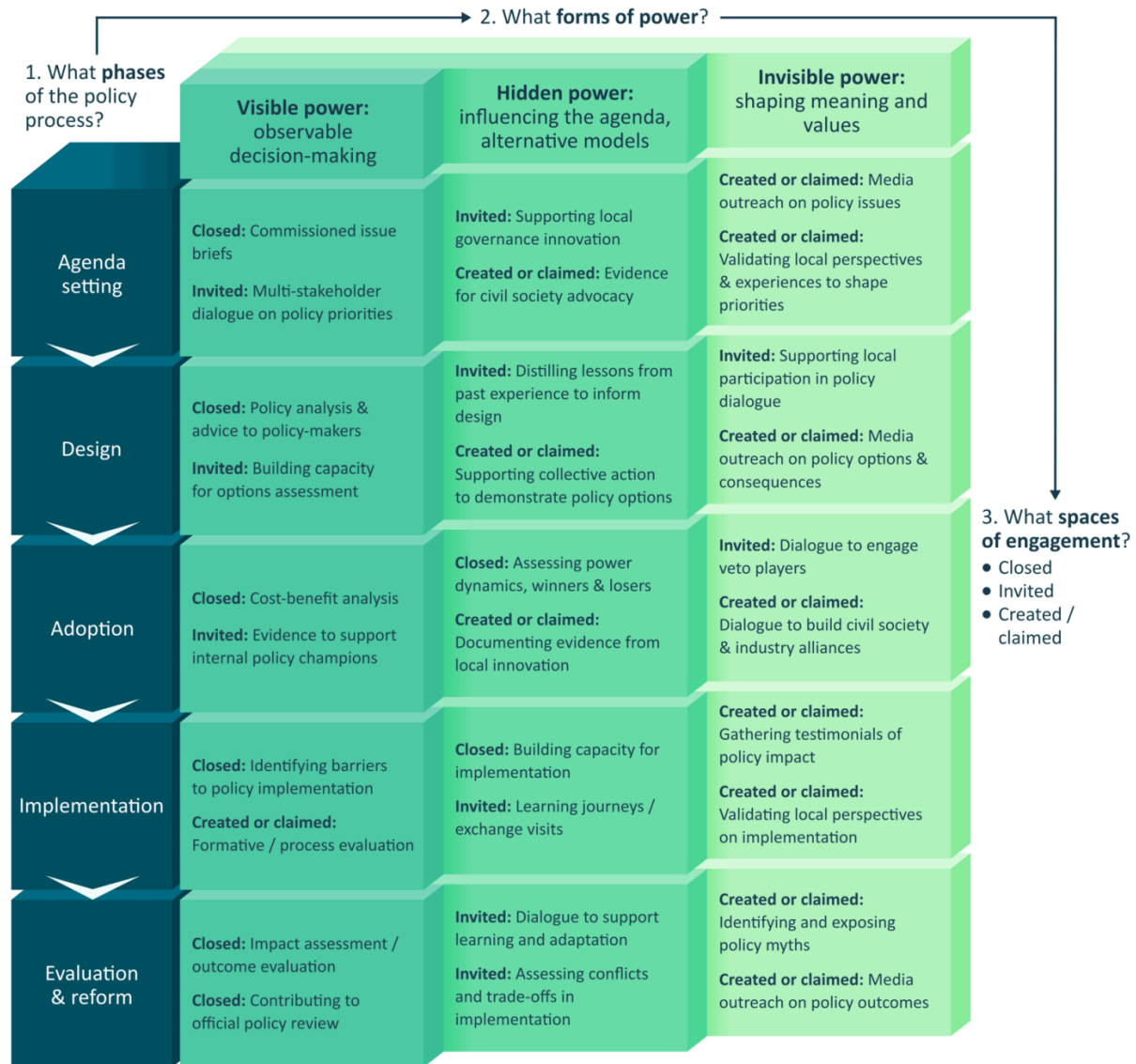
Myanmar Fisheries Partnership

The Myanmar Fisheries Partnership (the Partnership) was established in 2016 to bring together key actors across government, the private sector, and donor-supported organizations operating fisheries and aquaculture development projects in Myanmar. The Partnership was originally initiated by WorldFish, an independent, international research institution embedded within the offices of the Department of Fisheries (the Department). The emergence of such a coordination platform was made possible by the increasing political openness of Myanmar’s governing institutions at the time, in a context of unprecedented political transition (Tezzo et al. 2018).

