Implementing a Strategic Environmental Assessment (SEA) in small Pacific islands:

lessons learned from the FSM Ridge to Reef project in Pohnpei, Federated States of Micronesia.
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The Global Environment Facility (GEF) funded Federated States of Micronesia (FSM) Ridge to Reef Project (R2R) project titled Implementing an integrated Ridge to Reef approach to enhance ecosystem services, to conserve globally important biodiversity and to sustain local livelihoods in the Federated States of Micronesia commenced as a 5-year project in November 2015 and was originally scheduled to conclude in November 2020. The project was extended in June 2020, for an additional 18 months until May 2022 to accommodate delays due to the COVID-19 pandemic, and to help meet the desired targets.

The objective of the FSM R2R Project is to strengthen local, state and national capacities and actions to implement integrated ecosystem-based management through a “ridge to reef” approach on the High Islands of the four states of the FSM.

The R2R project is designed to engineer a paradigm shift in the approach to and management of natural resources from an ad-hoc species/site/problem-centric approach to a sustainable, holistic ecosystem-based management “ridge to reef” approach guided by planning and management processes that are informed by actual data relating to vital ecosystem services and their role in sustaining the livelihoods of local communities.
The project is focused on two main components and expected outcomes:

- **Outcome 1:** Integrated ecosystems management and rehabilitation on the High Islands of the FSM to enhance ridge to reef connectivity.
- **Outcome 2:** Management effectiveness enhanced within new and existing PAs on the High Islands of FSM as part of the R2R approach (both marine and terrestrial).

Through these components the project aimed to demonstrate sustainable land management practices testing new management measures, as needed, to reduce existing environmental stressors and institutional limitations. Among these are the use of innovative technologies such as dry litter piggeries, which aim to reduce animal waste pollution to waterways and promote a circular economy by transforming pig waste into resourceful compost. This innovative technology is promoting enabling conditions for changes in regulations for sustainable piggeries. In addition, the project is creating the enabling conditions for engaging communities in developing and implementing land and marine management plans.

The land tenure system of the FSM means that a large part of land systems, and in some states, marine systems, are privately owned, limiting the ability of the states to enforce strict regulations. Therefore, the project’s approaches to sustainable land management are manifold, including promotion of state regulations and/or guidelines for the sustainable management of terrestrial resources, and community-based management plans, aligned to state regulations, as instruments for implementation and enforcement.

Under Outcome 1, Output 1.1 aims to establish and implement four Integrated Landscape Management Plans (ILMPs), each covering the four High Islands of the FSM. In order to achieve this output, the intent was to conduct a Strategic Environment Assessment (SEA) for the FSM to collect the required information for creating the ILMPs. The SEA process was a first for the FSM and the commitment of time and resources needed to conduct the SEA in each of the four states (Pohnpei, Kosrae, Chuuk and Yap) was significant. Each state has its own unique culture, languages, state government, traditional leadership, and tenure systems, meaning that the process would need to be adapted for each state and could not practically be conducted as a national activity. It was thus decided that SEAs should be conducted on a state-by-state basis and as the project resources allowed. Pohnpei State was selected as the first state to carry out the SEA.

A decision was also made by the R2R steering committee to rename the proposed ILMP to better reflect its purpose as an Integrated Environmental Management Plan (IEMP), and which conveys the R2R philosophy of linking land and marine management issues.

This document focuses on the lessons learned specifically on the SEA process. The results of the SEA can be found in the Pohnpei SEA report (currently in draft). Lessons Learned during the implementation process of the SEA will better prepare other FSM states and Pacific island countries for similar endeavours.
Problem Context

The FSM’s population is highly dependent on terrestrial and marine ecosystems for both subsistence and the national economy. Healthy, intact marine and forest ecosystems are vital for food and water security, material for construction, and medicinal resources (provisioning services) as well as for coastal protection, control of soil erosion, water filtration, soil fertility, carbon sequestration, biological and genetic diversity (regulating services). Healthy functioning ecosystems are more resilient to stressors, implying a greater element of flexibility in adaptation response options (Munang et al. 2013).

The FSM’s High Islands are experiencing very high rates of ecosystem degradation and biodiversity loss, particularly in the aquatic environments, due to deforestation and fragmentation of forests, depletion of mangrove forests, overfishing and overhunting; waterway pollution from piggery farm waste and soil erosion; and invasive species. Climate change is predicted to vary widely and exacerbate existing natural resource and sustainable development challenges, impacting on fisheries and agriculture, and thus, the wellbeing of communities and their overall resilience to future impacts.

