FEDERATED STATES OF MICRONESIA

Pohnpei Joint State Action Plan for Disaster Risk Management and Climate Change

Pacific Community
Communauté du Pacifique

EUROPEAN UNION

Foreword

Pohnpei State is blessed with an abundance of natural resources, upon which our people's livelihoods are sustained. Our marine and terrestrial environments provide a rich source of food, water and materials. These environments provide economic benefits to our people and, along with Pohnpeian culture, draw visitors to our shores. Our social and cultural systems provide communities with a strong source of resilience that has traditionally sustained us through disaster events such as typhoons, storms and high sea and swell events.

Climate change, and the associated impacts including sea-level rise, strong winds, increasing temperatures and changing rainfall patterns are real and poses a significant threat to our livelihoods. The preparation of an action plan that details the various actions that the state need to implement to minimize the negative adverse impacts of these changes is timely and critical.

This Joint State Action Plan (JSAP) is aligned with our Strategic Development Plan and developed using a highly participatory and inclusive approach which places Pohnpei State government in a strong and sound platform to protect our people's livelihoods and the environment.

I therefore encourage you all to support the implementation of the actions that is articulated in the plan at the various levels of groupings in our state, namely the state, municipality, island, hamlet, schools, churches and households.

Marcelo K. Peterson
Governor

Acknowledgements

The Pohnpei State leadership is indebted to the efforts of all those who contributed to the development of this State Joint Action Plan for Disaster Risk Management and Climate Change.

The active participation of the various segments of our community was encouraging and reaffirms the concerns they are now facing and the eagerness of enhancing their safety and resilience. The contributions made by the government representatives, mayors, church leaders women groups, youth groups and persons with disabilities were very valuable and ensuring that the plan is realistic and relevant.

The leadership displayed by the FSM's national Office of Environment and Emergency Management (OEEM) and the Pacific Community (SPC) is commendable. Their professional input and guidance had been very captivating and engaging encouraging the full participation of the Pohnpei stakeholders in developing the plan.

The funding support from the European Union through the EU ACP Building Safety and Resilience in the Pacific (BSRP) project being implemented by SPC is greatly appreciated without which the development of the plan would have been impossible.

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Acronyms

CCA	Climate change adaptation
COM	College of Micronesia
DRM	Disaster risk management
DRR	Disaster risk reduction
ENSO	El Niño–Southern Oscillation
EOC	Emergency Operations Centre
EPA	Environment Protection Authority
FEMA	Federal Emergency Management Agency (US)
FSM	Federated States of Micronesia
GDP	Gross domestic product
IOM	International Organization for Migration
JSAP	Joint State Action Plan
M&E	Monitoring and evaluation
OEEM	Office of Environment and Emergency Management
PIFACC	Pacific Islands Framework for Action on Climate Change 2005 – 2015
RFA	Pacific Disaster Risk Reduction and Disaster Management Regional Framework for Action 2005 – 2015
R&D	Resources and Development
SPC	Secretariat of the Pacific Community
USD	United States dollars

Executive Summary

Pohnpei's Joint State Action Plan for Disaster Risk Management and Climate Change (JSAP) was developed in May 2015, led by the Pohnpei Department of Public Safety, and supported by the FSM Office of Environment and Emergency Management (OEEM) and the Pacific Community (SPC) Geoscience Division.

The development of the Pohnpei JSAP acknowledges the shift at the national and Pacific regional levels to address 'risks' in a holistic, integrated way. The Federated States of Micronesia's (FSM's) Nation Wide Integrated Disaster Risk Management and Climate Change Policy provides an overarching framework for FSM to address risks, requiring state governments to develop plans of action to address disaster and climate change risks. At the regional level, the development of the Strategy for Climate and Disaster Resilient Development in the Pacific – an integrated framework to address risk and vulnerability for the Pacific region is an example of such an approach. Pohnpei's JSAP supports these national and regional efforts, providing the people of Pohnpei with strategic, prioritized actions for the coming years to address risk across all sectors and parts of the community.

Through a participatory, consultative approach, the development of the JSAP included a range of stakeholder views concerning risk management, vulnerability, and actions to enhance Pohnpei's resilience to disaster and climate risk over the next 5 years.

This document provides both an overview of the current risk and vulnerability context in Pohnpei, as well as the state's strengths, including its strong traditional culture and rich natural resources. By drawing on such as assessment of strengths and weaknesses, Pohnpeian stakeholders developed actions across 8 Priority Areas, representing the main elements of their livelihoods they wished to sustain and strengthen in years to come.

The Priority Areas, and objectives under each, are found below. The full Action Matrix can be found in Appendix D which details the specific actions under each objective.

01 HEALTH

Objective 1.1: Effective response to disease in case of disaster

02 EDUCATION

Objective 2.1: Communities aware about climate change and effects and disaster risk management
Objective 2.2: Integrate climate change and disaster risk reduction in school curriculum
Objective 2.3: School children educated on food security

03 SOCIAL PROTECTION

Objective 3.1: Safe shelters for community in time of disaster
Objective 3.2: Effectively respond to and care for vulnerable groups in case of disaster
Objective 3.3: Community friendly and accessible emergency number
Objective 3.4: Marine safety
Objective 3.5: Settlement options for relocation of outer island communities to mainland

04 AGRICULTURE AND FISHERIES

Objective 4.1: Strengthen food security in Pohnpei

05 ENVIRONMENT

Objective 5.1: Shoreline protection of outer islands
Objective 5.2: Ensure water security of Pohnpei
Objective 5.3: Ensure energy security of Pohnpei
Objective 5.4: Clean streams and rivers on main island

06 INFRASTRUCTURE

Objective 6.1: Improve critical infrastructure in Pohnpei to withstand disasters and climate change
Objective 6.2: Zoning laws in place to reduce risks of climate change and disaster risk
Objective 6.3: Infrastructure and state development codes reduce risk to climate change and disaster risk
Objective 6.4: Uniform land information through centralised GIS
Objective 6.5: Enable settlement from low lying land (at risk) to higher grounds
Objective 6.6: Improve management of solid waste
Objective 6.7: Functional communication for outer islands in time of disaster

07 ECONOMIC RESILIENCE

Objective 7.1: Encourage environment friendly actions through tax incentives
Objective 7.2: Strengthen the business environment in Pohnpei to ensure it is conducive to a robust private sector

08 CLIMATE CHANGE AND DISASTER RISK MANAGEMENT COORDINATION

Objective 8.1: Disaster Task equipped to effectively respond to disaster
Objective 8.2: All sectors in Pohnpei receive consistent guidance on responding to disaster or emergency
Objective 8.3: Local preparedness and response plans developed across Pohnpei State
Objective 8.4: Communities experienced in preparedness and disaster response
Objective 8.5: Pohnpei State and Municipalities equipped with necessary supplies and resources to respond to disaster
Objective 8.6: Strengthen early warning systems in Pohnpei State
Objective 8.7: Increase awareness and coordination in accessing funding sources

01 COUNTRY AND STATE CONTEXT

1.1 Geography

The Federated States of Micronesia (FSM – see Figure 1) consists of a total of 607 islands in the western Pacific Ocean, with an exclusive economic area of 2,980,000km2 and a total land area of 701 km2. These islands include small islets that disappear at high tide, coral atolls and large volcanic islands of more than 80km2. FSM is comprised of four states: Chuuk, Kosrae, Pohnpei and Yap, which each have a considerable degree of autonomy.

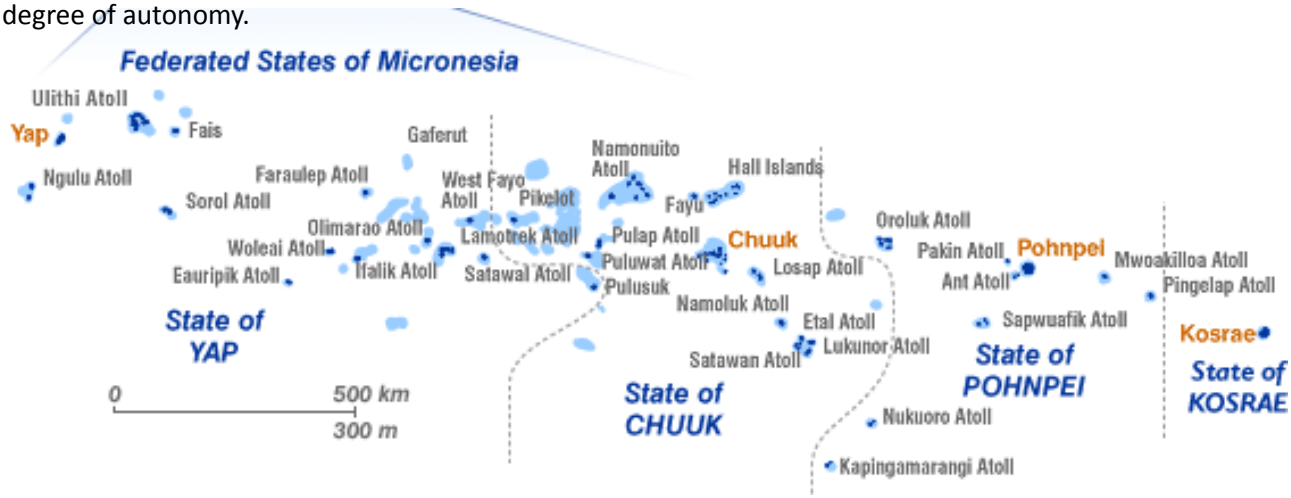


Figure 1: Map of the Federated States of Micronesia

Pohnpei state (see Figure 2) is located towards the eastern reaches of FSM. The capital of Pohnpei state is Kolonia, located on Pohnpei Island (Figure 3). Pohnpei state has eight inhabited atolls: Mwoakilloa, Pingelap, Kapingamarangi, Nukuoro, Sapwuafik, Ant, Pakin and Oroluk, and together, the state has a total land area of 133.4 square miles (345 km2) and 151,000 square miles of territorial and exclusive economic zone (EEZ) waters.

Pohnpei island has five municipalities, with another seven municipalities on outlying islands and atolls. The geology of Pohnpei Island is of volcanic origin, with a peak elevation of 2,408 feet above sea level, which is one of the highest islands in the FSM.

Figure 2: Pohnpei state map (source: Wikimedia Commons)

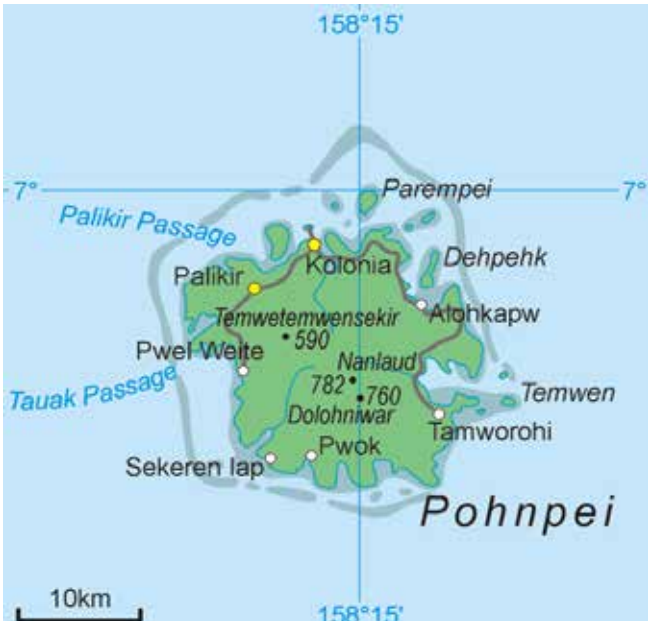


Figure 3: Pohnpei island (source: Wikimedia Commons)

Population and culture

1.2

The total population of the FSM is approximately 102,843, and is predominantly Micronesian. The 2010 census indicated a decline in population due to outward migration and declining fertility. Pohnpei state has the second highest proportion of households with immediate family members living abroad (Chuuk has the largest), mainly in the USA mainland, Guam and Hawaii. English is the official language of FSM, however eight indigenous languages are spoken in FSM.

Each of FSM's states, being separated by large expanses of water, has maintained their own distinct culture, traditions, customs and languages. However, some centuries-old economic and cultural bonds between the states exist.

The population of Pohnpei state is 36,196, (approx. 35% of FSM's total population) of which 34,000 reside on Pohnpei Island (2010 Census). The population growth rate between 1985-2010 for Pohnpei state was 0.93%. The population of outer islands are said to make up 4% of the State population.
Pohnpei has the highest ethnic diversity of all FSM's states, with most Pohnpeians identifying as ethnic. Ethnic diversity results from residents migrating from other FSM states (all with their own ethnic and cultural origins) as well as the state's own history of foreign colonial occupation, with Spanish, German, Japanese, Chamorro, Filipino, American, Australian, other western Europeans playing a role in Pohnpei history. Indigenous Pohnpeians are also comprised of a mix of regional ethnicities from Australasian Pacific Islander backgrounds.

The Pohnpeian language and English are spoken in the state of Pohnpei. In addition to the Pohnpeian language, the vernacular languages of Pinglapese, Mwoakilese (Mokilese), Sapwuafikese (Ngatikese), Nukuoroan, and Kapingamarangian are also spoken. In practice, less than two percent of school students speak English as their first language.

1.3 Economy

In 2011, FSM's GDP was USD$310 million. Annual growth was at -3.2% while inflation was at 2.8%. Around 70% of households across FSM have an annual income below USD$15,000, and the unemployment rate across FSM is at 22%. Job creation in Pohnpei over 2003-2011 grew at a rate of approximately 1.75% (which was the opposite trend for the other three states of FSM) however outmigration continued over this time. According to the 2010 census, unemployment for Pohnpei state was approx. 9%.

The incidence of families with incomes below the poverty line in FSM is among the highest in the Pacific region, as is inequality of income. Approximately 10% of people in FSM are below the Food Poverty Line. FSM runs a large trade deficit, with imports being around ten times larger than exports. Food and fuel represent a significant proportion of this – comprising 46.6% of total imports to FSM in 2007. FSM is highly – and increasingly – dependent on these food imports, and total food imports showed a steep increase from USD$17 million to USD$43.6 million in the nine years to 2009 (FSM Agriculture Policy). Rising global food and oil prices means the costs of imports will continue to rise, and will have serious implications for FSM's terms of trade.

