



Towards defining the Blue Economy: Practical lessons from Pacific ocean governance



Meg R. Keen^{a,*}, Anne-Maree Schwarz^b, Lysa Wini-Simeon^c

^a State, Society and Governance in Melanesia Program, College of Asia and the Pacific, Australian National University, H.C. Coombs Building #9, Acton, ACT 2601, Australia

^b Australian National Centre for Ocean Resources and Security, University of Wollongong, Wollongong, NSW 2522, Australia

^c Solomon Islands Ministry of Environment, Climate Change, Disaster Management and Meteorology, PO Box 21, Vaviya Ridge, Honiara, Solomon Islands

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ABSTRACT

Governments and regional agencies of the Pacific Islands are strengthening their commitment to sustainable oceans management through proactive policies and programs. The Blue Economy concept is increasingly being invoked, yet clarity on definitions and implementation steps remain vague. This paper reviews reports, academic literature and regional speeches to develop a Blue Economy conceptual framework which is then applied to three case studies from the fisheries sector – small scale fisheries, urban fish markets and onshore tuna processing. The cases illustrate an imbalance in attention paid to key components of the Blue Economy and missed opportunities for integration across scales, time and stakeholders with a few noteworthy exceptions. Issues of power, agency and gender remain weakly addressed even in the most recent initiatives. While clearly defining components of the Blue Economy provides a valuable tool for assessing coverage of key elements of sustainable ocean management, it is less obvious that the new label, Blue Economy, significantly advances practice beyond existing sustainable development frameworks. A proliferation in terms adds more complexity to an already challenging management space. Nevertheless, the conceptual framework is useful for structuring evaluations of practice, and helping to reveal missing ingredients necessary for the sustainable development of oceans.

1. Introduction

Oceans, and the valuable resources they contain, are integral to the lives and identities of Pacific Islanders. Hau'ofa [29] in his seminal article *Our Sea of Islands* argued that it is the oceans and people's relations with them that define Pacific Islanders. A decade later similar sentiments are still being expressed by leaders in the region. In 2015, speaking in her role as Pacific Ocean Commissioner, Dame Meg Taylor described the ocean as central to Pacific lives: "it is our culture, our livelihood, our economy and, for many, the ocean is the mother of all things" [66].

Regional and national policy attention to oceans governance in the South Pacific has sharpened in response to increasing anthropogenic threats, mainly from population growth, intensifying resource use and climate change (c.f. [24,72,49,61]). In response, political leaders are putting oceans on national and international agendas, eager to maximize revenues, sustain livelihoods and minimize coastal vulnerability and ecological degradation. Recently, the leaders of the Pacific island countries (PICs) were instrumental in pushing to have oceans as one

goal of the 2030 Sustainable Development agenda [50,51].

Translating words into action, however, can be complex because of different interpretations of what sustainable oceans governance entails [57], the multiple jurisdictions in the region, and competing interests. In the South Pacific, twenty-two island states and territories share ocean resources with exclusive economic zones (EEZs) that cover an area roughly the size of Africa. Ocean resource management is complicated further by overlapping, and at times competing, institutional arrangements at national and regional levels. At the local level, national governments often fail to adequately resource the necessary governance and management frameworks. Few government agencies, at any level in the South Pacific, have the capacity to actively manage across their areas of responsibility [26].

Regionally and internationally, the PICs and their leaders have begun to invoke the Blue Economy concept (c.f. [44,65,69]) to capture the multi-sectoral and multi-scalar objectives of ocean governance. The Blue Economy aims to balance sustainable economic benefits with long-term ocean health [16,69], in a manner which is consistent with sustainable development and its commitment to intra- and inter-

* Corresponding author.

E-mail addresses: meg.keen@anu.edu.au (M.R. Keen), schwarzamj@outlook.com (A.-M. Schwarz), lysa.wini@gmail.com (L. Wini-Simeon).

generational equity [35,75]. The term has also been used to give greater recognition to the many, though often not priced, ocean values ranging from cultural worth and village-based subsistence economies, to commercial and industrial commodities [30]. Under this definition not all ocean-based activities are consistent with the Blue Economy concept, because many ocean activities are not sustainable.

This paper examines the Blue Economy concept as an analytical frame for assessing initiatives aimed at achieving sustainable oceans development and management, with a particular focus on fisheries as an example of an important sector within a Blue Economy. Fisheries represent an essential economic sector for many PICs. Using existing literature, a Blue Economy conceptual framework is developed and then a case study approach used to assess its utility in analyzing fisheries management and development issues and opportunities. The case studies are drawn from Solomon Islands because of its heightened attention to fisheries and oceans policy in relation to other South Pacific countries. It has recently revised its fisheries legislation, is exploring the development of a national oceans policy, and has a vibrant fishery sector which involves multiple stakeholders operating at different scales. The policy implications of a rapidly evolving Blue Economy, across multiple sectors, are highlighted.

2. Study method

Despite the Blue Economy concept being increasingly invoked as an ideal, it is not well conceptualized with an explicit mapping of its key components, and hence its utility to date has been more conceptual or political, than practical. Literature, policy documents, and speeches by leaders in the South Pacific, are used to map out key components of the Blue Economy in a conceptual framework. The framework is not exhaustive, but rather indicative of the objectives and values of the Blue Economy as regionally defined. As a conceptual framework its utility is heuristic—a means to stimulate discussion that can enable researchers and practitioners to better understand, assess, evaluate and, if necessary, contextually modify, the Blue Economy concept and its implementation for the sustainable development of oceans.