The 2013/2014 Household Income and Expenditure Survey for the FSM found that 47% of households in the nation conduct fishing activities and over 50% of households depend on fisheries for their subsistence (SBOC 2014). Similarly, FSM communities are highly dependent on agriculture for their livelihood, with 67% of households conducting agricultural activities, particularly for subsistence.

Conservation efforts and sustainable management of natural capital can help communities adapt to climate change impacts, while providing an array of co-benefits such as sustainable economic development, poverty alleviation and protection of livelihoods. The sustainable management of marine resources is considered crucial to ensure prevention of fisheries collapse and potentially limit future economic and social hardship (SAR 2018).

Land degradation is a growing issue across all the states. Sand mining for construction materials, coral dredging, development along the shore, and clearing of mangroves all contribute to the increasing issue of erosion and lagoon sedimentation. In Pohnpei State, upland degradation has been exacerbated by the increase in sakau (*Piper methysticum*) farming, which contributes to 57% of the income from sales of produce in Pohnpei (HIES 2013/14).
Sakau was traditionally reserved only for the highest members of society (royals and chiefs), however in recent decades, it has become more available for public consumption (Merlin and Raynor 2005). Its wider use and popularity has turned it into a high-value product contributing significantly to the incomes of many Pohnpei households.

Sakau farming has driven farmers towards land conversion and monocropping, contributing to the consistent decline of native forest cover in Pohnpei, with farmers encroaching into remaining native upland forest areas.

The removal of native forest and habitat fragmentation has direct impact on biodiversity, affecting vulnerable species such as the Pohnpeian short-eared owl, but also facilitating expansion of invasive plants, increasing soil erosion and sedimentation, diminishing soil fertility and water quality, and threatening cultural norms and practices, as noted in the 2018 State of the Environment report (SOE). The prominent changes in landscape and seascape are threatening Pohnpei freshwater resources and coral reefs and causing concern among the island communities.

The FSM’s complex governance system adds to the challenge of implementing national programmes and policies. The FSM national government sets overarching environmental policies and plans and coordinates support from foreign entities, but does not primarily own resources or have jurisdiction of them outside of the Exclusive Economic Zone (EEZ). The four State governments have jurisdiction over water within 12 nautical miles from island baselines, while the National government has control over water beyond 12 miles to the outer boundary of the EEZ. The four semi-autonomous state governments develop and execute laws and manage resources to the extent they are able, as the majority of natural resources are privately owned. In Pohnpei, marine areas and some of the upper watershed are under state government jurisdiction, but effective management requires engagement with municipal governments, traditional leaders and communities in order to be effective.
Approach

To identify and gain a better understanding of conflicting land-uses, land-use practices, existing environmental stressors and institutional limitations in Pohnpei State, the R2R project implemented an island wide Strategic Environmental Assessment (SEA). The overall purpose of the SEA was to support the R2R Project to achieve integrated land and sea management in Pohnpei. It sought to do this through examining key environmental, social and economic challenges facing Pohnpei, focusing on those which were identified by stakeholders to be priorities, setting objectives to meet these challenges, and determining how future development options will enhance or impede achieving those objectives.

The Pohnpei SEA was intended as a pilot exercise to guide subsequent SEAs for the rest of the FSM. The SEA process was a multi-stakeholder participatory process that brought together representatives from the communities, the government and civil societies to discuss and address issues in a holistic way.

The FSM States each utilise Environmental Impact Assessments (EIAs), but the SEA process is new to the FSM. Generally, the SEA is an assessment of the environmental, social and/or economic impacts of a policy, plan or programme, and it operates at higher, more thorough level, than an EIA, which only assesses the potential environmental impact of individual projects. While EIAs are relatively codified and common in the way they are executed, there is no single approach to conducting an SEA. Pacific island countries have unique circumstances to consider, with natural island ecosystems, converted land and developments concentrated in a limited land mass, and small and highly connected populations. This requires a different approach than for SEAs conducted for countries with large land masses (e.g. USA), where government jurisdiction and policies cover greater areas.
The SEA process was designed to be operable in the context of the FSM islands, so that it could be undertaken within the limitations of local capacity, knowledge and data. It was tailored to the available in-country resources, in order to not require a massive team of international experts, significant funds and research that would be beyond the capacity of the local FSM government and local teams to implement. An international consultant and SEA expert, Prof. Barry Dalal-Clayton, guided efforts. He stressed the need for designing and tailoring each SEA to the particular context and circumstances to which it will be applied. This was first tailored to Pohnpei State.