The vast majority or FSM's exports are tuna fish, as FSM has one of the largest tuna fisheries in the Pacific. Agricultural exports from FSM include betel nuts and kava.
National and state level governments in FSM employ over half of the country's workers. Government services and public enterprises account for 38% of GDP.

The FSM public sector is highly dependent upon development funding. US aid and Compact funding provides about 65% of revenue for national government and 75% of revenues for the states.
The 2004 Economic Summit in held in Palikir, Pohnpei resulted in agreement that FSM was at a critical point in its development. One recommendation was to embrace tourism as a means to address economic challenges associated with decreasing funding from the US (via the Compact of Free Association) and the desire for self-sufficiency. It was also agreed that such an approach would need to proceed with caution surrounding impacts to the environment, social, cultural and heritage resources.

Governance

1.4

FSM was administered by Spain, Germany, Japan and the USA before establishing a constitution and achieving independence in 1986. It joined the United Nations in 1991.The FSM is a constitutional democracy in free association with the United States. The FSM entered into a Compact of Free Association with the United States with the first funding period being 1986-2003 (worth USD$1 billion), and the second being 2004-2023 (worth USD$1.8 billion).

The FSM has three levels of government: national, state, and municipal. The national congress is comprised of 14 representatives from the states, and the President and Vice President are elected from amongst the elected congressmen to lead the executive arm of the national government. The President then will appoint his Cabinet members from reputable and educated nationals of FSM. The national government exercised only certain powers expressly delegated to it by the constitution.

The four state governments of Chuuk, Kosrae Pohnpei, and Yap are relatively autonomous. A Governor is elected to head each of the four states. The Governor heads the Executive branch of the government, and appoints cabinet members to head the government departments and offices. Each of the states has their own legislatures comprising of senators who are elected by the state population every four years. Traditional leadership remains significant in Pohnpei. Each of Pohnpei's five municipalities on Pohnpei island has two traditional leaders, the paramount chief (Nanmwarki) and secondary chief (Naniken). Their views significantly influence the political life of the State.

Legislation is a shared responsibility between the national and state governments and the respective Attorney Generals would provide advice where the jurisdiction over certain environmental issues is unclear, such as:

- ecosystem protection (such as reefs and mangrove swamps)
- land use, land management
- agriculture, forestry and watershed protection.

Regulatory authority is transferred to the national government in instances where issues have a visible effect on foreign or interstate commerce or concerns public health.

Some states have devised their own strategies for development, while an integrated perspective for the federation is provided by the national government.

Pohnpei's state government is comprised of the following:

- Governor's Office
- Executive Departments:
  - Department of Education
  - Department of Health and Services
  - Department of Land
  - Department of Public Safety (includes a Division of Fire and Emergency Services responsible for disaster preparedness, recovery, relief, control, search and rescue operations, public education and awareness and ; fire safety and suppression, ambulances services and emergency communications)
  - Department of Treasury and Administration
  - Department of Resources & Development

- Executive Offices:
  - Attorney General
  - Fisheries and Agriculture
  - Transport and Infrastructure

- Executive Authorities:
  - Port Authority
  - State Election Commission
  - Environmental Protection Authority (EPA)
  - Registrar of Corporations
  - State Housing Authority
  - Transportation Authority
  - Public Broadcasting Corp

Risk and resilience context

1.5.1 Natural variability and vulnerability

Pohnpei is exposed to a range of threats that create significant vulnerabilities for the state. El Niño Southern Oscillation (ENSO) influences the region of formation of typhoon activity, the distribution of rainfall and the height of sea level in the western Pacific. In general, however, typhoon activity is higher in the western FSM states compared to the east, where Pohnpei is located.

Research suggests however, that during El Niño periods Pohnpei has a heightened risk of typhoons as the formation region is just to the east of Pohnpei. There is a decreased risk in the year following an El Niño and in La Niña years, as the formation region of typhoons retracts to the west. The mean annual number of tropical storms and typhoons affecting the region close to Pohnpei is shown in Figure 4, while Figure 5 shows the number of tropical storms per 100 years passing Pohnpei (based on 1970-99 data).

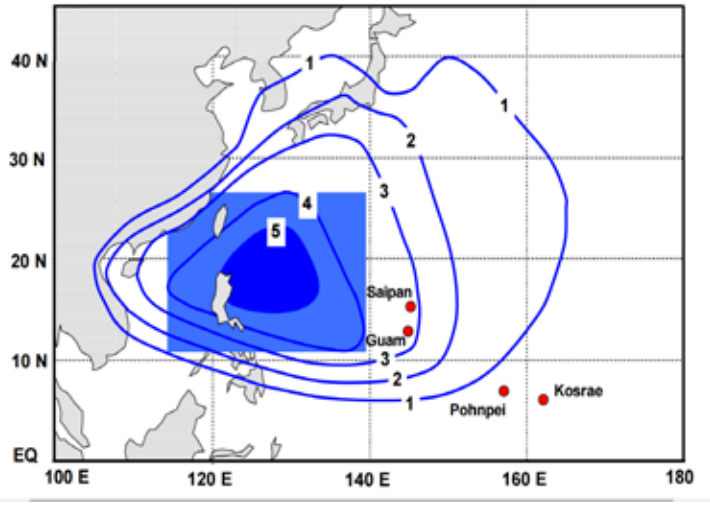


Figure 4: Mean annual tropical storms and typhoons traversing 5-degreee latitude by 5-degree longitude squares
Source: Landers and Khosrowpanah, 2004

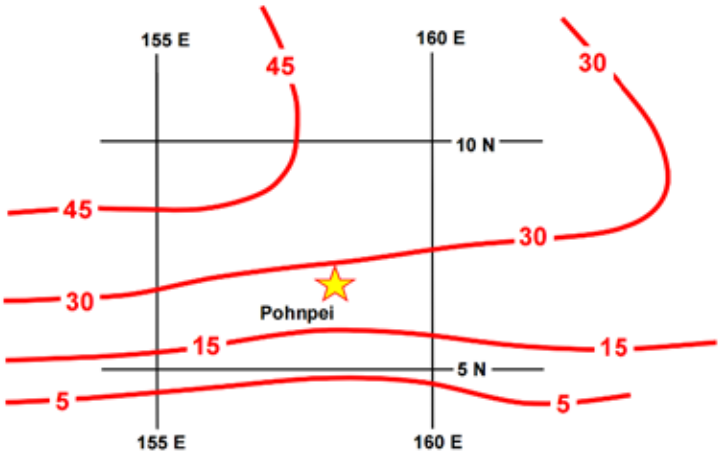


Figure 5: Number of tropical storms and typhoons per 100 years passing within 75 nautical miles of any map location
Source: Landers and Khosrowpanah, 2004
Figure 6 shows typhoon tracks surrounding Pohnpei Island for the period 1970-1999.

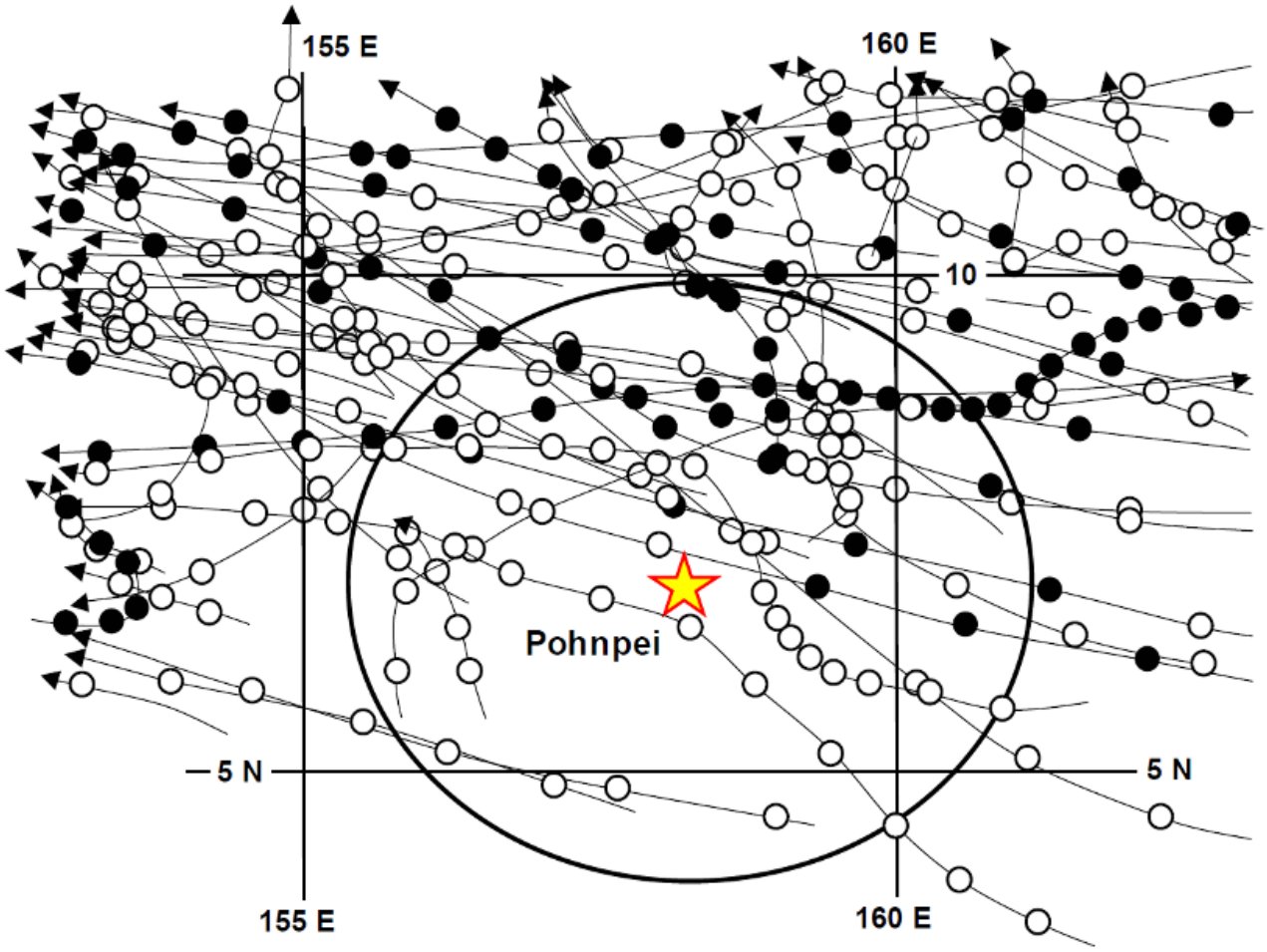


Figure 6: Tropical cyclone positions for the period 1970-1999.
Open circles indicate tropical storm intensity, black dots indicate typhoon positions, star is the location of Pohnpei and the circle has a radius of 180 nautical miles from Pohnpei. Source: Landers and Khosrowpanah, 2004

Rainfall is heavily influenced by ENSO, with almost all extremely dry years in Pohnpei occurring in the year after an El Niño. Most La Niña and ENSO neutral years experience near normal to slightly above normal rainfall (unless they are the year following an El Niño; then, in which case are dry). Dry periods lead to heightened risk of fire, drying of forests, streams and wells.

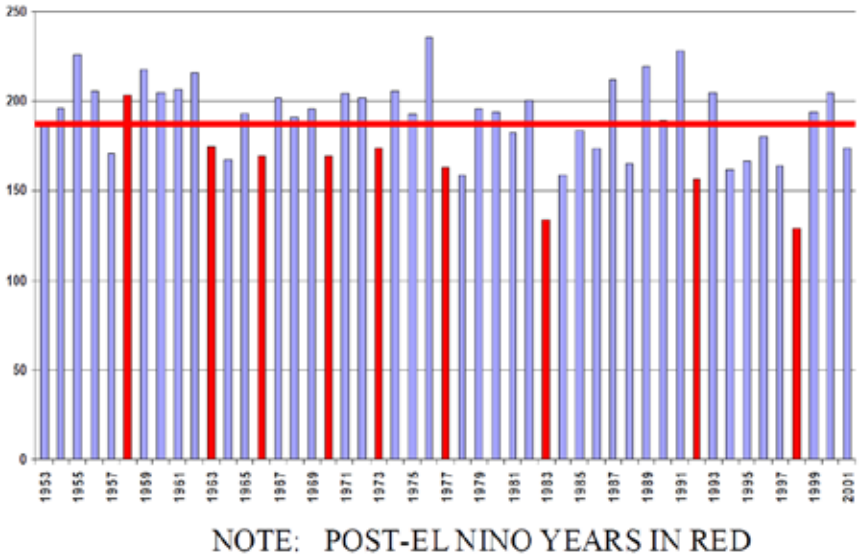


Figure 7: Pohnpei annual rainfall for the period 1953 through 2001 with mean annual rainfall indicated by horizontal line
Source: Landers and Khosrow-panah, 2004

At a more local level, rainfall distribution on Pohnpei Islands is heavily influenced by the topography, with the mean annual rainfall totals among recording stations on Pohnpei varying by over 150 inches. One of the driest sites is the Pohnpei airport (annual total of 142 inches) and the wettest is on top of Nahna Laud in the highland rainforest (receiving 323 inches annually).

Sea level is also affected by ENSO, with El Niño periods leading to the lowering of the sea level (decreasing up to 1 foot, as in the case of the 1997 El Nino) and La Niña leading to the heightening of the sea level (in strong events raising up to 1 foot). Implications for this are significant, as the normal range between the daily high and low astronomical tides is around 4 feet.

For geological hazards, Pohnpei is considered to be of lower risk than other Pacific Island Countries, being further from the seismically active Pacific Ring of Fire which is closer to Yap state.

1.5.2 Human-induced vulnerability and resilience

Development impacts

Development practices, such as building in hazardous areas, can enhance levels of vulnerability and even worsen the impacts of coastal hazards. In Pohnpei, where much of the critical infrastructure is located close to the coast particularly around the harbour, key human-induced drivers of vulnerability include:

- Sand and coral rubble removal from the reef flat
- Beach mining (removal of sand, gravel and cobbles) from the beach, primarily for construction aggregates
- Dredging of the reef flat
- Stream outlet repositioning, or changing swamp drainage patterns and flows
- Inappropriate building of seawalls, exacerbating erosion elsewhere or resulted in further development in high risk areas
- Land reclamation in areas already prone to flooding
- Road development across wetland/mangrove areas and reclaimed land

Climate change also has the potential to enhance these hazards in Pohnpei – see Section 2.