A case study approach was considered most suitable to the exploratory nature of this research [17], and the research aim to examine contemporary approaches taking account of context [79]. Case studies also provide rich and nuanced insights into how policies and regulations are implemented, and the real world political-economy factors affecting practice [21]. This approach is also well suited to data poor areas of inquiry where more in-depth understanding is captured through a combination of observation, interviews and document analysis.

Three case studies were conducted, based on an “information-oriented selection approach” which aims to maximize the utility of information from a small selection of cases [22]. To achieve this, the case studies varied on one core element, scale. They include small-scale fisheries management (local), national fisheries markets (national, linking rural-urban areas), and industrial fisheries development (national – international)—these being priority areas for national development in Solomon Islands. The case studies are used to examine how linkages work across jurisdictions, across agencies (horizontal integration) and between levels of governance (vertical integration).

This article draws extensively on published literature and reports to analyse the cases using the Blue Economy framework. This was complemented by local insights. Two of the authors are well placed to observe the evolving ocean management processes in Solomon Islands, being employed in the local fisheries and environment sector. The authors also validated findings with local experts to gain further insights.

3. The Blue Economy conceptual framework

The term ‘Blue Economy’ first gained traction in PICs in 2011,

largely as a complement to the ‘green economy’ concept – a discourse where ecosystems integrity is embraced as being fundamental to sustainable socio-economic resource use [57]. The Blue Economy, while a relatively new term, is reflected in regional initiatives aimed at sustainable oceans management. For example, the Pacific Islands Regional Ocean Policy [59] and the Framework for Pacific Oceanscape [49], never explicitly mention the Blue Economy, but do espouse some of its values, calling for improved oceans governance through the sustainable use of ocean resources, the better coordination of management across scales and time, and the protection of oceans’ cultural and natural integrity.

The specification of ‘blue’ makes explicit the focus on oceans, as opposed to land-based resources. For PICs, the Blue Economy refers to the sustainable management of ocean resources to support livelihoods, more equitable benefit-sharing, and ecosystem resilience in the face of climate change, destructive fishing practices, and pressures from sources external to the fisheries sector (Pacific SIDS 2011). The ideas are not new to the region, Pacific islanders have been implementing elements of coastal resource management for thousands of years through traditional practices like harvesting limitations, closed seasons, limited use rights, and the protection of ecologically and culturally significant sites [32,55].

In this context, the Blue Economy concept does not sit comfortably with conventional definitions of economy (c.f. [74]) with their focus on production and allocation processes. Instead, ecological economics definitions with their greater emphasis on scale, context and socio-ecological relations are better aligned:

“... the interaction and co-evolution in time and space of human economics and the ecosystems in which human economics are embedded. It uncovers the links and feedbacks between human economics and ecosystems, and so provides a unified picture of ecology and economy” [78].

Using the ecological economics lens to better define the Blue Economy term makes it more compatible with sustainable development concepts promoted in the region and by UN agencies that strive to integrate ecological, social and economic systems (c.f. [70,75]).

The Blue Economy focus on the sustainability–food security–economic development nexus is relevant in the region where reliance on subsistence fisheries is high, and revenues from national fisheries can generate as much as 68% of GDP, for example Kiribati [31]. Fish make up 50–90% of the animal protein intake [7] in PICs and artisanal fishing provides the primary or secondary source of income for up to 50% of households [61]. As pressures mount from current and new economic activities, as well as changing demographics and climate, concerns about sustainable use of oceans are coming to the fore, with some pushing for better local access to the revenues from ocean based activities [28].

The examination of the Blue Economy presented here draws on many key policy framework documents from the South Pacific aimed at achieving more sustainable ocean management. A sectoral example includes a Regional Roadmap for Sustainable Pacific Fisheries produced by two regional agencies—the Pacific Islands Forum Fisheries Agency (FFA) and the Pacific Community (SPC) which outlines goals and indicators for sustaining fish stocks, livelihoods and food security, and is monitored through an annual fishery report card [62,63]. Multi-sectoral frameworks include the SAMOA Pathway (2014) which incorporates an oceans agenda in its broader sustainable development framework, calling for actions to sustain ecosystem services, livelihoods, economic development and food security. It promotes the importance of institutional integration across national, subregional and regional scales, and better, cost-effective monitoring and surveillance.

These themes are also strongly reflected in more targeted papers and strategies such as the regional technical paper for biodiversity beyond national jurisdiction [47], and the Noumea Strategy [61] for