The process involved three phases:

- Phase 1: Scoping Mission
- Phase 2: Main SEA Process
- Phase 3: Review of SEA/IEMP and preparation for future FSM SEAs

Phase 1, Scoping Mission, provided recommendations regarding the process, which included that the SEA be conducted on a state-by-state basis. Therefore, Pohnpei was selected to be the first state to conduct the SEA and develop an IEMP.

Phase 2, which is the focus of these Lessons Learned, included several activities carried out from January to December in 2019:

- a. Preparation of the Pohnpei State baseline profile
- b. Capacity reviews of State Departments, agencies, NGOs
- c. Community consultations
- d. Data and information gathering
- e. Review of laws, policies & regulations
- f. Development of scenarios
- g. SEA analysis (intensive brainstorming, group work)
- h. Preparation of draft SEA report
- i. Preparation of draft IEMP
- j. SEA capacity building – participation of FSM experts in IAIA in Brisbane, Australia
- k. Review and editing of draft SEA and draft IEMP
- l. Finalisation of SEA report and IEMP (by international consultant)
- m. Completion of outstanding IEMP content (by Pohnpei team) and start of implementation of SEA recommendations and IEMP.

Each activity utilised a core team consisting of the International Consultant, the FSM R2R Technical Coordinator, and the Pohnpei R2R Coordinator. Additionally, a local Strategic Expert Team (SET) was created consisting of core relevant non-government organizations and government representatives. Three activities were led by local consultants to ensure that
local context was captured appropriately: the capacity review, community consultations, and development of scenarios.

Activities a, d and e involved desktop reviews to collect background information to capture trends and issues impacting Pohnpei’s environment from ‘Ridge to Reef’ (i.e. climate change, dredging, land degradation from non-traditional sakau planting, overfishing). The results for each activity are captured in detail in the SEA report.

The issues were then weighed against four potential scenarios developed for Pohnpei that could also be applied to the rest of the FSM:

1. **Stagnant/contracting economy** – this might arise if there is no effective replacement for The Compact\(^1\) funds and no alternative budget-support mechanisms are secured.

2. **Business-as-usual** – more or less how things are at present plus ‘inflation’ (i.e. including developments that are already in the pipeline).

3. **Moderate growth** – growth within realistic levels, that can be accommodated by Pohnpei within ecological and preference limits. Such growth would be led by a modest boost to tourism.

4. **High growth** – led by a major drive to boost tourism to a high volume (30,000+ tourists per year), and an all-out drive to derive maximum harvesting of off-shore pelagic fish (mainly tuna).

The SEA examined the threats and identified the potential environmental and social impacts of developments that are likely to arise under different possible economic development scenarios. The SEA scenarios were user-friendly accounts of the current and future state of the island, which helped increase stakeholders understanding on how the state of the economy, environment and infrastructure may develop depending on different economic trajectories.

The scenarios encouraged stakeholders to consider the long-term economic benefits and costs of extracting resources unsustainably or conserving/protecting them. This also included considering the economic impact of conservation in terms of opportunity costs for the population and discussion of the potential costs associated with implementing conservation policies. The scenarios provided a better understanding of which cost-effective options Pohnpei can pursue for sustainable land and sea management.

Understanding these likely social and economic futures, through the development of Pohnpei economic growth profiles, provided the foundation for alternative management approaches, including the option to assess the balance between extractive and conservative approaches.

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\(^1\) The current Amended Compact of Free Association funding with the United States expires in 2023.
During an intensive workshop, the SET panel considered the impact each scenario would have on the identified issues (both environmental and socio-economic) in the context of Pohnpei’s local laws and policies, and capacity of agencies. As a result, the team concluded that while each scenario had the potential to negatively impact the environment, scenario 3, moderate growth, would allow the greatest opportunity to mitigate and provide a manageable situation.