Socio-cultural resilience in Micronesia

Micronesians demonstrate significant socio-cultural resilience and resourcefulness through their culture and their understanding of the environment and weather upon which they have traditionally been dependent. Kinship and exchange networks between islands of varying vulnerability enable communities to deal with extreme events and natural disasters. In the past, mechanisms such as travel, migration and formal ceremonial exchange systems served communities well in dealing with extreme events. Today, the heritage practice of keeping ‘exchange paths’ active through kinship relations can be seen as a source of resilience and a strategy to cope with climate change (see Henry and Jeffrey, 2008).

Another traditional source of resilience in Micronesia is through food preservation for offsetting seasonal variations in food availability, to provide nourishment in times of disasters when crops are likely to be destroyed or damaged. As noted by Campbell (2006), such methods in Micronesia include:

- Fermentation of breadfruit in pits
- Creating pandanus and arrowroot flour
- Leaving yams in the ground.

Food production, especially on the outlying atolls, is vulnerable to climate change impacts such as sea level rise, storm surges and salt-water intrusion, which are already occurring. The migration of outlying islanders to mainland Pohnpei has already begun and is increasing pressures on the resources of Pohnpei Proper.

1.5.3 Recent damaging events

Damaging or noteworthy weather events are found in Table 1.

DAMAGING EVENT	KNOWN IMPACTS
LANDSLIDES	
Landslide (1997)	Landslide occurred Palikir, on the main island. People died during this event, but there is no memory of how many people died.
TYPHOONS	
Typhoon Dolphin (2015)	On May 10, 2015, Tropical Storm Dolphin passed North East of Pohnpei with winds at approximately 80mph causing an Emergency Declaration issued after damage to electrical, roads, uprooting of trees and crops and damaging more than 246 homes. 1 fatality was recorded and estimate damage
Typhoon Pongsona (2002)	On 5 December 2002, Pongsona passed to the north of Oroluk Atoll in northern Pohnpei State. However, this event did not cause significant damage (either from wind, rainfall or storm surge).
Typhoon Lola (May 1986)	The most recent damaging typhoon affecting Pohnpei (occurred in a El Nino year – see Figure 8). Major disaster declared after damage to electrical infrastructure, uprooting of trees and crops and damage to homes. No fatalities were recorded; however damage was estimated at US$11.6 million.
Typhoon Ophelia (January 1958)	Damage to crops and homes in Pohnpei, and reportedly Ophelia tore off the roof of the United States Weather Bureau office.
Typhoon Lola (1957)	Damage to crops and homes, with maximum wind force hitting Pohnpei exceeding 105 mph.
Typhoon (1905)	Kolonia and northern Pohnpei were devastated by a typhoon in 1905, with damage reported to have flattened the island of Pohnpei.
HIGH TIDE EVENTS	
2007 (Pohnpei)	No information was available for this event.
DROUGHT	
El Nino, 2015, 2016	On February 20, 2016, Emergency Declaration was issued due to severe drought damaging crops and water on Pohnpei and the outer islands estimated to be $11.4million. More than 40 wildfires was reported.
El Niño, 1997-1998	Sea level dropped by 1 foot below its long-term average and rainfall between Dec ’97 and Feb ’98 was 16% of long term average. Water restrictions were imposed in Kolonia, with some residents only able to access water 2 hours per day.
El Niño, 1983	No information was available for this event.

Sources: FEMA, UNOCHA, Landers and Khosrowpanah, 2004

Figure 8: Typhoon Lola (1986) damage, Kapingamarangi Village, Pohnpei
Source: Copyright Steve Soenke, http://libweb.hawaii.edu/digicoll/ttp/ttp_htms/4021.html

Sector and policy context

1.6.1 National policy context

Key national policies of relevance to disaster risk management and climate change are found in Table 2, with key policy goals and/or priority actions highlighted.

Table 2: FSM's national policies and key goals/priority actions

NATIONAL SECTOR POLICY FOR FSM	KEY POLICY GOALS/PRIORITY ACTIONS
NATIONAL STRATEGIC DEVELOPMENT PLAN (2004-2023)	THE NATIONAL STRATEGIC DEVELOPMENT PLAN HAS FOUR MAIN OBJECTIVES: • Stability and security – to maintain economic assistance at levels that support macroeconomic stability; achievement of this objective requires levels of funding close to prevailing levels, to avoid the large periodic step downs in funding that were a characteristic of the first 14-year Compact funding package. • Improved enabling environment for economic growth – to be achieved through the FSM commitment to economic reform and the provision of an enabling environment to support open, outward-oriented and private sector-led development. • Improved education and health status – use of the annual Compact grant to support the provision of basic services in education and health.

<table>
<tr><td></td><td colspan="2">• Assured self-reliance and sustainability – to be achieved through establishment of a Trust Fund that would, after a period of time, replace the annually appropriated transfers from the US.</td></tr>
<tr><td rowspan="2">NATION WIDE INTEGRATED DISASTER RISK MANAGEMENT AND CLIMATE CHANGE POLICY (2013)</td><td>STRATEGIC OUTCOMES:</td><td>STRATEGIC OBJECTIVES:</td></tr>
<tr><td>• Economic resilience
• Food, water and energy security
• Infrastructure and settlements
• Waste Management and Sanitation
• Health and Social Protection
• Education</td><td>• Capacity Building and Public Awareness
• Disaster Risk Management
• Climate Change Adaptation
• Greenhouse Gas Emissions Reduction
• Enabling Environment</td></tr>
<tr><td>AGRICULTURE POLICY (2012)</td><td colspan="2">• Achieve national food security, safety and nutritional health
• Improve farm incomes and livelihoods with particular focus on gender and vulnerable groups
• Strengthen socio-cultural safety nets
• Preserve and protect culture, traditional knowledge and practices
• Support sustainable economic growth and improve the balance of trade
• Improve natural resource management</td></tr>
<tr><td>ENERGY POLICY (2012) AND STATE ENERGY ACTION PLANS</td><td colspan="2">VISION: To promote the sustainable social and economic development of FSM through the provision and utilisation of cost-effective, safe, reliable and sustainable energy services.

GOALS:
• An effective, coordinated, resilient and dynamic joint states and national energy sector
• A safe, reliable, cost-effective and sustainable energy supply
• An efficient, attentive, responsive and competitive energy sector
• A diversified energy resource base
• The environmentally sound and efficient use of energy</td></tr>
<tr><td>FRAMEWORK NATIONAL WATER AND SANITATION POLICY (2011)</td><td colspan="2">VISION: To ensure that the people of the Federated States of Micronesia's right to secure access to safe and clean drinking water is met, and that the use of the Nation's freshwater resources is planned in a manner that maximises the benefits of this scarce and fragile resource for island communities, now and in the future.
GOALS:
• To create an environment at the national level, in which collaboration and partnership in addressing water resource and wastewater management issues, between all stakeholders, and at all levels is fostered and encouraged; and
• To enhance the mainstreaming of Integrated Water Resource Management and Water Use Efficiency Principles into National and State Development Planning.</td></tr>
</table>

INFRASTRUCTURE DEVELOPMENT PLAN FY2004-FY2023 (2004)	• Electric Power: ensure that all areas of the country are provided with electric power in an efficient and effective • Water/Wastewater: Meet the demand for water supply and wastewater infrastructure in an effective and efficient manner • Solid Waste Management: Meet the demand for solid waste infrastructure in an effective and efficient manner • Roads And Pedestrian Facilities: To provide the infrastructure to enable transportation facilities to be adequate in terms of condition, capacity, reliability and safety to enable market opportunities to be realised for all areas of the country, including labour market opportunities • Maritime Transportation: To provide the facilities necessary to enable market opportunities to be realised for all areas of the country, including labour market opportunities • Education: To ensure that the learning experience is enhanced and diversified. • Health: To construct modern and efficient hospital facilities to meet the health needs of the nation • Government Administrative Buildings: To construct modern and efficient facilities required for government personnel to effectively undertake their functions
NATIONAL (AND STATES) BIODIVERSITY STRATEGY AND ACTION PLAN (2002)	ELEVEN STRATEGIC THEMES, EACH WITH STRATEGY GOALS: • Ecosystem Management • Species Management • Genetic Resource Use • Agro biodiversity • Ecological Sustainable Industry Development • Biosecurity • Waste Management • Human Resources & Institutional Development • Resource Owners • Mainstreaming Biodiversity • Financial Resources
INFORMATION, COMMUNICATION & TECHNOLOGY POLICY (2012)	VISION: SECURE, EFFICIENT AND AFFORDABLE ICT TO ACHIEVE EQUITABLE COMMUNICATION FOR THE PEOPLE OF FSM. GOALS: • Achieve Accessible and Affordable Communications for All, • Strengthen ICT Human Resources and Increase Human Resource Development Opportunities through ICT • Improve Economic Growth and Sustainable Development through ICT • Utilize ICT for Good Governance and • Create an Enabling ICT Environment through Policy Reform and Improvements in Legal Frameworks

MULTI-STATE MULTI-HAZARD MITIGATION PLAN (2005)	**NATIONAL GOALS:** • Promote disaster resistant existing and future development • Increase public understanding and support for effective hazard mitigation • Build and support local capacity and commitment to become less vulnerable to hazards • Improve hazard mitigation coordination and communication with federal, state, and local governments • Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to all identified hazards
FIVE YEAR ENVIRONMENT SECTOR PLAN (2008)	**STRATEGIC GOALS:** • Mainstream environmental considerations, including climate change, into national policy and planning as well as in all economic development activities. • Improve/enhance human environment and pollution control • Reduce energy use and convert tot renewable energy sources/ Minimise emissions of GHG • Enhance the benefits of sustainable use of the FSM's genetic resources and ensure benefits are fairly shared amongst stakeholders • Manage and protect the nation's natural environmental; protect, conserve and sustainably manage a full and functional representation of the FSM's marine, freshwater and terrestrial ecosystems • Improve environmental awareness and education and increase involvement in citizenry of FSM in conserving natural resources • Establish biosecurity (border control, quarantine) programs to effectively protect FSM's biodiversity from impacts of alien species • Create sustainable financial mechanisms for environmental and sustainable resource initiatives • Enhance and employ in-country technical capacity to support environmental programs
NATIONAL CLIMATE CHANGE AND HEALTH ACTION PLAN (2012)	**KEY RECOMMENDATIONS INCLUDE:** • Review, discuss and consider implementation of the adaptation strategies • Emphasise importance of community engagement and involvement with Adaptation activities • Initial focus should be on diseases considered to be "high risk" with respect to climate change in FSM (vector-borne and water-borne illnesses and malnutrition/food security) • The FSM EpiNET team should mainstream climate change and health issues into their program activities, with the Environmental Health Coordinator acting as the key contact for climate change and health, with input from representatives from OEEM, R&D, WSO and other national agencies and Offices as needed *See National Climate Change and Health Action Plan for the Federated States of Micronesia for details.*

1.6.2 State sector policy context

Table 3 has specific policies and plans for Pohnpei state, and describes the key goals and priorities for each policy

Table 3: Pohnpei state's sector policies and key goals/priority actions

STATE SECTOR POLICY FOR POHNPEI	KEY POLICY GOALS/PRIORITY ACTIONS
POHNPEI STATE STRATEGIC DEVELOPMENT PLAN: 2023 AND BEYOND	The SDP is grounded in a vision for Pohnpei to be a "World Park" with tourism serving as a focal point for development, celebrating the culture and environment of the state. Cross-sector engagement is also prominent in the SDP, with eight sector matrices (mirroring FSM's SDP) to support sustainability across tourism, economic, social, and natural resources. The eight sectors include: agriculture, education, environment, fisheries, health, infrastructure, public and tourism. Each sector has a mission statement and strategic goals to guide development to 2023.
POHNPEI STATE DISASTER PREPAREDNESS PLAN 2002	The Disaster Preparedness Plan outlines the roles and responsibilities for disaster preparedness and response. The Governor's Disaster Committee, comprised of department directors, forms the primary group of responders. The Director of Public Safety is responsible for supporting preparedness and response, and acts as the controller of the Emergency Operations Centre (EOC) in times of disaster. Each sector is charged with developing emergency management Standard Operating Procedures.
POHNPEI STATE AGRICULTURE STRATEGIC ACTION PLAN 2011–2015	FOUR PRIORITY AREAS ARE IDENTIFIED IN THE AGRICULTURE PLAN: 1) Human and institutional capacity building; 2) Food and nutrition security; 3) Limited market opportunities and lack of competitiveness of agricultural products; 4) Public awareness and collaboration. TO FULFIL ITS VISION, THE POHNPEI AGRICULTURE OFFICE OF ECONOMIC AFFAIRS (AOEA) IS COMMITTED TO PURSUING A NUMBER OF STRATEGIES TOWARDS ACHIEVING THESE PRIORITY AREAS, AND HAS AGREED ON FOUR SECTOR GOALS: 1) Pohnpei Agriculture is fully resourced to carry out its operations effectively; 2) Enhance production, increase productivity, and resilience of crop and livestock systems for food security, nutrition, and income generation; 3) Improve marketing systems and market access to local produce; 4) Increase public awareness of the importance of agriculture, and strengthen collaboration with stakeholders and communities
POHNPEI STATE FISHERIES MANAGEMENT PLAN	No information available.

POHNPEI STATE DEPARTMENT OF EDUCATION - STRATEGIC PLAN 2008 – 2012	**THE FOLLOWING STRATEGIC GOALS ARE NOTED IN THE 2008-2012 EDUCATION PLAN:** Strategic Goal 1: Revise curriculum and standards to allow the education system to support a strong and vibrant local culture while preparing students to participate in the global economy. Strategic Goal 2: Enhance instructional programs and services to allow students to perform at grade level. Strategic Goal 4: Provide for safe and secure learning environments and facilities. Strategic Goal 5: Establish mechanisms that enhance community involvement in instructional support and school operations. Strategic Goal 6: Improve the quality and quantity of Pohnpeian and English instructional materials in core subjects.
POHNPEI INTERNATIONAL AIRPORT EMERGENCY PLAN	A review of this plan was undertaken in 2012. The review resulted in a revision of the Plan which was submitted to the FSM Secretary of Transportation, Communication and Infrastructure for approval.
POHNPEI INTERNATIONAL AIRPORT WILDLIFE HAZARD MANAGEMENT PLAN	Approved in recent years with training conducted by a trainer from US Department of Agriculture during the week following the Emergency Exercise week
POHNPEI STATE LAND USE AND ZONING MASTER PLAN (1995)	No information available.