In the case of freshwater fisheries, the Partnership served as a catalyst to the political and legal reforms that unfolded in the Ayeyarwady Delta, the most productive inland fisheries region in the country (Soe et al. 2020). Marked by decades of extractive economic policies, the country’s freshwater fisheries have been increasingly managed on a commercial basis through the auction of individual-based fishing rights (Tezzo et al. 2017), the latter prompting growing concerns about the sustainable access of smallholders to the resources (Reeves et al. 1999, Soe 2018, Campbell 2019). Despite the growing social movement contesting these resource developments and the increasing engagement of civil society with these issues, resource user concerns enjoyed little credibility and legitimacy with policy makers.

The initial focus of research engagement by the Partnership was policy agenda setting. Involving both formal ministry actors as well as researchers and activists, the deliberations engaged a mix of visible and hidden forms of power. Partnership members acknowledged a severe lack of basic data on the fisheries sector, a need to build a shared understanding of fishery issues and priorities to which policy might respond, and a need to improve coordination among a growing number of actors and initiatives,

Fig. 1. A framework to assess opportunities for research engagement in the policy process. Modes of research engagement are distinguished by (1) policy phases (rows), (2) forms of power (columns), and (3) spaces of engagement (labeled within cells). Examples in the table are illustrative of possible modes of engagement.



many of whom were externally funded. The first joint outputs included a series of policy briefs, aimed at identifying for the new government the status and priorities of the sector, and drawing upon the collective knowledge of Myanmar fisheries experts (Myanmar Fisheries Partnership 2016). The publication of these briefs was timed to coincide with the election of a new government committed to reforming natural resource governance.

Having achieved a level of recognition, the Partnership was then able to engage in both invited and newly created spaces to support policy design and adoption, thus addressing visible power more directly. In 2018, under the umbrella of the Partnership, the Network Activities Group, a local civil society organization, co-organized dialogues (created spaces) between the Department, fisheries communities, and regional authorities, bringing to the

fore issues of equity associated with fishing access rights in the Ayeyarwady Delta (Nyein et al. 2018). Echoing global efforts and building on similar experiences in the region, the Partnership encouraged the pilot-testing of community-based fisheries management as a more sustainable and inclusive alternative to commercial management.

That same year, the Ayeyarwady Delta lawmakers promulgated a new “Freshwater Fisheries Law,” officially acknowledging for the first time the right for fishing communities to officially register and participate as a group to the auction of commercial fishing rights (Ayeyarwady Regional Parliament 2018). Following this legal recognition and as a pledge of goodwill toward SSF research and advocacy efforts led by the Partnership, the Department decided to bypass the auction process for 500 fishing sites in 2019–

Table 2. Three cases of policy-oriented research engagement in small-scale fisheries (SSF). Each case is summarized in terms of the three dimensions of the framework in Figure 1.