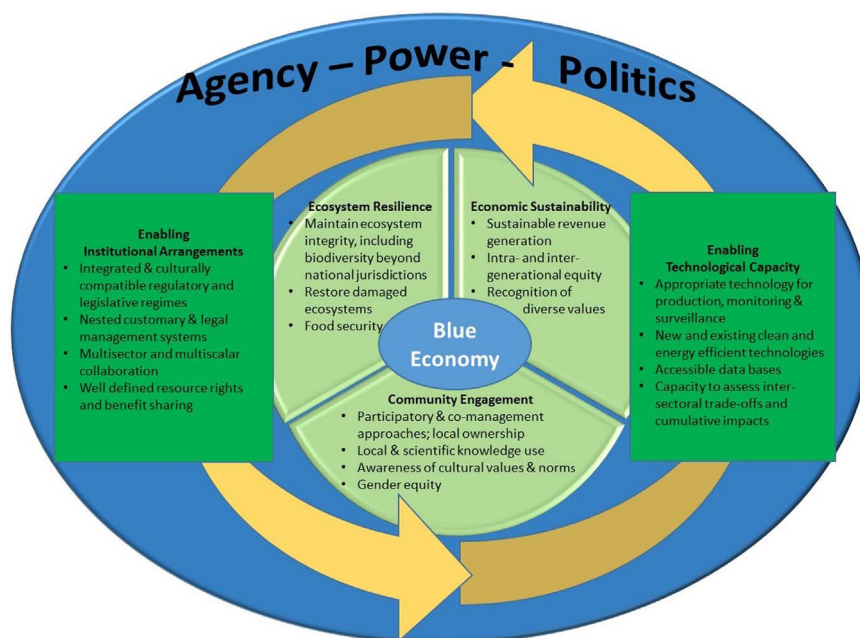


Fig. 1. Representation of the core components of the Blue Economy.

coastal fisheries with its desired outcomes relating to: sustainable livelihoods, empowered communities, knowledge sharing, integrated institutional arrangements across scales, and equitable benefit sharing.

Fig. 1 represents five components of the Blue Economy: ecosystem resilience, economic sustainability, community engagement, institutional integration and technical capacity. Ecosystem resilience, economic sustainability and community engagement are directly derived from the Blue Economy's roots in the sustainable development literature, referred to here as core components. Maintaining *ecosystem resilience* is key in the South Pacific where the carrying capacity of ocean ecosystems is under strain from stressors which span the local to global scales, and can lead to cumulative and cross-jurisdictional impacts. *Economic sustainability* encompasses village livelihoods, as well as commercial activities which generate jobs and government revenue. Completing the core trio is *community engagement*, particularly vital given the lack of reach of central governance systems, the high proportion of rural populations dependent on marine ecosystems [39], and the pervasiveness of customary marine tenure [32].

Institutional arrangements and *technological capacity* are considered to be enabling components of the Blue Economy because they can facilitate the achievement of ecological, economic and social sustainability. Currently, institutional arrangements are failing to adequately manage the competing uses of ocean environments in PICs and to boost intra- and inter-generational equity [27]. Community-based management is often relied upon to sustain activities in the Blue Economy, but needs better integration between levels of management, and customary and formal arrangements [41–43]. Improved *technological capacity* can improve efficiency, knowledge generation and sharing, and monitoring and surveillance. In some cases, when combined with effective management, technological innovation enhances productivity, for example nearshore fish aggregating devices [2,7].

The five components, outlined above, sit within a wider political and cultural context. Relationships, agency and power dynamics among resource owners, users and elites, determine resource access and management capacity by shaping institutional arrangements (that is the rules, regulations and enforcement efficacy) and who exercises power. The resulting institutions can be formal (and legally enforceable), or informal with their roots in culture and tradition. Where management regimes are weak, powerful elites – political, non-

governmental and commercial – can set resource exploitation agendas. When this occurs development outcomes depend not only on capacity, resources and performance, but also “critically on the balance of power between the classes and groups affected by that institution, that is on the political settlement” [33].

Drawn together and depicted in Fig. 1, it is clear that the Blue Economy concept is an extension of sustainable development frameworks, but with a stronger ocean focus. The way in which the Blue Economy is interpreted by PICs puts a greater emphasis on social and cultural sustainability than other regions (c.f. [16,45]) because of the prevalence on customary marine tenure and strong cultural ties to ocean environments. The Blue Economy framing also gives greater attention to enabling institutional arrangements, power relations and the influence of external agents than conventional sustainability models because of the mounting pressures being felt by small island states. By applying the Blue Economy framework to the case studies to follow, this article assesses its practical value for evaluating the sustainability of ocean activities.

4. Solomon Islands: Blue Economy under pressure

Solomon Islands consists of almost 1000 islands covering a total land area of 28,000 km² (Fig. 2) and in the most recent census (2009) had a population of approximately 516,000 people [57], with more recent estimates reaching 640,000. The population is increasing rapidly, 2.4%, with its capital city, Honiara, growing at almost twice this rate – an urban growth rate which exceeds all others in the region. This rapid growth coupled with service shortfalls and low levels of economic development contribute to Solomon Islands poor development performance – it is ranked 142 out of 187 countries on the Human Development Index [67].