The Pohnpei SDP, developed in 2013, provides a highly detailed plan for the development of the state, taking a sectoral approach. However, the SDP lacks attention to the challenges associated with disasters and climate change – issues which are completely absent from mention in the Plan. The JSAP will therefore fill this gap by bringing climate change and disaster sectoral interests together into one action plan, allowing for collaboration, cooperation and reducing the duplication of activities.

1.6.3 Key sectors- background context

Water resources and sanitation

In Pohnpei, 8.8% of households lack access to improved drinking water, while 38.1% lack access to improved toilet facilities (2010 census – note that 'improved' includes flush toilet, water sealed and ventilated improved pit while 'not improved' are not-ventilated-improved pit, any other form of toilet and not having a toilet).

On Pohnpei Island, the main source of water is the Napil River. There is a watershed management plan however this currently lacks enforcement. Pohnpei Utilitiy Company provides water to 53% of the main island's population.

Agriculture

Indigenous agro-forestry is a prominent feature of the Pohnpeian culture and landscape providing employment, food security, and income. Agroforestry in Pohnpei's high/ large islands consists of a permanent over storey of tree crops, in combination with forest trees, fruit and multipurpose trees. There is then an understory of shrubs, root crops, and herbaceous plants. On atolls, agroforestry includes pandanus as a multipurpose tree.

Pohnpei's main agricultural export is sakau (kava).
Home gardening is widely practiced amongst Pohnpeians (according to the 2010 census, 92% practice home agriculture), with households commonly cultivating coconuts, bananas, yams, breadfruit, sakau, swamp taro, and betel nut. Cultivation is for both for household consumption and for sale as a form of income. Pigpens are also common on riverbanks and coastal shores. On average, almost 86% of Pohnpeians raise livestock, with this number being higher in the Outer Islands (94%).

Reliance on indigenous agriculture has diminished since the introduction of the Compact of Free Association, with increased reliance on imported, Western food.

The Agriculture Policy and the Pohnpei Strategic Development Plan acknowledges the importance of agriculture for food security, income and livelihoods (as well as health). Key priority issues are identified and include: Human and institutional capacity; Food and nutritional security; Limited market opportunities and lack of competitiveness of agricultural products; and Public awareness and collaboration.

Human health

The primary health challenges affecting FSM include life style induced illness and increasing substance abuse amongst youth. In Pohnpei, the Department of Health Services has the following divisions:

- The Division of ***Medical Services*** responsible for maintaining hospital services
- The Division of Dental Services responsible for establishing and maintain dental treatment services
- The Division of ***Primary Health Care*** responsible for promoting and coordinating preventive and community health care and activities; provides health related education to individuals and the community; and establishes and implements programs on proper hygienic practices
- The Division of ***Administration and Health Planning*** who coordinate with the Division of Primary Health Care on the latter's United States federally-funded programs.

Pohnpei has a State Hospital and three privately owned clinics.
The State Governor declared state of emergency on non-communicable diseases (NCDs) in 2013, and as such, is a priority issue for the health sector. Diabetes remains one of the leading causes of morbidity and mortality in the state of Pohnpei. In Pohnpei's outer islands, one in two people are experiencing NCDs. Given the links between NCDs and food and nutrition, Pohnpei's Agriculture Policy is closely linked to health outcomes and strives for healthy livelihoods for Pohnpeians through improved agricultural management and local food production.

Fisheries, coastal ecosystems and biodiversity

As noted in Pohnpei's Agriculture Sector Plan, traditional agroforestry areas cover 37% of Pohnpei Island. Coastal forests (16%) and secondary forests (12%) comprise much of the remainder of the island. Pohnpei is rich in biodiversity, with high numbers of endemic flora and fauna species. 34% of the recorded plant species are endemic, while 16% of bird species are endemic to Pohnpei Island.

According to the 2010 census, 59% of households engage in fishing in Pohnpei state, with approx. 49% undertaking fishing for home use only.

Energy

The state of Pohnpei is reliant primarily on imported diesel for electricity generation, however this is mixed with locally produced coconut oil (approx. 10%). The Pohnpei Utility Company is a public corporation of the Pohnpei State Government and is the primary provider of electricity, water and sewage services for Pohnpei island. The Nanpil Hydro power station was originally built in 1986 and operated until 2003 when major repairs were needed. EU funded rehabilitation has recently allowed the hydro-power plant to resume operations and its capacity represents 11% of peak demand. The upgrade also reduces Pohnpei's reliance on imported fossil fuels.

Gas also forms an important source of energy, with LPG bottles primarily used in restaurants in town areas. Access to electricity is also limited, with not all people on Pohnpei's main island having household electricity.

In outlying islands, the primary energy source is biomass, with wood and coconut husks used for local cooking. Kerosene is also used for lighting; however the increase in fuel costs (which can be double the cost on the main island) and decrease in household income has led to a decline in its use.

Education

State governments in FSM have responsibility for education, with the majority of funds coming from Compact of Free Association sources. All children in FSM are required by law to attend school through to eighth grade, and many continue to college after graduating high school. As a result, FSM has a high literacy rate. All students learn English as it is the official language of FSM. The National Infrastructure Development Plan earmarked USD$135.4 million for education infrastructure spending across the 20 years between 2004 and 2023. The Plan describes issues relating to education infrastructure including poor maintenance (including failure of water and power supplies); a number of schools in a highly deteriorated state; a shortage of supplies includes furniture, equipment, books and tools; a lack of diverse facilities (such as music rooms, auditoriums, vocational training facilities); inadequately qualified teachers; inappropriate school curricula; and a lack of vocational training.

Grants and US education programs are used to support many FSM students to attend the College of Micronesia (COM), the University of Guam and US colleges.

Pohnpei runs an American style education system with free public education through age 15 (or completion of the 8th grade). As of 2007, Pohnpei had seen a steady increase in student enrolment with 11,040 students in school year 2006/2007. Elementary enrolment was at 8,491 or 77% of the student population and secondary with 2,541 students or 23% of the student population. However, declining fertility rates and out migration was slowing the growth and student enrolment was expected to level off and begin an actual decline in the near future.

Transport, infrastructure and solid waste management

The Pohnpei Port Authority has six divisions which are key to the management of the state's port of entry infrastructure:

- Airport Division
- Facilities & Infrastructure
- Finance Division
- Human Resources Division
- Marketing Division
- Seaport Division

Building locations and types on Pohnpei island are seen in Figure 9, highlighting the dominance of buildings along the coastline, and the concentration of residential and commercial buildings around Kolonia in the north of the island.

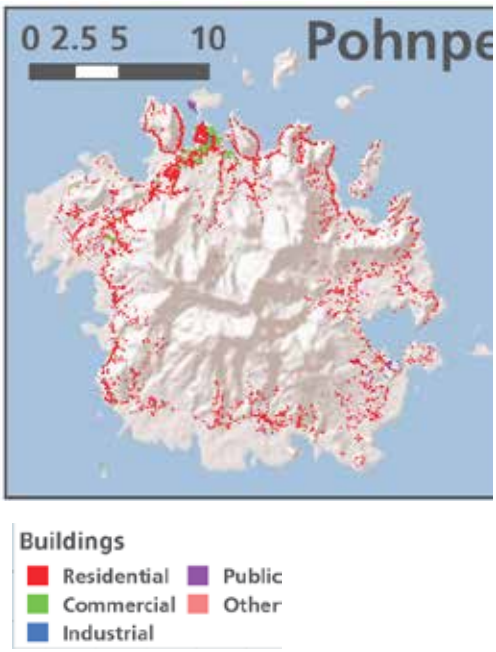


Figure 9: Building locations and types for Pohnpei Island
Source: PCRAFI, 2011

Roads and pedestrian facilities are a key priority sector for expenditure under the Infrastructure Development Plan, with USD$120.9 million earmarked for spending in the sector in the 20 years to 2023. An additional USD$88.5 million investment for maritime transportation and USD$68.4 million for air transportation has also been planned.

Most residents of the main islands of FSM own vehicles, making roads a crucial infrastructure sector. Poor transportation was identified in the FSM Agriculture Strategic Action Plan as a key limiting issue for agriculture, resulting in limited market opportunities for farmers in FSM.

Pohnpei island's circumferential road is the only arterial road on the island, thus important infrastructure supporting social and economic activities. Unfinished and damaged parts of the road present obstacles for the flow of people and goods. Past projects supported by Japan and other donors have aimed to address these issues, however maintaining this infrastructure remains a challenge for Pohnpei government. Drainage of rainfall and storm water is a big issue on Pohnpei main island, and causes transport, access and health issues.

Secondary roads (no tarmac) are in poor quality, with construction often non-standard with poor drainage.
FSM depends heavily upon maritime transportation, and potential tourism income derives strongly from exploitation of marine resources – for which adequate maritime transportation infrastructure is required.

Each of the four FSM states has an international airport. Pohnpei has airports on three of its outlying islands – Mokil, Sapwuahfik and Pingelap. The Pohnpei main island airport is at risk of sea level rise and storm water surge.

Solid waste management is a key issue across FSM. In Pohnpei, households are service by public and private solid waste operators. The central landfill is in Dekehtik and operated by the Department of Transport and Infrastructure, with a private company engaged on its management. Commercial, government and some residents are served by waste collection providers and fees charged based on volume, distance and frequency of collection. Households not served by waste collection operators must self-organise waste collection, however illegal dumping is often the preferred method, often dumping rubbish in rivers and streams. This is a significant issue in Pohnpei, and may be overcome by reviewing and expanding waste collection services.

Issues with the location of the central dumpsite include environmental hazards (proximity to mangroves has led to leaching and marine pollution) and aviation hazards (due to proximity to the airport and burning of waste). The proximity to the airport has also been raised as an issue as it is not a welcome first sight for tourists entering the island, particularly when tourism is being flagged as a key area for economic growth.

Private sector

Foreign direct investment in the FSM is regulated by both the State and National Governments and as such, banking, insurance, international and interstate transportation, fishing in the Exclusive Economic Zone (EEZ), and exploitation of any resources (other than fishing) within the EEZ and in or beneath the sea-bed and the continental shelf beyond the territorial sea are regulated by the FSM Foreign Investment Act, which was amended by Public Law 14-32 of November 02, 2005, and foreign investment regulations of January 06, 2006.

All the other sectors not regulated at the national level are under the jurisdiction of State Governments. The Pohnpei State Strategic Development Plan focuses on improving economic development in the state, including promotion of tourism.

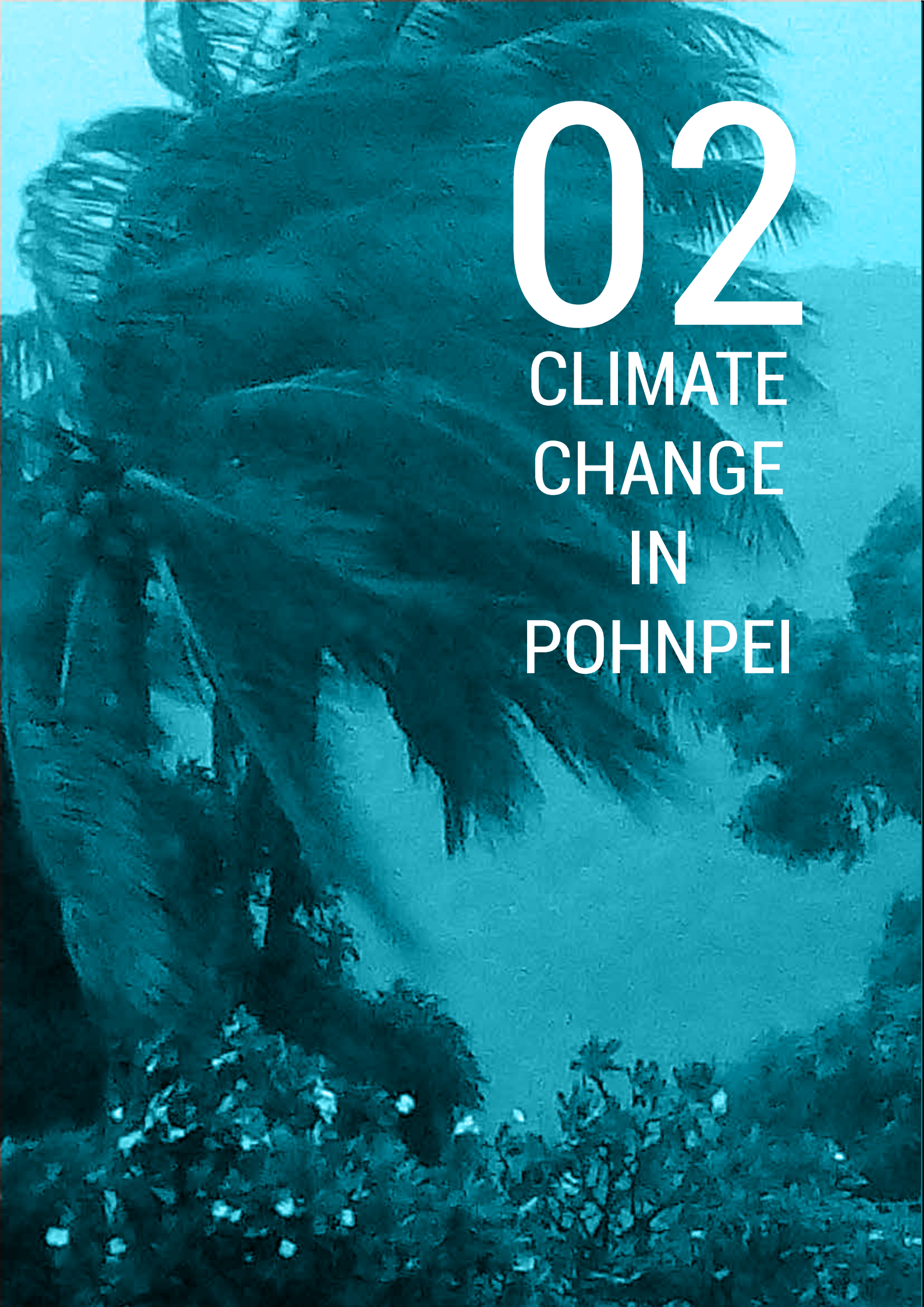
The 2013 FSM Investment Guide highlights that for Pohnpei State, investors are actively encouraged to do business in:

- Tourism development around a World Park, a Micronesian Tourism Complex, historical and archaeological sites such as the ruins of Nanmadol, and water sport activities such as surfing;
- food production and processing; and
- tuna onshore processing.