Case	Policy phases and power dimensions	Modes of engagement	Key outcomes	Sources
Myanmar Fisheries Partnership	Phases: Primarily agenda setting and design, supplemented later by research on adoption and implementation. Forms: Mix of visible and hidden power. Spaces: Created and invited spaces, negotiated and co-organized with government.	Multi-stakeholder coordination platform supporting dialogue on policy priorities. Policy problem identification through jointly produced issue briefs. Distilling lessons through assessment of the leasable fishery domain.	Improved multi-scale and multi-level stakeholder coordination. Evidence from policy analysis informed national policy reform debates. Inland fishery policy experiments assessing the performance of community-based management of leasable fisheries, contributed to management options introduced in the Ayeyarwady Delta regional fisheries law (2018).	Myanmar Fisheries Partnership (2016), Tezzo et al. (2018), Khin et al. (2020); Interviews
Pacific Islands regional “New Song” strategy	Phases: Research influential in agenda setting and design; case primary focus on policy adoption and implementation. Forms: Dialogue events engaged visible and invisible power; Discourse analysis focused on invisible power. Spaces: Mix of closed and invited spaces, building alliances with government; supported by created spaces; first for agenda setting and design, and then for independent analysis.	Preceding adoption and implementation, long-term research engagement in the region influenced problem and solution definition, and legitimacy and credibility of research partners. Subsequent research to assess the “fit” between global, regional, and national policy frameworks and identify barriers to implementation. Dialogue and reflection engaging potential policy champions and veto players. Interviews and discussions with key policy makers to validate diverse perspectives and interpretations. Policy impact assessment.	Increased political commitment to regional coordination in policy design and implementation. Improved capacity to interpret and adapt global and regional policy frameworks at national level (evidence from 3 of 22 Pacific Island Countries and Territories, i.e., Solomon Islands, Kiribati, and Vanuatu) Improved commitment within implementing agencies to align strategies and policies to global SSF Guidelines, notably with regard to community-based resource management, community ownership of governance processes, and voice of small-scale fishers in decision making.	Cohen et al. (2017), Fudge and Hiruy (2019), Song et al. (2019a, b); Interviews
Africa Regional Fish Trade	Phases: All phases, through international comparative approach. Forms: Mix of visible power by engaging officials, and invisible power through analysis of outcomes and myths. Spaces: Emphasis on invited spaces, through intergovernmental forums, combined with created spaces for dialogue.	Regional, national, and local (community) policy dialogue. Evidence on trade patterns to support policy champions. Identification of barriers to policy implementation. Documenting evidence from local innovation. Media outreach.	Increased recognition of the importance of informal cross-border fish trade for nutritional outcomes and revenue generation, especially for women; and national economic development (gross domestic product). Harmonized regional fish standards, designed to formalize the informal fish trade and increased access to regional trade opportunities, especially for women. Capacity built for mutual recognition of the standards at national and subnational levels. Influence on national fisheries and aquaculture policies, e.g., in Malawi and Uganda. Increased investments by national governments, regional bodies, and donor agencies to facilitate cross-border fish trade.	SADC (2017), CGIAR (2018), Keeley et al. (2020); Interviews

2020, making it compulsory for officers to extend these fishing licenses to communities at their auction floor price (Ayeyarwady Regional Officer, Department of Fisheries, *personal communication*).

This legislative and political reform laid the foundations for subsequent research to monitor and evaluate the performances of experimental community-based fisheries management. The research supported the policy experiment with nearly real-time data on biological, social, and economic outcomes, building upon a participatory network for data collection and engaging university research partners across the region. Findings from this and other research efforts were shared in twice-yearly meetings by the Partnership, as well as through an online network explicitly designed to promote exchange of information in the fisheries sector.

Yet, this progress was ultimately overwhelmed by the military coup of February 2021. Military appointed Administration Councils swiftly replaced numerous civil servants across multiple government bodies, including the national-level ministries such

as agriculture and fisheries as well as agencies in the country’s 14 states and regions. The civil disobedience movement protesting the military takeover, in addition to mass street demonstrations, entailed tens of thousands of state employees refusing to work (Global Witness 2021, blog, <https://www.globalwitness.org/en/blog/three-months-military-coup-what-should-international-community-do-support-people-myanmar/>) and a boycott of military-owned and military-linked businesses. Perhaps partly in response to the loss of revenue resulting from such boycotts as well as international sanctions, recent reports state that the regime has amended section 8 of the Ayeyarwady Region Freshwater Fisheries Law, revoking provisions upholding the rights of communities to participate as a group in the auction of commercial fishing licenses and economic incentives to sustain their engagement, as well as for the creation of community fishery associations registered with township authorities.