The country boasts one of the most diverse coral reef systems in the world [63]. Eighty percent of the population is rural and rely heavily on agriculture and small scale fisheries (SSF) as the main sources of food and income. Fish is the primary source of animal protein in the region [3,7]. But rapid human population growth, climate change and market pressures are degrading reef fisheries to the point where by 2030 they will not be able to meet future demands [7]. National government agencies across relevant sectors lack the resources, capacity and often will, to manage competing values and priorities in coastal fisheries

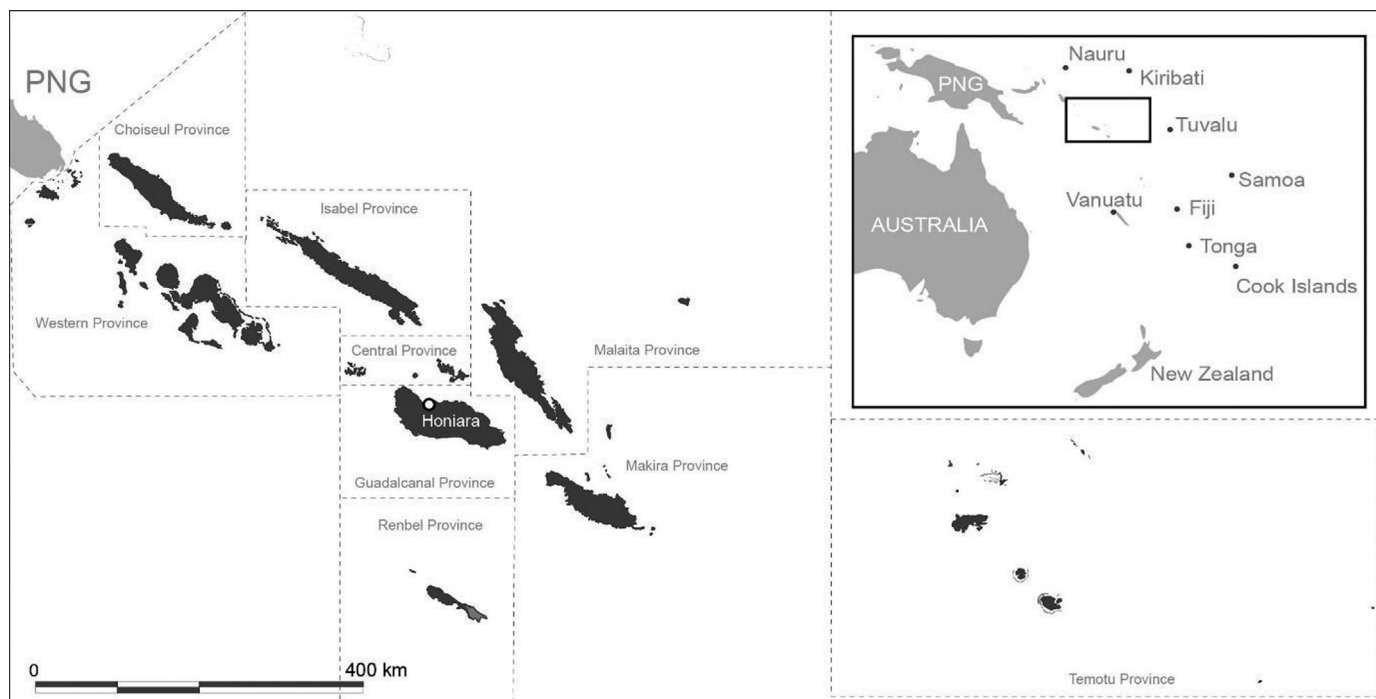


Fig. 2. Location of Solomon Islands.

[26]. There is growing evidence that food security for cities is coming at the cost of ecosystem integrity in rural areas [10].

Recently, there have been steps to strengthen the sustainable use of coastal and ocean resources using principles that align to the identified components of the Blue Economy. For example, the Fisheries Management Act (FMA) spells out 18 principles that are compatible with key FAO [19] guiding principles for an Ecosystem Approach to Fisheries Management (EAFM) and so create some loose vertical linkages between local and global level governance, and integrate social, ecological and economic goals. Recognizing that many sectors have a stake in the coastal and oceanic environment, Solomon Islands is also in the early phases of developing a national policy for integrated oceans governance by engaging multiple stakeholders and agencies in ocean planning.

At a national Ocean Summit held in June 2015, participants recognized that the increasing reliance of many sectors on the ocean for economic benefits may come at the expense of ecosystem integrity. The Summit developed a vision for a 'healthy, secure, clean and productive ocean which benefits the people of Solomon Islands and beyond' (Solomon Islands Ocean Summit Communique, 2015). To progress the vision, ocean planning will be coordinated through a ministerial working group referred to as Oceans 12+, referring to 12 government ministries and other stakeholders.

Currently, policies are not well integrated with little vertical or horizontal integration between, and within, agencies. Key challenges for the Ocean 12+ process are: clarifying rights and jurisdiction over the ocean space; integrating legal frameworks with informal ones such as customary marine tenure; dealing with outdated and sector specific legislation, and managing external pressures on ocean environments. The implications of pursuing integration across sectors and the necessary trade-offs that might entail are only just becoming clear. To better understand some of these trade-offs and issues on the ground, this article now turns to an examination of three cases.

5. Putting the Blue Economy into practice: case studies

The cases selected have been functioning for decades and are considered locally to be relatively successful either in terms of

ecological or socio-economic outcomes (although there are still opportunities for improvement), in line with thinking that there is often less to learn where things have not worked well [46]. The first is the case of SSF management which operates largely at the local scale, but has links to provincial and national scales of governance and economy. The second is the case of the fish markets in the capital city, Honiara. These markets are a magnet for fishers from provincial coastal areas and are significant drivers of harvesting, as well as sources of income. The third case is that of the national tuna fishing fleet operating from Noro, Western Province. The fleet and the onshore processing facilities are greatly influenced by regional management regimes given tuna's migratory nature, global markets (e.g. EU markets for products), and internationally recognized certification processes which are the gateway to lucrative Western markets.