Pohnpei State implement a minimum wage set at USD$1,75. Other States are in the process of reforming their wage laws.

Foreign businesses are automatically granted one Expatriate Worker Authorization (EWA) for one Senior Management Positions. One or more additional EWA can be issued subject to certain conditions provided by the Law.

Pohnpei has two umbrella organisations for the private sector - the Pohnpei Chamber of Commerce and Pohnpei Business Association. The organisations work to network and promote private sector interests with government and other stakeholders.



02 CLIMATE CHANGE IN POHNPEI

2.1 Climate change projections for Pohnpei

2.1.1 Observations

Sea-level rise has occurred in the ocean surrounding FSM at a rate of 10mm per year since 1993. This rate is above the global average of 2.8-3.6mm/per year. The ocean has also become more acidic as a result of the ocean's absorption of carbon dioxide.

Pohnpei's average rainfall is approximately 4,800mm p.a. and is evenly distributed over 300 days of the year. Temperatures average 27 degrees C and relative humidity is high.

FSM climate sees little seasonal variation in temperature, with less than 1.5ºC between the average hottest and coolest months. FSM has experienced increases in annual and seasonal maximum and minimum temperatures since 1952, with temperature rising by around 0.1ºC per decade.

Warming trends are also evident in Pohnpei, for both annual and seasonal air temperature since 1950, as

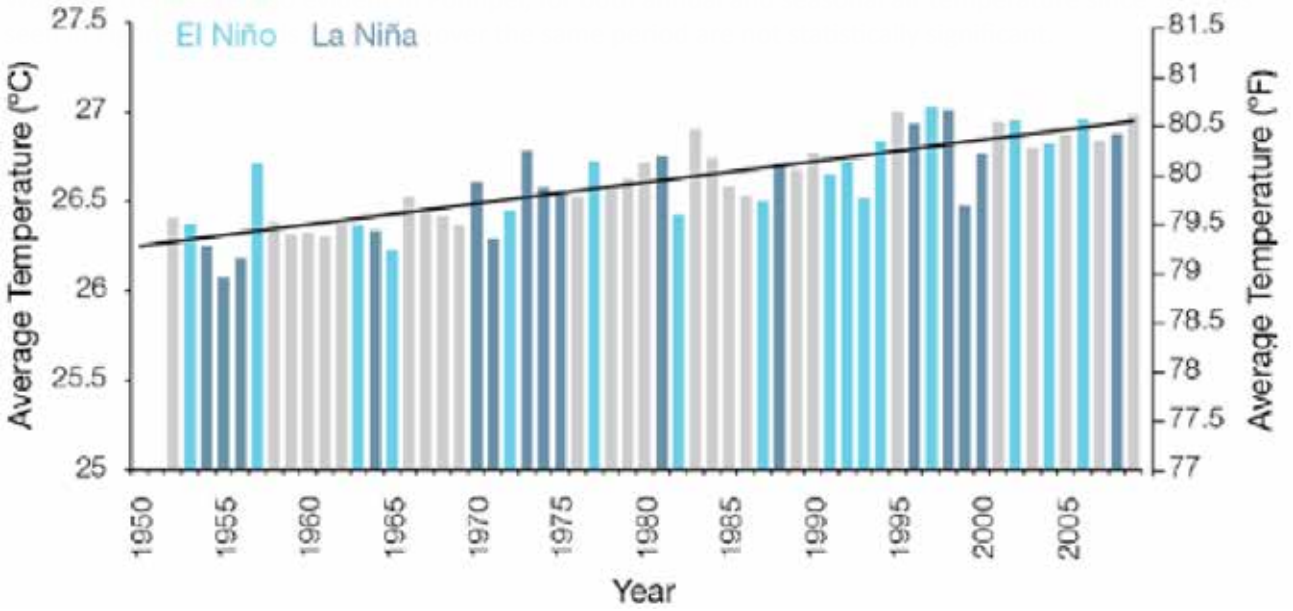


Figure 10: Annual mean air temperature in Pohnpei
Light blue, dark blue and grey bars denote denote El Niño, La Niña and neutral years respectively. Source: Australian Government Bureau of Meteorology (2013).

High sea events have been observed in Pohnpei and are often associated with La Nina events. This is seen in Figure 11 on Page 34, which also highlights specific high sea events which usually occur in La Nina years.

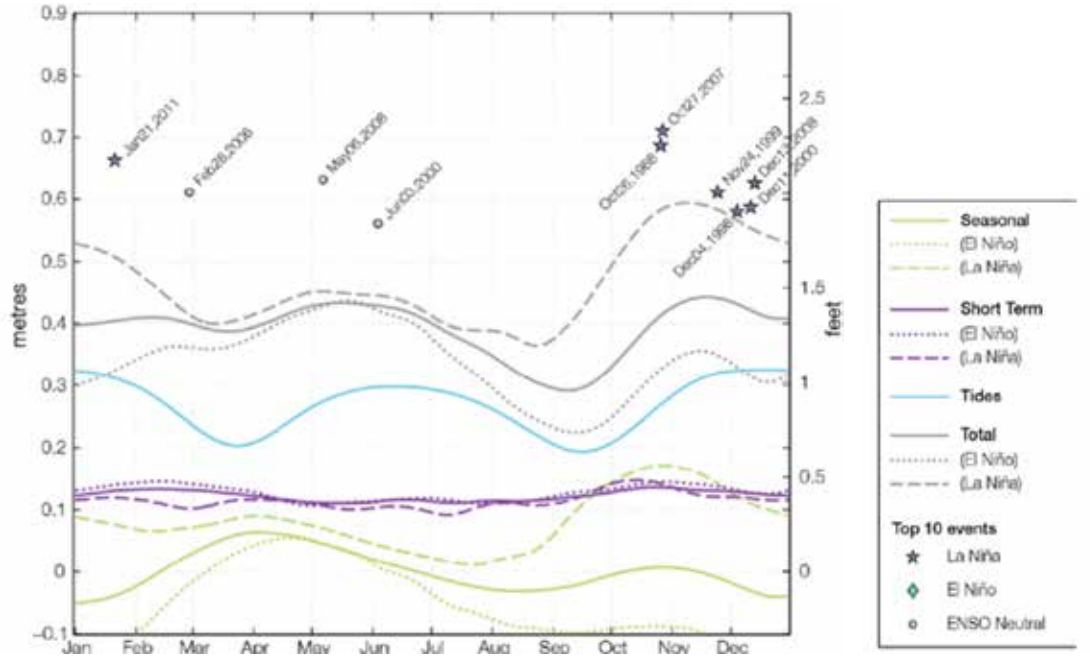


Figure 11: The annual cycle of high water levels relative to Mean Higher High Water (MHHW) due to tides, short-term fluctuations (most likely associated with storms) and seasonal variations for Pohnpei
Source: Australian Government Bureau of Meteorology (2013).

2.1.2 Future climate

Temperature

Projections indicate that the air temperature and sea surface temperature will continue to increase into the future for the FSM and for Pohnpei. An increase in hot days and a decrease in cool weather are also predicted.

Rainfall and drought

Rainfall projections from global climate models carry some uncertainty, with inconsistent results more common than for temperature.

Despite this, almost all models predict an enhanced hydrological cycle, with increases in annual and seasonal rainfall and a reduced frequency of droughts. Rainfall patterns are also linked closely to ENSO cycles, however there is considerable uncertainty in how climate change will affect ENSO in the future. Extreme rainfall days are likely to occur more often across the FSM. Despite Pohnpei's observed recent slight decrease in rainfall, projections are for an overall increase – however climate models struggle with resolving the small resolutions associated with island states such as Pohnpei and the influence of topography.
The incidence of drought is also expected to decrease over the 21st century, consistent with an overall increase in rainfall for FSM.

Recent projections suggest that:

- mild drought will occur:
  - approximately eight to nine times every 20 years in 2030
  - approximately seven to eight times every 20 years by 2090 under the B1 (low) emissions scenario, and six to seven times under the A1B (medium) and A2 (high) scenarios
- moderate drought will occur:
  - once to twice every 20 years in 2030
  - once every 20 years in 2090 for all emissions scenarios
- severe droughts will occur:
  - approximately once every 20 years across all time periods and scenarios

Note that there is low confidence in these projections (see Australian Bureau of Meteorology, 2013 for details).

Severe weather

Projections for typhoon frequency and severity in FSM show a decrease in typhoon frequency by the last 21st Century as well as a decrease in the proportion of severe storms. Again, considerable uncertainty surrounds such projections and there remains a chance for typhoons and severe storms to affect Pohnpei.

Sea-level rise

Sea level is expected to continue to rise across FSM consistent with current trends. Figure 12 Error! Reference source not found.shows projections for FSM up to 2070 for the low and high emission scenarios while Figure 13 shows observational data up to 2005 and projections to 2100.

Ocean acidification

Increased ocean acidity is predicted under all three emission scenarios for FSM. Reef ecosystem health is likely to be affected by such changes, with additional pressures such as coral bleaching and storm damage compounding the impacts.

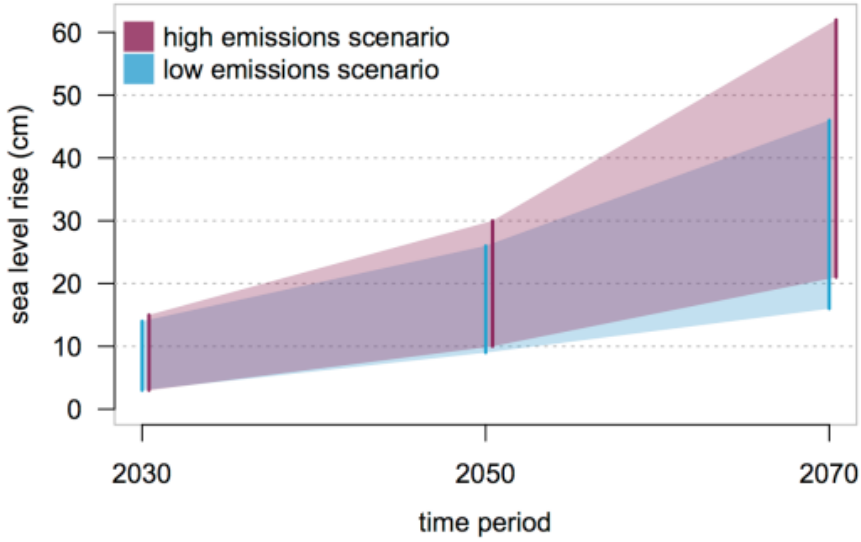


Figure 12: Sea-level rise projections for FSM under two emission scenarios and three time periods. Source: Australian Government Bureau of Meteorology (2011).

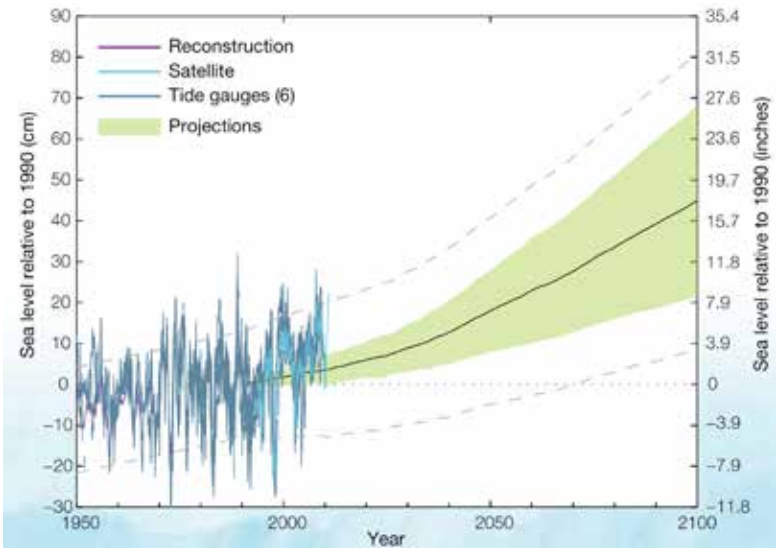


Figure 13: Observed and projected sea-level rise near Federated States of Micronesia. Source: Australian Bureau of Meteorology (2011b) Figure 6.

Sector vulnerabilities

2.2

Table 4 describes how Pohnpei's key sectors are vulnerable to climate change. JSAP Actions (see Appendix D) provide details of how Pohnpei's stakeholders plan to address these vulnerabilities and challenges moving forward.

Table 4: Pohnpei's key sectors and their vulnerabilities to climate change

SECTOR	PROJECTED CLIMATE CHANGE IMPACTS
Water resources and sanitation	Pohnpei is vulnerable to periods of low rainfall (sometimes associated with El Nino events), with past drought events providing examples of such challenges. Climate change, and potential alterations to rainfall patterns, therefore poses a moderate risk to water resources through enhanced or prolonged drought. Pohnpei's outlying islands often have limited groundwater, thus any reduction in rainfall leaves them prone to water shortages. Pohnpei is vulnerable to projected periods of increased rain and has inadequate current drainage infrastructure to manage current water flows, let alone increased rainfall. Inadequate drainage is likely to be increased in the future.
AGRICULTURE	As noted in the Agriculture Policy, food and farming systems do not address the impacts of climate change sufficiently with gaps relating to biodiversity, sufficient skilled labour and supporting infrastructure. It is likely that sea-level rise will result in salinization of agricultural land, with outlying islands and coastal areas of Pohnpei Island vulnerable to high seas and storm surge. Land loss via erosion is also likely, particularly in the low lying outlying islands, further reducing the availability of suitable land to grow crops and affecting food security.
HUMAN HEALTH	Climate change is likely to enhance the risks for the potential of outbreaks of vector-borne diseases such as dengue fever, Zika and Chikungunya due to an increase in mosquito breeding sites associated with a warmer climate and potentially higher rainfall conditions. Higher temperatures may also lead to increased transmission of water-borne diseases; for example, prolonged periods of high temperatures can enhance the conditions favourable to some types of diarrheal diseases and gastroenteritis. There is also an enhanced risk of outbreaks of diseases such as typhoid and cholera with contaminated water during and after flooding. As noted in FSM's National Climate Change and Health Action Plan, there is also a growing concern that climate change-induced impacts on crops and fisheries will exacerbate poor nutrition amongst FSM's populations. Furthermore, projected high temperatures may decrease the degree of physical activity, potentially increasing non-communicable diseases such as heart disease and diabetes. The rate of hospitalisations and deaths of the very old, very young and those with non-communicable diseases and other chronic illnesses such as cancer and cognitive impairment may also be impacted.