This case provides evidence of the role of research and research coalitions in negotiating different stakeholder interests within newly claimed and invited spaces of engagement. It also

illuminates the dynamic and fragile nature of these spaces in the context of broader political upheaval, and the important roles that economic incentives and vested interests play in policy and regulatory reform.

Pacific Islands regional “New Song” strategy

A new song for coastal fisheries—pathways to change: The Noumea Strategy (SPC 2015), a Pacific regional policy, referred to as New Song, was drafted in 2014 under the auspices of the intergovernmental Pacific Community (SPC), which included the environmental and fisheries departments of the 22 Pacific Island countries and territories, intergovernmental agencies, funders, environmental and social non-government groups, and (albeit to a lesser extent) civil society that represented fishing and coastal communities (SPC 2015). This stood in contrast to the global SSF Guidelines that had been developed through extensive consultation with civil society organizations positioned centrally alongside the facilitator FAO, but had received relatively light input from Pacific Island (particularly non-governmental) stakeholders (Nisa 2014).

The New Song consultative process and the policy as an output were to a large degree guided by funding and agenda setting provided by the Australian government and WorldFish (as partly evident from the acknowledgments in the published version of the policy). The influential role may well have been enabled through their track record and legitimacy, established through long-term engagements in the region (Fudge and Hiruy 2019), and the credibility and relevance of the research they had provided in the years prior (e.g., summarized in Andrew et al. 2018). Nonetheless, the provision of funding and connections to powerful donors can be a particularly potent convener. The visible power was anchored and legitimized through the SPC as the formal convener and distributed amongst official representatives in attendance. Nonetheless, during the two days of discussion, research supporters and implementers achieved significant influence in agenda setting and ultimate design, in effect accessing both visible and invisible power within the invited space. A notable exception was the late inclusion of commitments to gender equality (because of the recommendation of an external reviewer who had not been present in the initial, physical invited space), a theme that had evaporated (*sensu* Longwe 1997) in the drafting process.

Subsequent research examined challenges and opportunities for policy adoption and implementation related to both the global (i.e., SSF Guidelines) and regional (i.e., the New Song) policy frameworks. Using textual analysis and interviews, this research elucidated areas of policy coherence and incoherence, and implementation strengths and weaknesses (e.g., Cohen et al. 2017, Song et al. 2019a). The aim was to produce guidance that would support adjustments to written policy and plans needed for effective implementation and governance. The research revealed how the understandings, judgments, and aspirations of officers at the national level mediate implementation, as they exercise their power to interpret policy (Song et al. 2019b). Further, the research highlighted the more basic factors (such as the level of staffing to address gender equity goals, or the number of partners to support community-based management) and can dramatically influence the degree to which implementation aligns with policy intentions (Lawless et al. 2020). Ultimately, this body of research has

achieved impact by supporting policy coherence through network-weaving and gender-based institutional change for sustainable small-scale fisheries across the Pacific.

This case illustrates the science-policy “bridging” role that research, and research actors, can play within the closed and invited spaces of formal policy deliberation and subsequently within created spaces, examining the less visible forms of power that influence the quality of policy implementation.

Africa regional fish trade

There has historically been strong political commitment among regional African agencies (e.g., African Union Commission 2014) toward enabling cross-border trade of commodities (e.g., grains, minerals) between countries. However, despite the importance of fish for food and nutrition security in Africa (Chan et al. 2019), cross-border trade of fish has been overlooked in formal statistics and largely ignored by policy and infrastructure investments (Obiero et al. 2019). The European Union-funded “Improving food security and reducing poverty through intraregional fish trade in sub-Saharan Africa” (FishTrade) project was designed to address the information gap through interdisciplinary research, inform and strengthen policy and regulatory frameworks, build capacities, and ensure the implementation of policies and procedures (Keeley et al. 2020).