5.1. Case 1. Small scale fisheries management and development

The subsistence and coastal-commercial catches for local markets in Solomon Islands are poorly quantified and published estimates vary. In the most recent repudiable estimate for 2014, the subsistence and coastal-commercial catches were valued at USD\$32.5 and USD\$12.5 million respectively [24]. The high value of subsistence fisheries is rarely quantified, despite its core importance to sustainable and equitable development. Management of coastal resources is largely decentralized; eighty percent of coastal resources fall under customary marine tenure (CMT), a common property system in which particular groups of local people have informal or formal rights to coastal areas, and historical rights to use and access marine resources [53]. CMT is recognized in the Solomon Islands constitution [38] and the Fisheries Management Act (2015) as an important foundation for SSF management. However, factors external to communities and fisheries such as socio-economic changes and the growth of urban and global market opportunities have weakened CMT's effectiveness for enforcing rights and limiting exploitation [52].

Nevertheless, CMT and the traditional practice of customary owners restricting access to certain fisheries has underpinned contemporary conservation and resource management initiatives supported by organizations working in partnership with communities since the

1980s [12]. Drawing on co-management principles [48], there has, in recent decades, been a shift from a primarily Marine Protected Areas (MPA) approach based on external and often exclusionary conservation premises (e.g. [6]) to regionally-initiated locally managed marine area (LMMA) approaches [15,25]. LMMAs are described locally as community based resource (or fisheries) management (CBRM). This approach is based on a mix of scientific and traditional knowledge, and locally developed access rules recognized and supported by higher level institutional arrangements. There are now more than 250 community managed areas in Solomon Islands¹ ranging from traditional short-term closures to communities with formal written management plans developed with partners and recognized beyond the community [13,41].

Typically, CBRM initiatives include: broad and inclusive participation (including women, youth and resource owners and users); the application of both scientific and local knowledge; diversification of livelihood options, and the involvement of provincial government and appropriate national ministries, mostly through existing formal and informal networks (for elaboration see: [75,55]). It is consistent with Melanesian research findings that adaptation of customary tenures may be more appropriate for resource management than mere imposition of external models [18,34]. Even so, local elites bend rules to increase their or their supporters' access; institutional arrangements are not always enforced at higher levels; decision making often excludes women; and, external pressures from outside fishers and climate change can overwhelm local management initiatives.

Community management priorities commonly articulated when designing LMMAs relate to improved productivity to increase food or cash. Communities are most committed to initiatives where there is evidence that gains can be realized under effective management regimes [14]. However, there is insufficient understanding of the role that community managed areas play in sustaining local economies and ecosystems with many struggling to maintain rules and norms as they were originally envisaged [1,72], and some adapting rules to meet economic needs [15], and social or cultural priorities. The ongoing challenge for SSF management is that institutional and technical ability to enforce rules, key enabling components in the Blue Economy, can be lacking [1,27].

The recently developed FMA in Solomon Islands will, once regulations have been developed, enable resource owners to register Community Fisheries Managed Areas as legal entities with the national government. The registration process involves provincial governments, and thus can be an avenue to strengthen vertical integration amongst community, provincial and national level governance. The FMA and other recent enabling legislation (e.g. the Protected Areas Act) highlight increasing political and institutional recognition of the importance of community engagement and institutional linkages.

There is potential for enhanced food and nutrition security, as well as economic gains, from measures to boost community management, but at this stage, national and provincial government resources allocated to coastal marine resource management remain inadequate [26], compromising ecosystem resilience and economic sustainability. International NGO and donor support via partnerships and projects are often sought, but this can bring unwelcome external agendas or concerns about 'ocean or green grabs' [9,8]. External finances and capacity can also distort local power relations if effective community engagement is lacking. While regional policy developments in the last decade increasingly support community-based approaches (e.g. [59,60]), without institutional arrangements that are nested across scales and enjoy strong political commitment at all levels, the foundations of these management systems remain shaky.

5.2. Case 2: Honiara fish markets

In the PICs, the Blue Economy concept is often focused on livelihoods that are dependent on maintaining ecosystem productivity and resilience – these dual objectives come into sharp relief in fish markets. Markets create a meeting point for diverse sectors, such as fisheries, agriculture, commerce, lands and health sectors, and multiple stakeholders. The Honiara Central Market (HCM) was established in the 1950s and is part of the social and economic fabric of Solomon Islands. With Honiara being around ten times larger than any of the markets in other provincial centres, it dominates internal trade and returns on fish sales are the highest [10]. The market is located on prime waterfront in the city, allowing boats from rural and regional areas to deliver produce directly. Water transport is a vital element of the marine economy both for national connectivity and the movement of goods and services, yet universally reliable, affordable and energy efficient services remain elusive in Solomon Islands.

Proximity to market is related to indicators of overfishing (fish size, quantity and catch per unit effort) [11] indicating that ecological resilience can be undermined if efforts to boost income from market sales to fishing communities occurs without adequate ecological monitoring and management. This runs counter to the ecological economics goal, referred to earlier, of co-evolving economic and ecosystem management. The Solomon Islands Ministry of Fisheries and Marine Resources (MFMR) has begun to collect quantitative data on the species, size and source of fish coming into HCM in a bid to monitor the fishery and to inform management recommendations and institutional evolution. More attention to fish markets as a linkage mechanism across Blue Economy sectors, scales and stakeholders has high potential for enhancing sustainable development and economic returns.