INFRASTRUCTURE	Coastal erosion, driven by the combined effects of sea-level rise and development practices, will continue to threaten coastal infrastructure in Pohnpei. Sea level rise, combined with storm surges associated with typhoons and tropical storms (as experienced in the recent past) pose a risk to infrastructure, much of which is built with little / no regard for construction standards. A poor history of infrastructure maintenance and non-adherence to building code leaves public buildings and private dwelling even more at risk to damage through hazards such as typhoons, storms and sea level rise. The central business district of Pohnpei's Kolonia is built around a harbour, with the shoreline protected by walls and revetments with top elevation of most of this coastal protection being 0.3 -0.6 m above high tide. As noted in the Climate Change Profile for FSM, by mid-century or earlier, this coastal protection will need upgrading to protect the critical roads, fuel depots, buildings, and freight handling facilities lining the harbour. The airport is also cited by local Pohnpeians as being at risk to sea level rise and storm surges.
FISHERIES, COASTAL ECOSYSTEMS AND BIODIVERSITY	Climate change stress will adversely affect Pohnpei's natural protective functions provided by coral reef systems, seagrass beds, mangrove strands, wetland areas and the coastal berm. Substantial negative impacts on coastal and marine ecosystems are likely. Rising ocean temperatures and ocean acidification (via increased concentration of carbon dioxide) may have significant adverse impacts upon coral reefs, coastal ecosystems, and migratory fish stocks such as tuna, which represent a substantial economic resource for Pohnpei.
PRIVATE SECTOR	Pohnpei private sector identified during consultations issues relating to (current) poor infrastructure (drainage, roads, electricity, water, sanitation and waste management) which will be further stressed through the impacts of climate change and increased disaster risk. Additional impacts include the potential of typhoons and storms to disrupt commercial transport access, posing a risk to both incoming people and supplies for the island.

2.3

FSM'S institutional response

2.3.1 Disaster and climate change policy context

Actions to address risks associated with climate change and disasters have already been taken through the development of legislation, policies and plans in FSM and Pohnpei, and these are described below.
Nation Wide Integrated Disaster Risk Management and Climate Change Policy (2013) – superseding the Nation Wide Climate Change Policy of 2009

As noted in Section 1 (Governance Arrangements) and also due to the cross-cutting nature of disaster and climate risk management, implementation of the national policy for climate change and DRM is a shared responsibility between government, private sector, civil society and communities. The policy notes that national and state governments will lead the promotion, coordination and monitoring the implementation of the policy.

Due to the constitutional arrangements in FSM, the state governments are responsible for implementing the Disaster Risk Management and Climate Change Policy.
The Office of the Governor under the Disaster Assistance Act 1989 is specifically mentioned to be responsible for disaster mitigation, preparedness, response and recovery at the state level.
In Pohnpei, that responsibility is delegated by the Governor through an executive order to the Department of Public Safety.

Local government, private sector, civil society and development partners are also noted to have roles to play in implementing the policy.

Climate Change Act (2013)

The Climate Change Act introduces legal obligations for certain national government departments and agencies of FSM. The Act states that by 1 October, 2014 certain departments must prepare plans and policies on climate change (consistent with the National Wide Integrated Policy) and the Office of Environment and Emergency Management is responsible for overall implementation. Annual progress reporting of implementation of the policy is also stated under the Act.

Disaster Relief Assistance Act (1989)

This Act provides details of roles and responsibilities for times of disaster, including presidential authority, national government authority and state responsibilities. States are required to develop state disaster plans to qualify for national assistance. States wishing to request overseas support must first submit their request to the President. The Act also describes the Disaster Relief Fund, with contributing funds from the Congress of FSM, State legislatures, US grants and international organizations. Funds can be drawn upon after formal declaration of a disaster by the State Governor, and authorization by the President.

Disaster Mitigation Act (2000)

The Disaster Mitigation Act 2000 emphasises the importance of disaster mitigation and planning for disasters prior to their occurrence. The act reinforces a comprehensive and enhanced mitigation plan prior to disaster occurring.

Pohnpei Constitution: Article 7 - Responsibilities of the Government of Pohnpei

Section 6. Public Safety

Article 7 states that:
(1) The Government of Pohnpei shall establish and faithfully execute comprehensive plans for continual improvement in the protection of the safety and security of persons and property.
(2) There shall be a Pohnpei Government agency responsible for maintaining peace and order in times of crisis and natural disaster.

2.3.2 Disaster risk management and climate change responsibilities

In 2008, US Federal Emergency Management Agency (FEMA) had relinquished responsibility for disaster assistance (response and reconstruction) in FSM allowing the national government to take full control and may request US assistance through the USAID. This change aims to reflect the transition of FSM to an independent country. As part of this shift in responsibilities, USAID contracted the International Organization for Migration (IOM) to manage disaster risk management coordination and implementation in FSM. This contract was renewed in 2014.

A Nationwide Climate Change Policy was adopted by FSM in 2009, and overseen by the Office of Environment and Emergency Management. The focus is to mitigate climate change – especially at the international level – and adaptation at the national, state and community levels to reduce the FSM's vulnerability to climate change impacts. In 2013, a Nationwide Integrated Disaster Risk Management and Climate Change Policy was put in place which, amongst other things, focuses on adaptation at the national, state and community levels to reduce FSM's vulnerability to climate change and disaster risks.
Governance of disaster risk management and climate change is delivered through the FSM Climate Change Country Team and the FSM National Disaster Committee. These structures are complemented by the divisions of Emergency Management and Environment and Sustainable Development in the Office of Environment and Emergency Management.

The FSM National Disaster Committee (NDC) is made up of Secretaries of the Departments, and Directors of offices and agencies that comprise Cabinet. This committee serves as an advisory body to the President on policy matters pertaining to the dispensing of the National Government disaster assistance to the state(s) stricken by disaster. The NDC is responsible for guiding and supporting the development and implementation of disaster management programmes. A disaster risk management (DRM) 'network' exists amongst the Government of FSM and its main disaster risk reduction (DRR) partners.
Each FSM state has its own set of environmental laws and regulations geared to protect the islands form the effects of climate change. The Governor of each state has primary responsibility for the formulation of policies and procedures to deal with natural disasters and mitigation activities within their state. The Governor's Disaster Committee for each state includes all department, office and agency heads. The Committee serves as an advisory body to the Governor in the formulation of policies and coordination of the disaster response efforts.

In Pohnpei, the Disaster Committee is made up of the Executive Group of Department Directors that form the primary of responders. Agency and local political jurisdictions within the emergency management program may likewise be represented on the Governor's Disaster Committee.

2.3.3 Gaps in Pohnpei's institutional response to disasters and climate change

Despite having a holistic, integrated and multi-sectoral Strategic Development Plan (SDP) at the state level, Pohnpei lacks an institutional response to climate change and disaster management, as the SDP excludes any mention of dealing with the challenges associated with changing risks related to climate change or disasters generally. This mirrors other states, which lack coordinated state based activity to improve disaster response and to address climate change. The decision to develop JSAPs at the state level goes some way to address this gap, by engaging relevant stakeholders and developing specific actions to address key risks. The JSAP also provides an overarching, cross-sectoral approach to dealing with climate change and disasters.

2.4 Linkages to national, regional and international policies and frameworks

Pohnpei's Joint State Action Plan for Climate Change and Disaster Risk Management represents the operational plan for action, which fits into the nested hierarchy of policy instruments to address climate and disaster risk from local to global level (Figure 14).

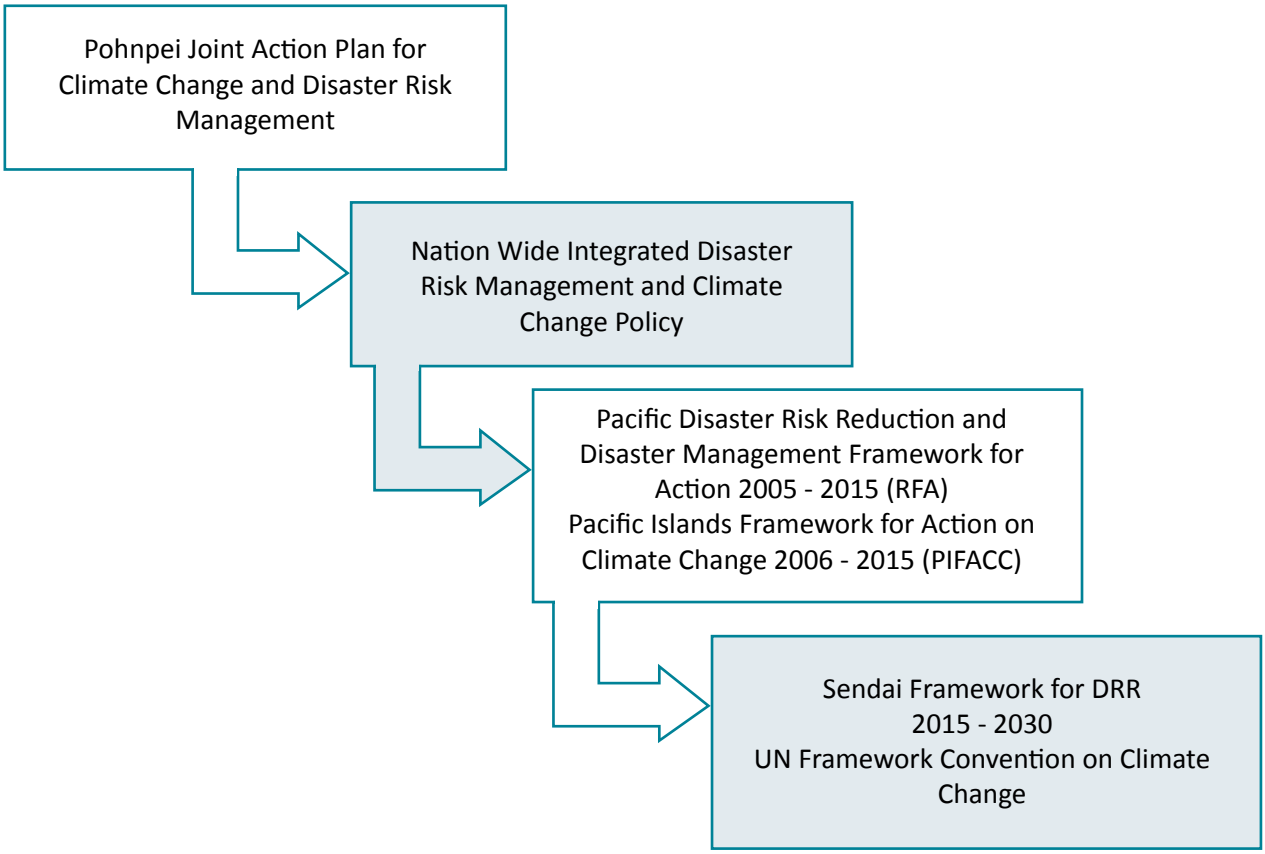
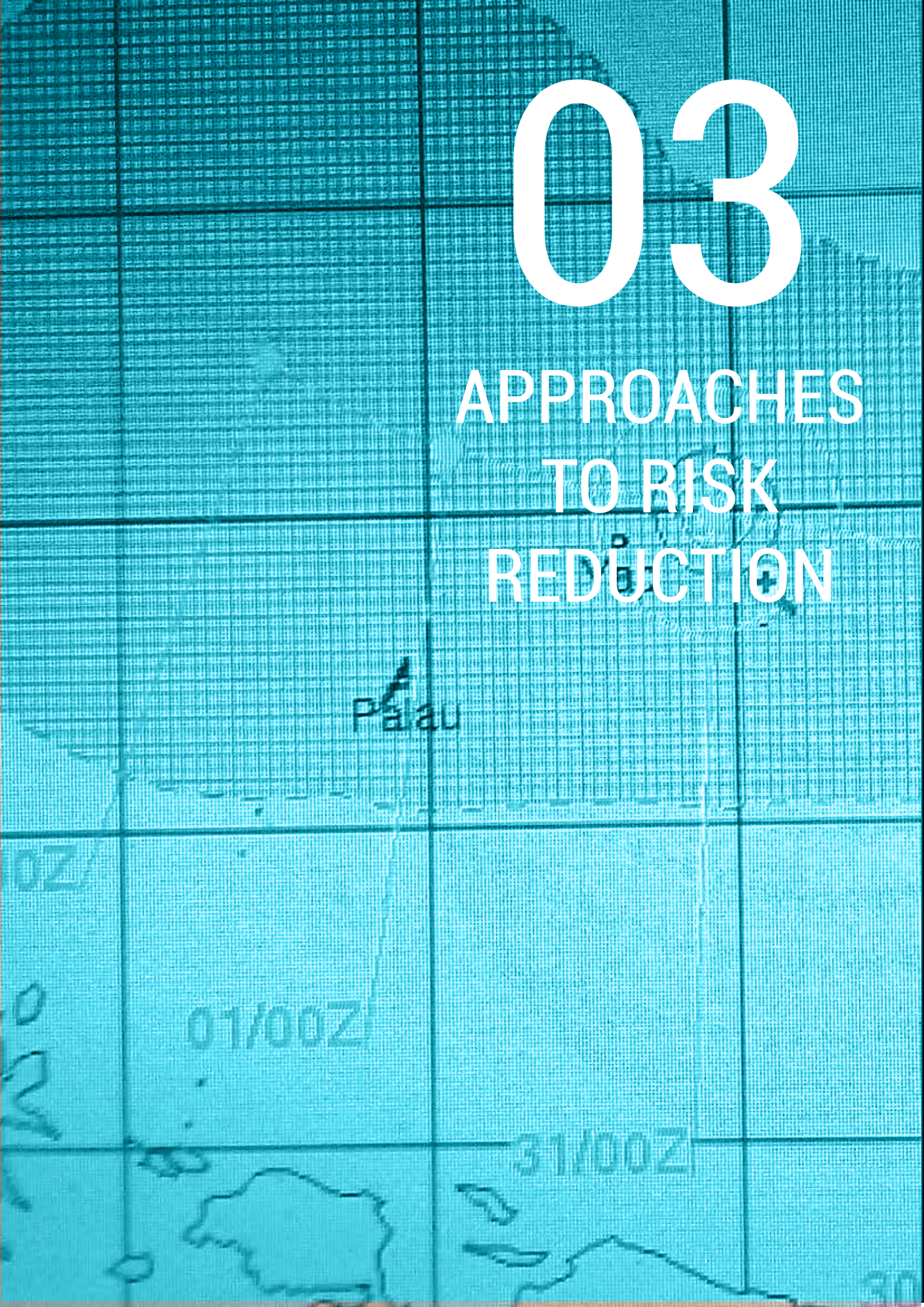


Figure 14: Links between Pohnpei's JSAP and national, regional and global frameworks

At the regional level, work is being undertaken to integrate strategies for climate change and disasters through the Strategy for Climate and Disaster Resilient Development in the Pacific that will replace the RFA and PIFACC, post-2015. Pohnpei's Joint State Action Plan will support this strategy through its integrated approach of addressing local disaster and climate change risks. As noted in FSM's National Wide Integrated Policy for Climate Change and Disaster Risk Management, instruments such as Pohnpei's Joint State Action Plan will assist in meeting regional and international treaty obligations and objectives to which the Government of FSM has agreed.