The SEA assessment also highlighted key environmental trends and recommendations, further detailed in the SEA report, and which were utilised to develop the IEMP. The draft SEA report and IEMP were shared with stakeholders for review, to be finalised and endorsed by Pohnpei leadership.

In Phase 3, the International Consultant and R2R team utilised lessons learned from Phase 2 to plan the SEA for Kosrae State, which will be used to update Kosrae’s outdated Land Use Plan (LUP). Key achievements and lessons learned from Phase 2 (main SEA process) are highlighted below.
Results

An integrated environmental management plan for Pohnpei

The SEA is a new management tool in the FSM’s ‘tool-box’ that helped broaden the understanding of ecosystem management needs in Pohnpei State. It resulted in the development of an Integrated Environmental Management Plan (IEMP) that (i) presents the actions needed to monitor trends of environmental concerns and (ii) sets out the steps required to mitigate against the negative impacts that may occur as a result of current and future developments. Implementing the IEMP will require all stakeholders (government at state and municipal levels, communities, citizens and businesses) to collectively accept roles and take responsibility for the steps required to manage the environmental and socio-economic issues, as well as commitment of financial resources. Effort will also be needed to raise awareness and understanding of the issues and required responses across government (at state and municipal levels), the business sector and the public, to enable the IEMP to be effectively implemented.

Baseline information on environmental and socio-economic components

An environmental and socio-economic profile was prepared for Pohnpei, focusing on key environmental and socio-economic components and sector policies identified in the scoping study. Key trends and pressures relating to the various components were identified. Its overall aim was to provide a basis against which further change and impacts can be determined when monitoring implementation of the IEMP.

Participatory and inclusive, rights-based approach

The R2R project developed an approach that was tailored to the needs of the FSM. This took into consideration the needs, interests, rights and aspirations of local communities, contributing to local and national goals and identifying data and knowledge gaps. This is crucial in order to promote those changes needed to ensure sustainable land management since it helps resource users understand the underlying root causes of current problems of excessive exploitation and the benefits of committing to changes to conservation and sustainably use of resources.

Legislative review and gap analysis

An inventory of policies, plans and programmes (PPP) at state and national level was developed and used to support the identification of gaps and outdated legislative mechanisms. The SEA process was key in identifying the need to update the state and National Environmental Impact Assessment (EIA) regulations in order to meet the international standards and integrate a more holistic approach. EIAs are currently conducted for specific projects, and limited to looking at set criteria (i.e. impact on any historical sites or ecological systems). However, in small islands, one activity can affect multiple areas, environmental and socio-economic, and the greater ‘ridge to reef’ context should ideally be considered.
Lessons Learned

ISSUE 1: Novelty of the process

The SEA was a novel process for the FSM. The process was adapted to the needs of the country; however, stakeholders noted its complexity when being exposed to the process for the first time. There was a clear need for better awareness and information on the process as well as the concept of the SEA.

Additionally, despite efforts to tailor the process to the available capacity in country, there was limited capacity and availability of the implementation team mainly due to team members having other obligations and their unfamiliarity with the SEA process. This impacted the delivery of key information according to schedule.

Key lessons learned and recommendations

1. Invest in building capacity of the local team well ahead of implementation of the process. This will enable appropriate planning flexibility during the process. Training and using a local team will ensure long-term capacity to implement SEAs in the future.

2. Build awareness and knowledge on the process in the early stages and throughout the entire process to ensure buy-in and engagement of stakeholders, particularly to ensure effective information collection. Providing stakeholders with information on the SEA and its potential use and value was crucial to their involvement. The FSM R2R project has since developed a Communication Plan that identifies methods to reach particular audiences identified for the R2R project outcomes, and this could be utilized to develop awareness strategies for future SEAs.

ISSUE 2: Stakeholder engagement and commitment

The SEA process took place over one year, with several weeks worth of in-person meetings, consultations and workshops. To ensure continuity, this required stakeholders to remain engaged throughout the process. This is particularly problematic for small island countries, where human resources are limited and the stakeholder representatives have full time jobs or other community obligations that may have an impact on public participation and commitment to the process.