Partners of FishTrade worked with country-level actors, within invited spaces of intergovernmental forums, and also actively created spaces for policy dialogue. Recognizing the need for empirical data to underpin an analysis of policy options, the project established a sustainable knowledge network of researchers and university partners across Africa (Keeley et al. 2020). These researchers undertook assessments to quantify and describe cross-border trade in four fish trade corridors that spanned 21 countries in sub-Saharan Africa. The research illuminated substantially greater volumes of fish and employment (i.e., compared to FAO statistics and national accounts) associated with cross-border trade, evaluated the impacts of existing policies, and exposed policy myth about the perceived (low) value of the sector and its importance to national and regional economies. The research also showed how informal participants in the sector, particularly women traders, were losing out because of the lack of visibility, regulation, and proper infrastructure (Ayilu et al. 2016, Mussa et al. 2017). Ultimately, the way in which the research was conducted and reported (i.e., by and to national and regional actors) helped set the agenda for multi-stakeholder dialogue on future policy priorities.

This emergent research motivated national government and regional stakeholders as well as donors to direct greater attention toward this informal sector, in turn influencing both agenda setting and design. An independent review of the project found that “government officials in Malawi and Zambia indicated that research from the project had completely changed their perception of the scale, importance and issues faced by informal fish trade, and would inform policy development” (Keeley et al. 2020:8). The independent review went on to report that research was put in the hands of policy champions, which enabled them to more effectively advocate for national reforms to support the intent of the regional policy framework adopted by the African Union (AUC-NEPAD 2014).

Implementing the research in partnership with Africa's regional development and agricultural governing agencies from the outset reinforced the legitimacy of the research, which in turn enhanced officials' receptivity to research findings. This led to the regional development agency collaborating to harmonize 11 regional fish standards that formalized and increased recognition to cross-border fish trade. Subsequently, a number of Southern African Development Community member states are internalizing these into national standards, a step that will facilitate mutual recognition with neighboring countries (SADC 2017).

The project also employed research to evaluate the feasibility and efficacy of the policy and regulatory reforms that were, in the first instance, applied in pilot cases. Preliminary research had identified that incongruent standards and practices were a major inefficiency in cross-border fish trade, so the project supported a pilot of a one-stop border post on the Kenya-Uganda border that was able to handle fish commodities, and simultaneously mounted a campaign on community radio so that fish traders were aware of the import and export requirements (WorldFish 2017), an innovation that has since been improved and scaled to the Zambia-Zimbabwe-Mozambique border (CGIAR 2018).

This case shows research engagement spanning all phases of the policy process with mutually reinforcing efforts at regional and national scales. The FishTrade project accessed a mix of visible power (engaging officials directly) and invisible power (analyzing myths and comparing policy intent to observed outcomes). Although emphasizing invited spaces, it also worked in creating spaces of power through dialogue outside the formal intergovernmental platforms.

DISCUSSION

The three cases reviewed here are examples of initiatives that sought to maintain and restore the resilience of social-ecological systems. These social-ecological systems deliver important benefits of livelihoods and food security, including discrete systems such as the Ayeyarwady Delta in Myanmar, as well as nested subsystems such as coastal fisheries of the Pacific islands. The cases also address adaptation to new threats and more fundamental transformation, particularly in the policy and regulatory context necessary to support system resilience at more local scales or to achieve a more equitable distribution of benefits (e.g., for women fish traders in Sub-Saharan Africa).

Each case represents a period within a longer term, ongoing cycle of research partnership, in which new challenges, opportunities, and outcomes continue to emerge. Yet, even at this juncture, the cases help illuminate certain guiding principles. Here we draw these lessons together, along with governance and social-ecological systems literature from beyond the fisheries domain, to develop a set of principles that if adopted would lead to more strategic, effective, and reflective approaches to research engagement in the policy process. The first pair of lessons speak to key elements of the framework we have introduced: engaging across different phases of the policy cycle, and across different forms and spaces of power. The second pair of lessons probe particular strategies for deepening the effectiveness of such engagement, through attention to research communications, and to processes of learning and adaptation.