03

APPROACHES TO RISK REDUCTION

3.1 Current Projects

Current projects relating to disaster risk management and climate change in Pohnpei include:

Micronesia Conservation Trust (MCT) in Pohnpei: The MCT have several projects relating to DRR and CCA in Pohnpei:

- Conservation Society of Pohnpei (CSP)- University of the South Pacific European Union-Global Climate Change Adaptation Project - MCT is hosting this project on three demonstration sites in the FSM including at Pakin. Activities include a community participatory Vulnerability and Adaptation Assessment; and developing and implementing a Community Adaptation Plan
- Enhancing Sustainable Coral Reef Monitoring and Management Capacity for the Micronesia Challenge, and Beyond for the State of Pohnpei - MCT is managing eight local conservation organizations and Universities to implement this project which includes enhanced data collection, monitoring and reporting on coral reefs
- Enhancing the Enforcement of Ant Biosphere Reserve in Pohnpei – this project's goal is 'improved level of compliance on Ant Atoll biosphere reserve through effective enforcement'.
- Awak River and Piggery Clean-up Project - MCT is the fiscal sponsor for the Awak Youth Organization which is implementing this project. The goal of the project is 'To improve water quality of the Awak River for a vibrant, healthy and sustainable community that can maintain its culture and traditions for future generations.'
- Planning for Fisheries Management, Marine Resource Management, and Enforcement Development – activities of this project include: creating a fisheries advisory body of fishers and market owners; developing a joint five-year work-plan to improve fisheries management and launching a statewide awareness campaign about Pohnpei's fisheries.

Coping with Climate Change in the Pacific Island Region (CCCPIR): A German government funded project working in 15 countries in the Pacific, with the objective: "The skills and capabilities of the local population, national governmental authorities and regional organisations are enhanced in order to cope with the effects of climate change and combat its causes". Activities in Pohnpei include:

- Harmonized GIS for all FSM states and national government
- International Day of Disaster Reduction (IDDR) and World Food Day in Pohnpei, FSM 2012, 2013
- Celebration of Earth Day 2013 Awareness campaign for 700 students from all Pohnpei schools
- Training Program for the infrastructure sector public servants to Incorporate CC into state development policies/action plans to align them with national policies
- Incorporate CC into insurance and financial institutions lending processes (still to be implemented)

The Micronesia Challenge: Commenced in 2006, this is a commitment by Micronesian governments to strike a critical balance between the need to use natural resources today while sustaining those resources for future generations. The commitment is to "effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020". Pohnpei, Kosrae and Yap have established significant conservation areas and are engaged in supporting communities affected by these changes.

Project for Promotion of Regional Initiative for Solid Waste Management: Japan-supported initiative for upgrade of Dekehtik dumpsite to a semi-aerobic "Fukoko-style" landfill through a pilot initiative launched in 2013.

Organisations with responsibility and interest in disaster and climate change related issues in Pohnpei include the following:

- Department of Public Safety
- Department of Land
- Social Affairs
- Fisheries and Agriculture
- Transport and Infrastructure
- Port Authority
- Environment Protection Authority (EPA)
- Transportation Authority
- Micronesia Red Cross Society, Pohnpei
- College of Micronesia (COM - Pohnpei campus)

Recent disaster risk reduction and climate change-related achievements are presented in Box 1 below.

Box 1: Recent achievements for FSM

- Nation Wide Integrated Policy for Climate Change and Disaster Risk Management and Climate Change Act to institutionalise mandatory consideration of climate and disaster risks
- A Climate Change Tool Kit developed by the Micronesian Conservation Trust and The Nature Conservancy offers a standardized methodology for addressing vulnerability and adaptation participatory assessment research and planning
- IOM has developed a standardized template for collection of data relevant for contingency planning (logistical)
- Increased use of sector-specific risk assessments (e.g. agro-forestry, mangrove management, coastal erosion, coral bleaching and in-shore sedimentation.)
- The FSM Infrastructure Policy and Implementation Committee (IPIC) developed design criteria in 2006 for use by engineers designing projects funded under the Compact Infrastructure Sector Grant. The design criteria address increased wind speed, seismic vulnerability, flooding from both rainfall and tidal surges.
- State-Wide Assessments and Resource Strategies (SWARS) were carried out for each state in 2010. They include a focus on cross-cutting issues such as food security, watersheds management, production and sustainable harvesting and coastal stabilization.

Source: HFA Consultation (2012).

As part of the Hyogo Framework for Action 2005-2015 consultation process in 2012, an assessment was made regarding the factors contributing to the achievements listed in Box 1. These include:

- Growing political appreciation for the importance of disaster risk reduction and climate change
- Increased engagement of regional and international development organisations on issues of disaster risk management and climate change
- Multi-sector nature of disaster risk management and climate change ensures that awareness of these issues is raised in a broad range of national agencies, mostly through their sectoral channels of regional and international cooperation
- Importance attributed to disaster risk management and climate change as a development issue at the regional and international level.

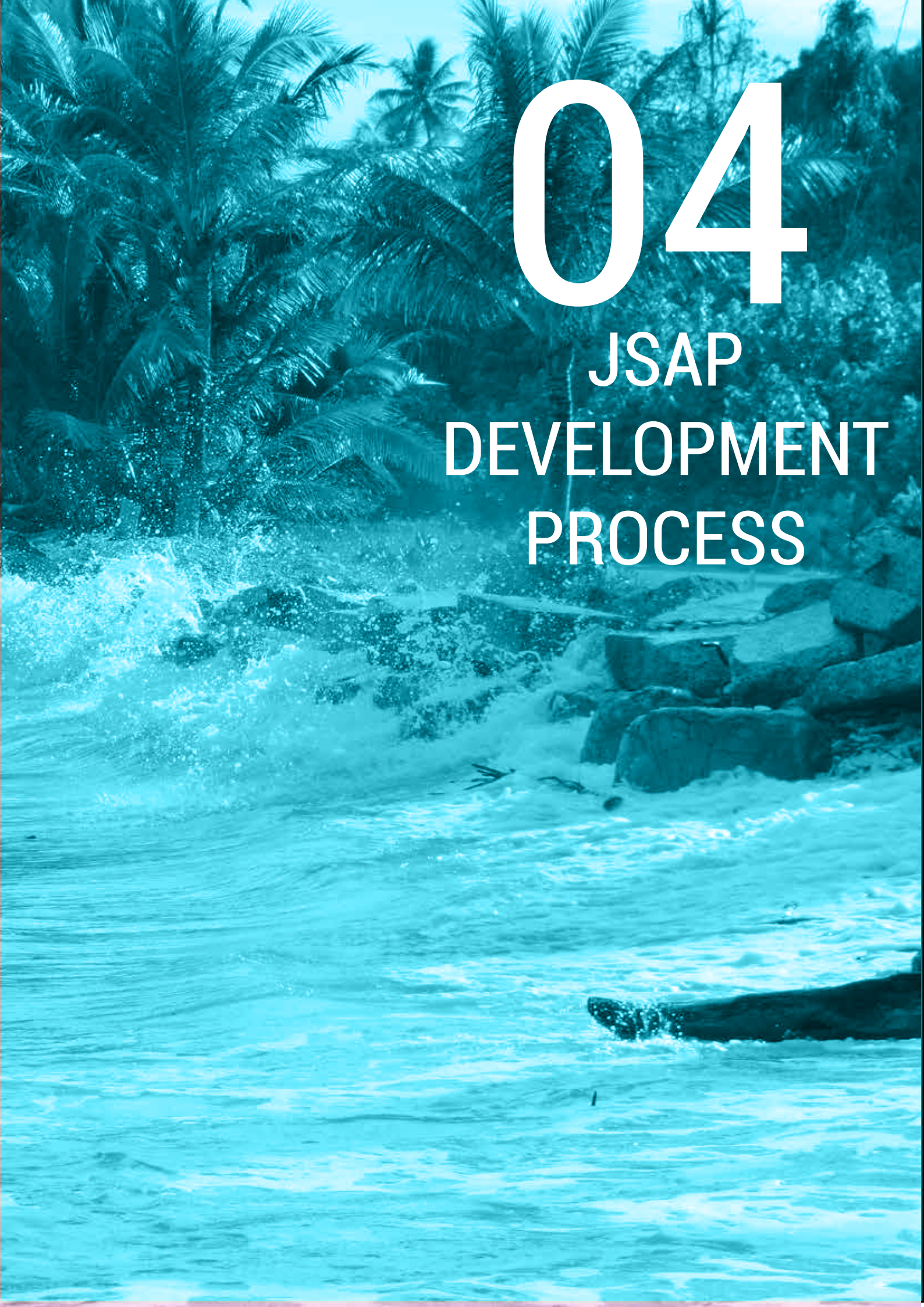
3.2 Gaps and future needs in Pohnpei

The evaluation of FSM's progress towards the goals within the Hyogo Framework for Action (HFA), undertaken in 2012, provides a useful snapshot of how FSM is faring with regards to reducing risk across a range of issues. Table 5 consolidates some of these findings from the HFA Review as well as one relevant finding from the national Agriculture Policy, including prioritised actions that may be addressed in Pohnpei's Joint State Action Plan for Climate Change and Disaster Risk Management.

Table 5: Areas for action to address current and future risk in Pohnpei

AREA FOR IMPROVEMENT/ACTION	SOURCE OF INFORMATION
COMMUNITY-LEVEL ACTION NEEDED: Greater focus on implementation of community level activities and need for a dedicated government budget to support activities at the community level. The need to provide communities with good examples of risk reduction activities; and adopt whole-of-community approaches where the population at large must assume responsibility for such change	HFA Review Process 2012
INCREASED AWARENESS AND UNDERSTANDING OF CC AND DRM: Improve understanding of DRR and climate change among government planners to enhance recognition of DRR and CC as a core government development function. Reinforce the integration of DRR and CC into development planning and reporting through regular formal reminders during the annual planning cycle. Strengthen accountability through improved community monitoring and participation; and climate change is viewed as having its origins in developed countries and the feeling was that developed countries should pay for the negative impacts on small island countries	HFA Review Process, 2012

STRENGTHEN THE GOVERNANCE CAPACITY: Support for the under-resourced National and State Disaster Management Offices in terms of core operating budget, staff and equipment; and National and State Disaster Management Offices are under-resourced in terms of core operating budget, staff, and equipment; and no dedicated government budget for community-level DRM and CC activities	HFA Review Process 2012
DEVELOPMENT AND INFRASTRUCTURE PLANNING: Strengthen the integrity of the development consent process and environmental impact assessments; and the need to rigorously apply land use planning and actively enforce building codes	HFA Review Process 2012
IMPROVED UNDERSTANDING OF DECISION MAKERS: Simplification and clarification of the concepts and terms used in the post-2015 regional and global DRR and climate change frameworks; and need for awareness raising on and dissemination of regional and global DRR and climate change frameworks at national level; and in a highly competitive environment, government planners do not see DRM and CC as a core government development function, preferring to rely on funding from development partners; and greater emphasis on how to achieve sectoral integration as DRR does not yet feature strongly in sectoral planning; and DRM and CC are exploited for political gain – politicians are quick to respond after a disaster, often with unrealistic promises of assistance	HFA Review Process 2012



04

JSAP DEVELOPMENT PROCESS

4.1 The JSAP process for Pohnpei

The JSAP development process in Pohnpei began with a broad suite of consultations with key stakeholders in April 2015. The consultation process was coordinated by the Department of Public Safety, Pohnpei State Government with support from the national Office of Environment and Emergency Management and SPC.

Consultation consisted of briefing meetings with the Governor, the Cabinet followed by sector specific workshops with key groups to facilitate the development of actions to address outstanding vulnerabilities for Pohnpei. A diversity of individuals and groups included in the consultations ensured a range of perspectives were included, as seen in Figure 15 and photos in Figure 16. During consultations more than 50 individuals participated across the different sectors.