The number of vendors at HCM has outgrown the site's capacity, so informal markets are springing up around the city with few facilities. For example, three to five fish markets operate on the Honiara waterfront on any one day. Only the HCM has market by-laws gazetted, but these are poorly enforced by the City Council; a situation that is expected to continue until vendor and buyer engagement with the Council is enhanced [70]. Because none of the markets have adequate sanitation or security, there are safety and personal welfare concerns for the vulnerable, particularly women. Inadequate infrastructure results in much product wastage, or poor quality fish sold at low prices, because of the lack of ice, cool storage and running water.

The Honiara markets are at the end of the value chain for most coastal fish from the provinces. In 2015, less than USD8,000 worth of reef fish was exported from Solomon Islands (MFMR records). This contrasts with an estimated USD\$1.4 million worth of fish passing through HCM alone, in 2014/15 (MFMR records) (Fig. 3). Studies of the fish value chains between the provinces and Honiara have identified distinct players including fish sellers, middlemen, fish food vendors and retailers [10]. This is significant because their needs, social contexts, and thus incentives for fishing can vary. There are few initiatives that specifically investigate these interrelationships and tailor management to behavioural drivers.

Another neglected area of inquiry relevant to Blue Economy, and markets in particular, is gender and gender equity. Fish are the highest valued commodity in the markets and men dominate in selling all but the low value 'salt fish' obtained from the commercial purse seiners. How earnings are distributed in families, and between men and women, is poorly quantified. Continued economic viability will depend in part on shaping the market mechanisms to better respond to gendered contexts. A study by Kruijssen and colleagues [36] found gender issues are seldom considered in assessments of fish value chains in Solomon Islands. They recommend that assessments of, and interventions in, marine livelihoods, need to go beyond identifying the visible differences in roles between men and women and attempt to explain the underlying causes of disparities.

¹ <http://ctatlas.reefbase.org/mpadatabase.aspx?country=Solomon%20Islands>

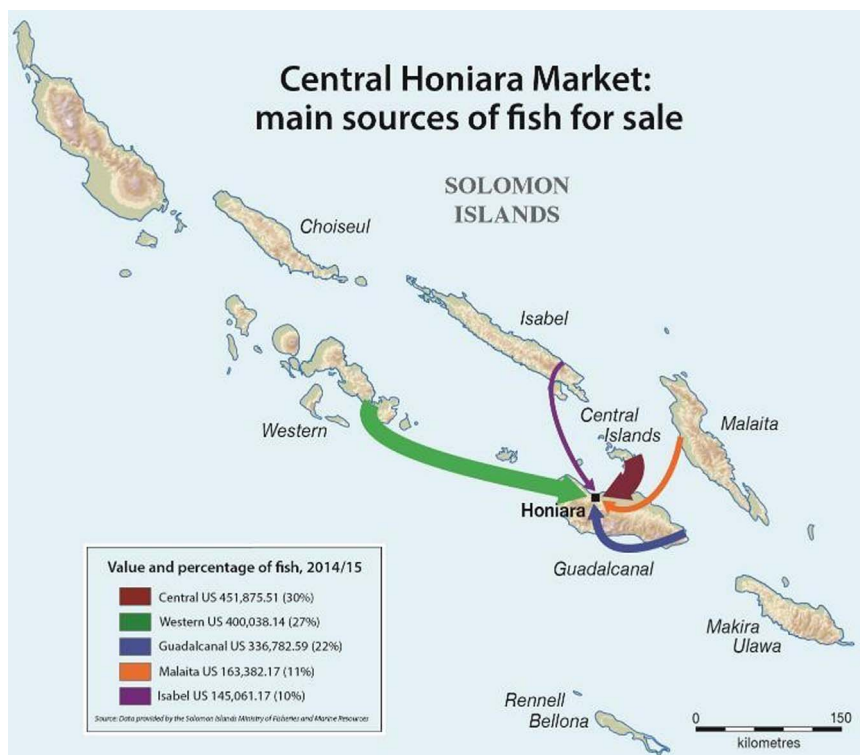


Fig. 3. Provincial sources and values of fish for sale in Honiara Central Market (data sourced with permission of Solomon Islands Ministry of Fisheries and Marine Resources).

Local markets, although vital to livelihoods and fishing behaviour, receive remarkably little policy attention, despite their importance to the Blue Economy. An integrated approach which creates national standards and networks to support stronger regulations, improve vendor rights and enhance economic benefits requires community engagement and stronger institutional arrangements. Simple technology can make a big difference. For example, cool storage is critical to enable fish to be transported in good condition from provincial fishing grounds to Honiara. The provision, servicing and effective management of ice machines in the provinces has had a chequered history and despite many donor and government efforts to fund ice making projects, most provincial facilities remain in a state of disrepair [5]. This is just one demonstration of how neglect of enabling factors continues to hinder the achievement of sustainable ocean management.

5.3. Case 3: Onshore processing of the national tuna fishery at Noro

Solomon Islands tuna accounts for around 10% of the total Western and Central Pacific Ocean catch, more than 120,000 t [23]. The value of the catch in 2014, at market prices, was estimated at more than USD130 million [24]. Following on from the Vava'u declaration in 2007 [50], the key framework for managing regional tuna exploitation is the Parties to the Nauru Agreement (PNA). The waters of the eight member countries, including Solomon Islands, account for the region's most significant fisheries.