Nurture coalitions for change at different points in the policy cycle

Although it is widely acknowledged that policy-oriented research can benefit from windows of opportunity to influence change (Olsson et al. 2006), these cases illustrate how a wide range of factors can create such opportunities, at multiple scales. The most direct is response to an explicit demand, as was the case in Myanmar, where a new government had raised expectations of policy reform without agreement on specific priorities. A general dissatisfaction with lack of coordination across research and development initiatives, a relatively weak fisheries governance system, and a past emphasis by the Department of Fisheries on revenue collection rather than sustaining and enhancing community access and ownership of resources were instrumental in mobilizing actors to engage in agenda-setting dialogue (Khin et al. 2020). The Myanmar Fisheries Partnership focused on establishing baseline data, analysis of policy challenges, and dialogue on policy options. This not only helped to build the legitimacy of the Partnership, it also nurtured relationships that helped institutionalize the principle of broad consultation on reform measures in the sector. Sadly, the return to military rule in Myanmar also illustrates how a more fundamental regime shift can quickly undermine such progress.

For Pacific Island officials, sensitivities concerning national sovereignty and self-determination were prominent, thus the importance of detailed work to "translate" the principles of the SSF Guidelines and the regional policy framework into more local concerns (Song et al. 2019b). This multi-year contribution to network weaving helped build the foundation for international action that moved from the areas of early consensus, such as increasing the lease rates charged to international firms for tuna concessions, to the more complex challenges of coastal livelihoods, gender equity, and conservation.

In the case of the FishTrade project, the focusing events were new policy announcements at the regional level. Yet, cultivating the engagement of policy officials required identifying more specific motivating factors in response to this broader agenda. For fisheries officials in sub-Saharan Africa, research presented an opportunity to build the case for investment in the sector (Keeley et al. 2020). This was a substantial shift away from the prior state, whereby the informal fish trade was poorly documented, underappreciated, and thus considered a low policy and investment priority in relation to other agricultural sectors. Convening policy officials from across the region also built commitment to harmonization of trade regulations and equipped them with evidence to influence national reforms in their home countries.

The cases also demonstrate how dialogue across stakeholder groups and scales can improve the breadth and legitimacy of research, generate knowledge necessary to design appropriate policies, and help build stronger alliances committed to policy adoption and implementation (Bodin 2017, Morrison et al. 2019). In Myanmar, this involved balancing effort between national agenda-setting and more local assessment of policy experimentation with the inland fisheries lease system. In both the Africa and Pacific regional cases, such dialogue entailed close collaboration between research institutions, national governments, and intergovernmental agencies to both set the policy agenda and align national efforts toward effective implementation.

Engage diverse spaces and forms of power

Identifying pathways for research influence requires understanding where and how policy decision making is conducted and the forms of power, visible, hidden, and invisible, that influence these decisions. It also requires attention to the spaces and places of engagement, including existing spaces, closed or invited, or new ones that are created or claimed at local, national, or global levels. Understanding the constellation of actors and alliances, their interests and values, and how these are shaped by relations of power, is pivotal (Irwin and Michael 2003). This extends beyond the spaces and places in which policies are shaped to include how the policy agenda is framed and implemented, and how results are evaluated (Brock et al. 2001).

Each of the research partnership cases described benefited from a prior history of engagement that enabled a considerable degree of access to formal, visible decision-making processes. In Myanmar, the choice to second government officials as long-term advisors in the research team enabled access and insight into ways to effectively navigate less-visible power relationships. In the Pacific, relationships of trust grew from the more conventional research advisory roles that WorldFish had played with the Pacific Community, but even more importantly from the long-term investment in capacity building, notably in the Solomon Islands, where former staff and research partners had risen in the ranks of government.

The Africa Regional Fish Trade project benefited from an even deeper history of personal engagement. The project leader had previously worked as head of the Partnership for African Fisheries at NEPAD, the flagship development program of the African Union. Having established these links and buy-in to the research process, the regional project was subsequently able to convene spaces for dialogue that included actors such as university research partners, national and state governments, regional economic communities, regional fisheries bodies, and representatives of fish trader associations, broadening the source of analysis and policy perspectives.