Commitment to the SEA approach from all the stakeholders, including leaders, state partners, civil societies and communities, needs to be built early in the process through awareness and by setting clear expectations. Lack of decision makers’ participation, in particular, can result in the risk that the conclusions of the SEA are not accepted. Awareness and expectations of leadership roles in the process is key to ensuring engagement and contribution from leadership to strengthen support. This was crucial to the success of the Pohnpei SEA, and should be further improved in future SEAs.
Key lessons learned and recommendations

3. Invest in more upfront engagement with the leadership through tailored sessions specifically for leaders and heads of agencies, who cannot always attend general workshops and training sessions. Tailored sessions will enable them to make the most out of their involvement.

4. Identify leaders who are particularly interested in and passionate about the process and could serve as ‘champions’, sharing information back to fellow leaders.

5. Design an inclusive participatory process that includes communities from the very beginning. Implementing a bottom-up approach is beneficial for capturing traditional knowledge, but also to raise awareness within the communities on the consequences of external development activity as well as their own actions on their environment and resources, and to transparently inform them on the process that is being implemented.

6. Tailor the SEA message and process so it is accessible to all the stakeholders involved in the process. Facilitation and participation are key for the success of the SEA process. The process should be culturally sensitive, mindful of stakeholders’ time constraints, participatory, and adaptable as new information become available.

ISSUE 3: Data gathering
SEAs draw on existing reports, policies, plans and research. Lack of a systematic method or repository for data can affect access to information used to inform the SEA.

Key lessons learned and recommendations:

7. Hire a dedicated local consultant for effective local coordination, including activities such as preparation, coordination, and data gathering.

8. Where information is not available, mapping done with the communities can provide direct information on the available natural resource and their use.
ISSUE 4: Lack of SEA implementation framework

There is no SEA legislation at the FSM national or state level, and there is no set of requirements for states to initiate the SEA process. Utilising the SEA process, or making EIAs more holistic in approach, is a key recommendation of the SEA report, and will hopefully be considered by the leadership. For Pohnpei state, establishment of a unit to implement and coordinate the IEMP is a first step that will be supported by the R2R project.

Key lessons learned and recommendations:

9. Ensure that the TOR is reviewed by someone knowledgeable and familiar with the SEA process.

10. Ensure good facilitation: identify culturally sensitive facilitators with experience and knowledge of local settings and norms.

11. Consider recruiting a multidisciplinary team of experts such as an expert in SEA, an economist, a biologist or fishery expert and an environmental expert. A dedicated team for review of information and analysis of data prior to presenting back to the SEA participants.
Replication

Many of the challenges will likely be encountered by other small Pacific island states embarking on the SEA process. As an example, some of the same challenges were noted in Kosrae State, FSM, which is currently (as of December 2020) undertaking an SEA that will be utilised to inform the revision of Kosrae’s outdated Land Use Plan.

Lessons learned:

- Limited capacity in Kosrae, and the need for a team of experts in SEA.
- Full engagement of leaders and decision makers, including sessions dedicated to awareness of the SEA for the leadership, and identifying ‘champions’ among them who are the most interested in the process.

Recommendations from the Pohnpei SEA process that were applied in Kosrae:

- Having a bottom-up approach with community consultations first.
- Contracting a local consultant familiar with Kosrae to coordinate and lead the SEA process.
- Spreading out the SEA timeline to help alleviate the strain on stakeholders and partners as the process is very intensive.

A small section of the ruins of Nan Madol, Pohnpei’s ancient city built in the 13th century. Although a tourist attraction, its conservation is at risk due to climate change and rising sea levels, which are eroding the structures. Increased tourism, while economically desirable, will further impact on the long term conservation of this cultural and national heritage. The SEA process encouraged assessment of different development scenarios and understanding their impacts on different aspects of Pohnpei’s natural, social and cultural resources. ©Lee Arkhie Perez
References


The GEF unites 182 countries in partnership with international institutions, non-governmental organizations (NGOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives.

The GEF Pacific R2R programme was developed to provide an opportunity for Pacific small island developing states (SIDS) to develop and implement integrated approaches for the sustainable development of island economies and communities. Partnerships are key to realizing benefits at the local, regional, and global levels.

GEF Implementing Agencies

UNDP is on the ground in 177 countries and territories and partners with people at all levels of society to help build nations that can withstand crisis and drive and sustain the kind of growth that improves the quality of live for everyone.

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UNEP is the leading global environmental authority that sets the environmental agenda and promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system.

Executing Agency

The Pacific Community is an international development organization with 26 member countries and territories. It is the principal scientific and technical agency proudly supporting development in the Pacific regional since 1947.