The PNA facilitates regional cooperation and harmonized approaches between members – a rare example of strong horizontal integration between nations, although not without its weaknesses and breaches. Regionally allocated national quotas are then implemented by member countries, resulting in a degree of vertical integration. PNA efforts have increased returns to Solomon Islands and other member states [76] – in the last six years, revenues have risen 600%. Now countries like Solomon Islands, are setting policies to boost local returns even higher by maximizing the landing of tuna in country, and promoting onshore processing [40].

Regional organizations such as Forum Fisheries Agency (FFA) and

Pacific Community (SPC) provide technical expertise which is leveraged by members of the PNA and the Western and Central Pacific Ocean region to enhance monitoring, control and surveillance and fisheries management planning and implementation [20]. Innovative tracking systems are now in place to monitor fishing effort and target surveillance, as well as share data across jurisdictions. The tuna fishery data collected by SPC member countries are used extensively to increase sustainable fisheries management through research and monitoring (c.f. [62]).

In Solomon Islands, external economic and political pressures in the form of the EU issued 'yellow card' in 2013, provided an impetus to fast track more sustainable management policies and ensure ongoing EU market access. Regional institutional technical assistance, coupled with a fear of losing lucrative tuna market share, underpinned cabinet support for a National Tuna Management and Development Plan (2013), and subsequent work to strengthen procedures for licensing in the FMA. While there are concerns that external frameworks can reduce local agency, this is an example of outside economic and institutional pressure raising the bar for the sustainable oceans management. This reminds all that external influence and engagement are complex, multifaceted and, at times, useful for reducing unsustainable local socio-political arrangements.

Within this context tuna processing in Solomon Islands is represented by one large company, SolTuna, which operates at Noro in Western Province and is supplied with tuna by a locally registered company, National Fisheries Developments (NFD) Limited. The supplier is wholly owned by the multinational tuna trading company TriMarine which also has controlling shares in SolTuna. International investment is essential to the viability of the tuna industry as it secures the capital required for construction and improvement of port facilities to offload, process and export tuna to distant markets in Europe [66]. TriMarine's large stake in the local market and dependence on a sustainably managed resource helps influence development of the tuna fishery in a manner that is compatible with sustainability goals. In 2016 the Solomon Islands skipjack and yellowfin tuna fishery achieved Marine Stewardship Council (MSC) certification in recognition of the

well-managed stocks and sustainable fishing practices.

NFD and Soltuna are locally managed and collectively employ over 2000 Solomon Islanders, [37], representing one of the country's largest private sector employers. In response to localized demographic pressures caused by the pull of the cannery for job seekers, Soltuna is increasing its commitment to providing adequate housing and health care. It is also implementing affirmative employment policies and international standards for staff employment and production quality. This could influence expectations for industries beyond the sector and certainly in other planned cannery areas in the country. The processing centre provides a positive example of integration across ecological, economic and social components of the Blue Economy, albeit with some ongoing challenges, particularly in the social realm.

6. Discussion: linking practice with policy

Mapping the cases to the Blue Economy conceptual framework illustrates that the core and the enabling elements have received different levels of attention depending on the case and the scale of activity. In the SSF example, ecosystem resilience (EAFM approaches) and community engagement feature strongly. Institutional arrangements are widely recognized as a critical enabling factor, but are at rudimentary levels. While sustainable revenue generation is identified by communities as a priority for resource management, evidence suggests this remains a poorly managed goal — this comes into sharp relief in the market case where local markets are seen as the engines of livelihoods but the true costs and benefits across social and ecological systems are poorly known. A lack of investment in infrastructure, fragmented responsibilities and policy gaps impede vertical integration of governance and sectors in the Honiara fish market and SSF cases, and undermines sustainability.

Surprisingly, the locally-based tuna industry at Noro presents the most balanced attention to the different elements of Fig. 1 of the three cases. Ecosystem resilience is recognized as being central to economic sustainability, and effective community engagement gets attention to ensure a reliable workforce, and a stable socio-political operating environment. Nevertheless, a deeper dive into the elements of Fig. 1 highlights the complexity of fully implementing an effective 'Blue Economy' approach. Despite explicit attention being paid to enabling components and strong community engagement (including across genders) – challenges remain. The company has had to be self-sufficient or create external partnerships to advance technological capacity and institutional arrangements, including the provision of port facilities, the development of employment standards, and provision of basic housing and health facilities. This highlights that many drivers for ocean development go beyond one sector, and in developing countries will require partnerships.

Balancing competing multi-sectoral goals requires analytical capacity to assess trade-offs, and the implications of vertical and horizontal gaps in institutional arrangements, for example in regulation, in government investment, and in fishery value chains. The necessary skills and structures to address such trade-offs at a national level are as yet poorly developed. With limited resources in a low income country, interventions need to target high return areas in a socially equitable manner. Analysis of, and support along, entire market value chains have the potential to integrate sectors and scales of production.