In each case, moreover, activities that reached beyond the formal decision-making channels expanded the possibilities for influence. These included local analysis of policy implementation challenges and outcomes, such as the work on the inland fisheries lease system in Myanmar, or the cross-border trade between Kenya and Uganda. They also included efforts to invite officials into more open spaces for reflection and exchange, such as a panel on fisheries policy in the Pacific, held amidst a global gathering on SSF. Although not a decision-making forum, this kind of dialogue space can be more conducive to revealing (and potentially influencing) the underlying meanings and values that motivate formal decisions. Researchers' efforts to cultivate trust with policy officials helped create and provide access to these spaces of power. Importantly, these created spaces also serve to build trust among those decision makers whose cooperation is essential to tackle the challenge of collective action, identified earlier as a central component of de facto power (Acemoglu and Robinson 2008). The Myanmar case also demonstrates that collaborative policy spaces and the policy outcomes they enable can be fragile and revoked at any time.

Embed ongoing research communications to support dialogue

In research communications, understanding the audience and tailoring the content and timing of messages is essential to building legitimacy and trust (Cairney and Kwiatkowski 2017). This is especially important when researchers seek to amplify and validate the voices and interests of historically marginalized groups. Attempting to speak truth to power before these elements are adequately understood belies the complexity and contested nature of what Long and Long (1992) term the "battlefield of knowledge."

The cases illustrate the critical role of knowledge and communication throughout the full research cycle, as an integral part of policy and institutional change processes. This includes early communications that serve to identify and refine the purpose of research engagement, which can help build early interest and commitment from key stakeholders. In the New Song experience, detailed policy analysis and interviews with officials were used as entry points to assess the differences in emphasis and interpretation that might yield barriers to implementation. In the FishTrade example, dialogue about the policy context preceded the choice of research focus, which helped secure subsequent commitment to harmonizing regional trade standards. Similarly, the Myanmar Fisheries Partnership provided a forum to identify key issues that became the focus of influential subsequent research, including on management of leasable fisheries in the Ayeyarwady Delta.

Multi-stakeholder dialogue, employing evidence drawn from collaborative research, can also serve to build commitment to joint action addressing shared challenges (Georgalakis and Rose 2019). For example, dialogue within the Africa Regional Fish Trade project examining trade-related policy pronouncements and commitments at regional and national levels led to the conclusion that there was no pressing need to focus on the formulation of additional policies. Rather, the critical challenge was the absence of means to implement existing policies. Thus, the development of harmonized standards at regional and national levels and capacity building for mutual recognition and enforcement of these standards were agreed as entry points to address the policy implementation gap.

Employ evaluation in a cycle of action and learning

Each of the preceding principles has implications as well for the design and implementation of monitoring and evaluation efforts to trace the influence of research on policy and institutional change. Key questions relate to how the principle is meeting its objectives: How effectively is the research nurturing stakeholder coalitions? How does the research engage with power? How is the research communicated to key policy actors and stakeholders? And what happens when a new constellation of policy actors emerge?

If asked early in the research process, these questions can aid the design of a theory of change and impact pathways for research engagement. The causal connections in these impact pathways can then be translated into hypotheses to track in monitoring and evaluation efforts, focused on intermediate outcomes and opportunities for learning to modify and refine plans for research in the policy process (Apgar et al. 2017a, b). The Myanmar Fisheries Partnership case illustrates this potential, where

evaluation of the early outcomes of a policy experiment can generate evidence regarding outcomes for fisheries sustainability and equity, as well as highlight challenges and opportunities that can improve the efficiency of future implementation. It also shows how the legitimacy, credibility, and salience of research can be and often is contested (King and O'Meara 2019) and how its effectiveness, in terms of policy influence, is shaped by powerful political actors and socio-economic forces.