Attention to gender equitable approaches was identified in all of these cases as key to sustainable development of ocean resources. In the offshore fisheries industry in Noro, gender issues are getting some attention in part because of the high number of women who work in the cannery and international standards, but insufficient action with regard to gender issues in the other two case studies leaves women potentially vulnerable to economic, physical and social disadvantage. This finding is consistent with development literature and donor programs which target gender equity as a key issue in achieving sustainable development, and is driving programs such as the UN Women market vendor

work referred to in the Honiara market case.

To sustain drivers of change, political constituencies and agency at the domestic level need to be taken into account, that is the political context represented in the outer circle of the conceptual framework. The Solomon Islands Oceans12+ group is explicitly a political process aimed at gaining whole-of-government commitment and political support. The Group also utilises technical support from a donor funded project which aims to gain national commitment to regional frameworks like the Convention on Biodiversity, and the United Nations Sustainable Development Goal 14 on oceans. The Ocean12+ working group accepts that well governed and planned ocean space will provide more benefit for the nation, however there are concerns that at the conclusion of technical support Ministries may retreat to operating in a sectoral and fragmented approach again, or outcomes will be biased toward more politically powerful agencies.

Truly integrative policy frameworks and regulations that support the fisheries sector across local, national, regional and international scales, are still evolving but are becoming more prevalent. For example, the LMMA, FMA, the PNA, MSC certification, and Western and Central Pacific Fisheries Commission provide the foundations for enabling and multi-scalar linking mechanisms to underpin the Blue Economy. However, managing multi-scalar and multi-sector interests requires more attention to power relations and issues of agency as interests and agendas vary across stakeholders [4].

External influence, often through regional and international roadmaps and policies, can help guide the development of a Blue Economy but achieving sustainably still depends on national commitment, cultural fit, relevant capacity and policies. A considerable degree of change and political commitment can be required to develop and implement regional policies at a national or local level. When significant structural changes are required, mobilizing resources in low income countries can be very difficult given competing demands, and the lack of tailored and targeted revenue raising instruments.

The case studies presented here support others in the region [30] that suggest that much can be learnt from brokering knowledge across sectors and communities. Practical examples include the *New Song for Coastal Fisheries – Noumea Strategy* [60] which was designed based on lessons, knowledge and experiences of people from PICs, and the collaborative efforts occurring under the *Pacific Ocean Alliance*. The Blue Economy framework may offer the opportunity to tailor and refine more broad sustainable development frameworks to ocean specific issues.

7. Conclusion: sustaining oceans, sustaining people

The Blue Economy has become a commonly used term that captures the goals of sustaining economic development opportunities while maintaining ocean ecosystem health, and for PICs, a means to boost recognition of cultural ties to ocean derived from tradition and customary marine tenure. The growing pressures on oceans, and the recognition of their central importance for human well being have heightened policy attention and the development of local, national and international policies, roadmaps and benchmarks for sustainable ocean governance.

The Blue Economy concept appears to have resonance in the South Pacific region because it embodies the dual need to protect ocean systems for the future and to meet pressing development needs. Explicitly mapping the components of the Blue Economy provides a valuable tool for assessing coverage of multiple elements of sustainable ocean development. The case studies presented here suggest that well defined conceptual frameworks can be useful to identify core components and interactions embedded within a particular terminology. Even so, it is less clear that the new label, Blue Economy, advances sustainable development concepts significantly. In the South Pacific, it appears to have been used as a refinement of ocean management approaches to better fit the region context, and to heighten attention to

place-specific issues of customary marine tenure, strong cultural ties to ocean, and shifting power dynamics affecting ocean governance and ocean economies.

There is a risk, however, that creating new labels that essentially embody familiar concepts, like sustainable development, can confuse. For example, the use of ‘economy’ without ‘sustainable’ can raise concerns among those eager to protect ecosystem functions. This proliferation in terms (Blue Economy, Ocean Economy, Green Economy) adds complexity to an already challenging management space for small gains. Catchy labels also have potential to mislead. Sustainable ocean development and governance depends on managing not just ‘blue’ or marine environments, but the land-ocean interface, sometimes referred to in the South Pacific as a ‘Ridge to Reef’ approach and evident in the above case studies, for example the need to examine the SSF to urban market resource flows. Any new term needs to keep this commitment to integrated and sustainable land-ocean interface management sharply in focus.

Looking to the future, new opportunities and pressures will emerge that will require strong and sustainable ocean governance, including seabed mining, tourism and bioprospecting. While this article has not explicitly addressed these activities, the framework presented, regardless of headline labels, and the subsequent analysis has direct relevance. The goal of ‘co-evolution’ in space and time of economic, social and ecological systems is well articulated in sustainable development and ecological economic literature which underlie the Blue Economy, but still remains elusive in practice. The five components of the Blue Economy framework, as defined in the South Pacific, are a useful guide when evaluating new ocean development initiatives in the region. For example, efforts to develop political and management constituencies, and better incorporate customary tenure and values, hold potential to address future challenges as new economic activities such as seabed mining and tourism emerge.

Importantly for the future of oceans, this study found the Blue Economy literature and cases tended to neglect many socio-political elements related to power, agency and even gender, all areas that need elevation for sustainable ocean governance to be achieved. From all of the above, the authors conclude that the Blue Economy conceptual framework is a valuable heuristic – not only to structure evaluations of practice, but also to help reveal missing ingredients necessary for the sustainable development of healthy oceans and to refine sustainable development models to better address ocean issues.

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