Engaging key stakeholders and potentially new constellations of actors in collaborative analysis of the governance context in fisheries and aquatic resource systems (Ratner et al. 2013) can also help align subsequent collaborative actions. Research and dialogue under the Africa Regional Fish Trade project, for example, first contributed to a greater shared understanding of the linkages between national and regional governance and the impacts this has on both fish producers and consumers. The experience of academics and officials working together under a common dialogue platform can help identify additional priorities for investment, such as tackling gender-based discrimination against women traders. Where collaborative actions include the creation or improvement of multi-stakeholder platforms, monitoring and evaluation tools that facilitate joint reflection on the goals, lessons, and future ambitions of these platforms can spur performance improvements (Kusters et al. 2018).

Because policy and institutional change processes are inherently complex, context-specific, and contingent, it is typically not possible to create discrete before/after or with/without comparisons to measure the influence of research engagement in these processes (Mayne and Stern 2013). Neither is it possible to attribute policy and institutional change outcomes to research engagement alone. Instead, the goal is to document robust causal connections characterizing the contribution of research, and the mechanisms by which key outcomes have come about (Patton 2010, Georgalakis and Rose 2019). Typically, such documentation includes validation from the perspective of multiple actors, and attention to unanticipated outcomes, for which tools such as “most significant change” and “outcome harvesting” are appropriate (Paz-Ybarnegaray and Douthwaite 2017). Such approaches can help surface an understanding of opportunities for influence at unanticipated stages of the policy cycle, or through spaces of engagement that may not have been prioritized or visible at the outset.

CONCLUSION

The social-ecological research community increasingly recognizes that the ecological diversity of systems is mirrored by their social and institutional diversity, which also requires a nuanced attention to associated livelihoods and economic relationships (e.g., Chuenpagdee and Jentoft 2019). A similar perspective of complexity is needed to understand, and even more critically, to positively engage with, the dynamics of policy change and implementation that shape and influence development in the sector. This, we argue, requires an explicit focus on relations of power within these systems.

The framework we propose is an aid to developing and applying such a perspective, a strategic and structured way of asking questions at the beginning of and during the research process that may increase the likelihood of positive influence. A diverse menu of options can support strategic research engagement in policy

change and effective implementation. The sequence of questions outlined in this framework provides a means for researchers to practice the self-critical reflection on positionality in relation to the institutional and policy context that has been demonstrated as essential to policy influence (Marshall et al. 2017, Evans and Cvitanovic 2018).

The cases examined in this paper all focus on research partnerships that include direct, collaborative, and sustained engagement with a range of actors influential in and impacted by policy. It would be useful, for example, to compare these approaches to those focused on other actors (e.g., working with civil-society organizations that may take a more oppositional, advocacy stance in relation to government policy), or those in which the researcher chooses to actively disrupt the status quo in order to raise awareness of particular policy challenges or risks. Similarly, it would be helpful to compare efforts to highlight and raise the profile of SSF in policy domains where SSF is often given little regard, such as public health and nutrition, or in domains such as hydropower or coastal infrastructure development, where fisheries sustainability may be in sharp opposition to other economic development goals.

Finally, although this paper focuses on the SSF sector, the framework itself has broader application. SSF as a sector typically operates in the margins of policy and economic decision making, which has motivated engaged researchers to embrace complexity, interdisciplinarity, and an understanding of power dynamics. Such an approach has much to offer other sectors of agriculture and natural resource management that have in the past figured more prominently among national development priorities but now face increased pressure and competition. We hope our framework will aid comparative analysis of, and reflective practice to advance, engaged research in multiple policy sectors affecting resource governance, food security, and rural livelihoods.

^[1] In planning research engagement, it is also useful to consider the different places or levels of power, the third dimension of the power cube as summarized by Gaventa (2006). For simplicity of presentation, we have not included this in the visualization.

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Data Availability:

The data that support the findings of this study are openly available in MEL at https://mel.cgiar.org/user/journal_submission, reference number [<https://doi.org/10.7910/DVN/HKTK7B> and <https://doi.org/10.7910/DVN/F5MY5W>]. Ethical approval for this research study under ACIAR MYFish project & the European Commission-funded FishTrade for a Better Future project, were approved by the WorldFish Research Ethics Panel, Penang Malaysia.

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