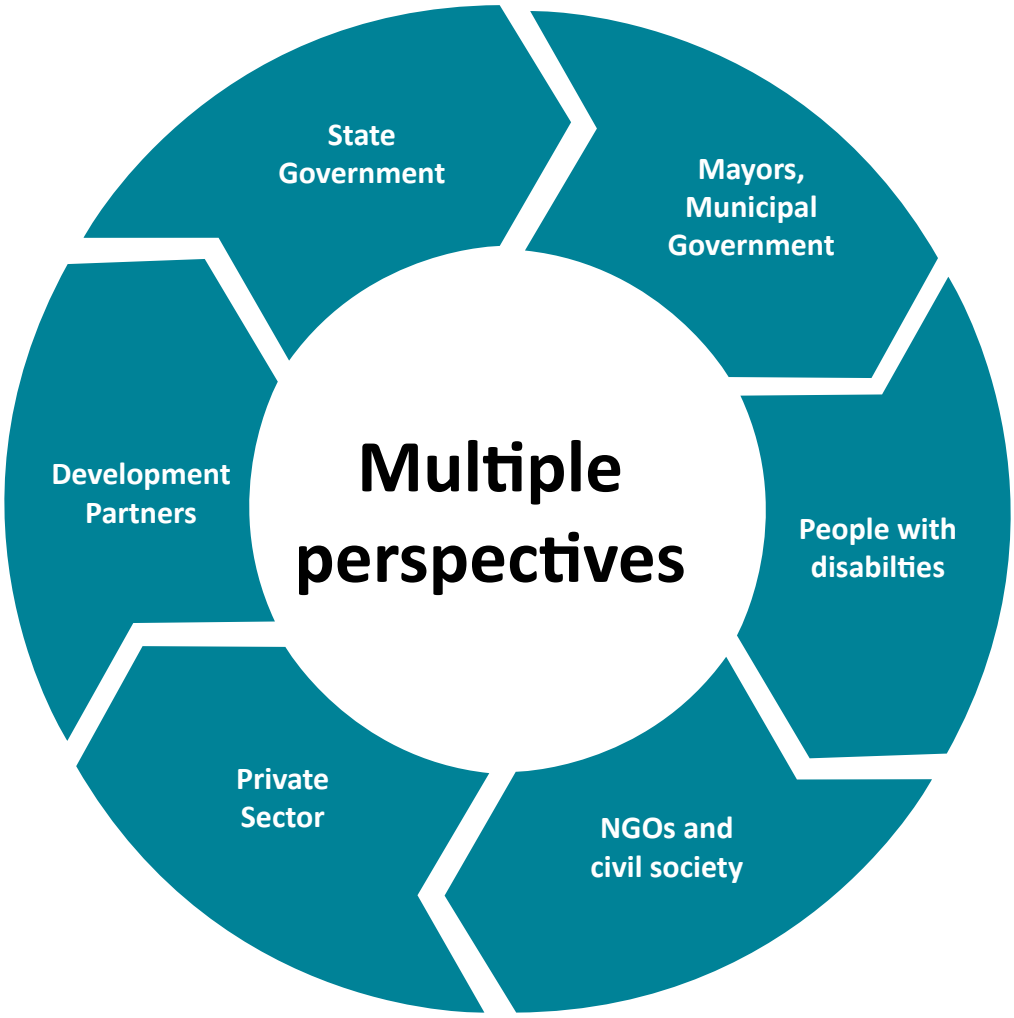


Figure 15: Organisations consulted in the JSAP development process

Figure 16: Photos from Pohnpei JSAP consultations (May 2015)

Given the existence of the Pohnpei State Strategic Development Plan (SDP), the JSAP development process was framed in such a way that actions identified for the JSAP would be linked to existing objectives and outcomes outlined in the SDP. The JSAP can be seen as a complement to, and an action plan that 'climate and risk-proof' the SDP

This is seen is Figure 17 below.

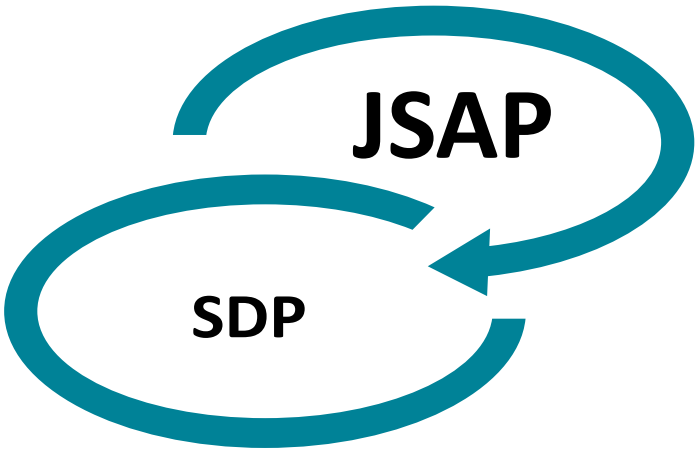


Figure 17: Links between Nation Wide Policy and JSAP

Furthermore, links between the Pohnpei JSAP Priority Areas, to the National Policy and Pohnpei SDP, as seen in Table 6 below.

THEMATIC AREAS FOR POHNPEI JSAP	POHNPEI STATE SDP	NATIONAL POLICY ON CC AND DRM STRATEGIC OUTCOMES
1. Health	Health	Health
2. Education	Education	Education
3. Social Protection		Social & Cultural
4. Agriculture & Fisheries	Agriculture Fishers	Resource, Development & Environment
5. Environment	Environment (no outcomes stated)	
6. Infrastructure	Infrastructure	Infrastructure
7. Economic resilience		Private Sector
8. Coordination of CC and DRM	Public Sector	

Consultation with all groups consisted of a series of steps to ensure discussions were framed with the disaster and climate change lens, while at the same time considered in terms of sectors present, and actions already identified in their own sector plans. The steps taken consisted of the following:

Step 1) Identification of key hazards affecting Pohnpei (identified from literature and from personal experience). Overall results from participants are seen in Figure 18, showing tropical storms and typhoons, coastal erosion followed by rising sea level rising were identified as the key hazard by stakeholders. It should be noted that representatives from outer islands identified sea level rising and erosion as the major issues, whilst representatives from the mainland identified a broader range of risks.

Step 2) Identified key strengths/capacity in communities and government (considering key hazards and climate change projections for Pohnpei)

Step 3) Identified key vulnerabilities (considering key hazards and climate change projections for Pohnpei)

Step 4) Ranking the five elements of capacity, given vulnerabilities and strengths. This step involved stakeholders using a matrix which included the five elements of capacity (human, social, natural, physical, financial – see also Appendix 3), and individually rating how they saw each element in Pohnpei. Combined results for all stakeholders revealed where the strengths and gaps were for the development of actions (see next step, and results in Figure 19).

Step 5) Development of key actions to address gaps, and identification of responsible agencies to lead the action. This step was undertaken in two phases, firstly in small groups during group consultations, and secondly at the multi-stakeholder workshop Sub-actions were also identified to allow for estimated costs to be developed for each activity.

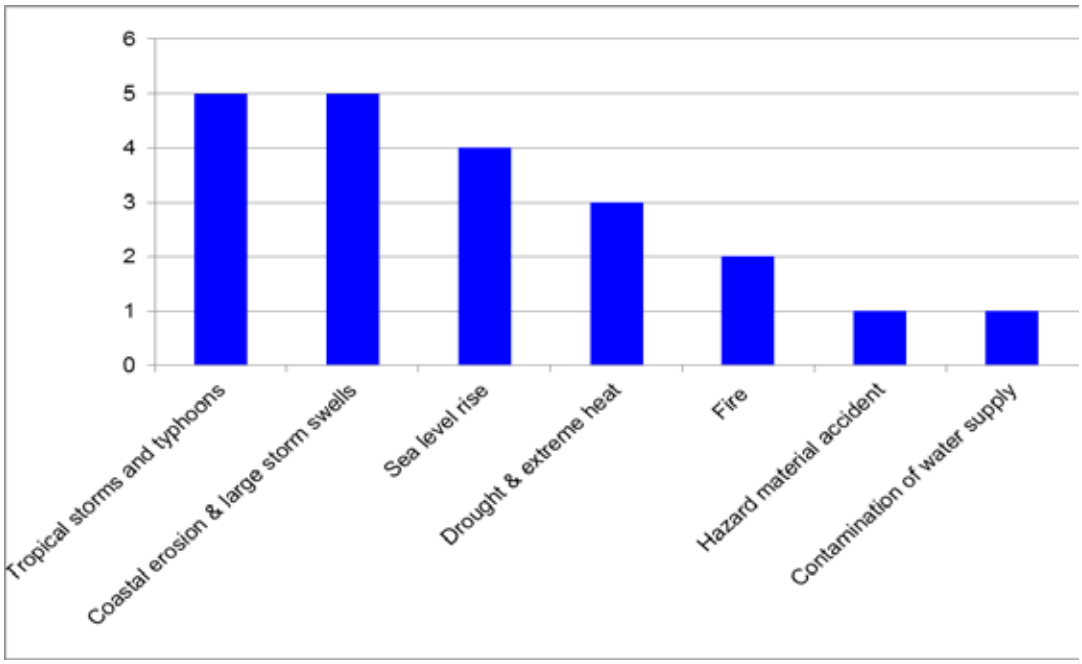


Figure 18: Key hazards identified from stakeholder consultations

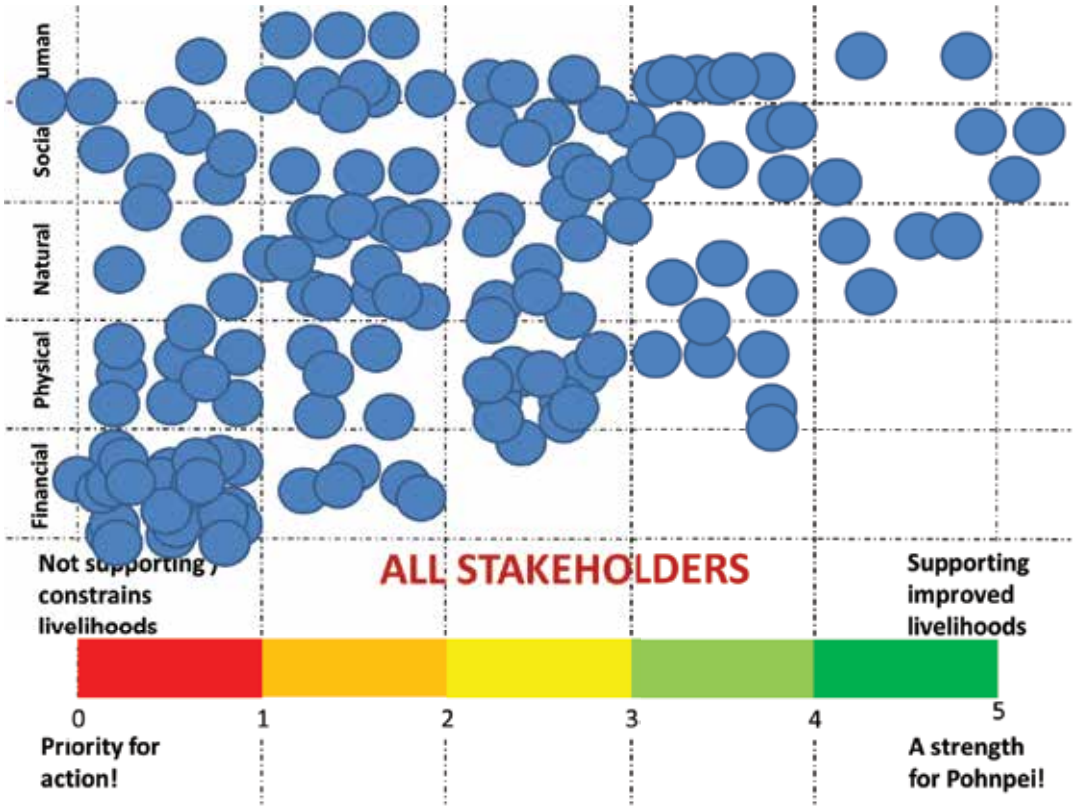


Figure 19: Results from consultations – rating of elements of capacity

4.2

Partipant voices

Key issues were identified during consultations with stakeholders in Pohnpei which are reflected in the Action Plan attached as Appendix D. Different experiences and priorities were identified by stakeholders in outer islands compared to Pohnpei main island, which are also reflected in the Action Plan.

Key issues for outer islands included threats from storm surges, coastal erosion and sea level rising. Impacts to food security and access to warning systems and effective response mechanisms were identified as needed. Employing local resources, existing knowledge, labour and social capital were identified as ways to respond to disaster and climate change hazards.

Different priorities were identified by stakeholders on the main island, dominated by issues of infrastructure, including proper drainage in heavy rain which was identified as an issue by government, private sector and community representatives. Impacts of disaster and climate change to roads, water and energy were also raised by Pohnpei main island representatives.

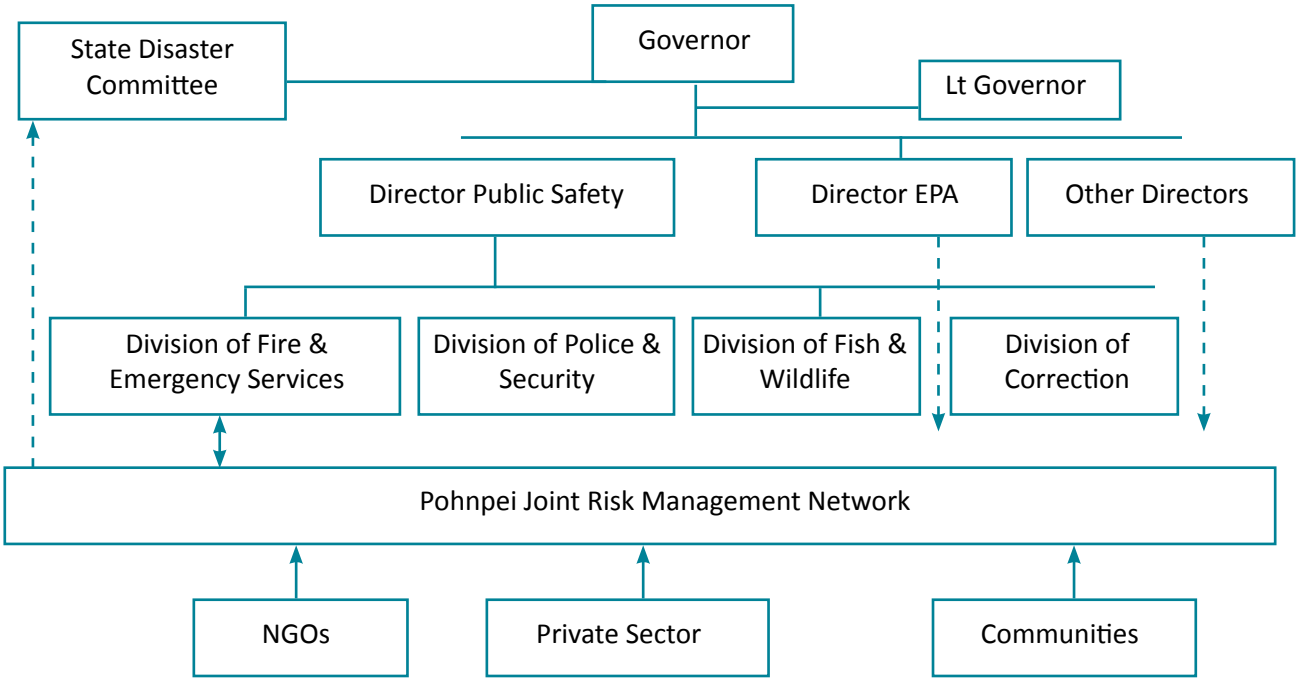
A key theme noted across all stakeholders was risks in relation to sustained security of natural resources, including infrastructure, roads, water and energy and food.

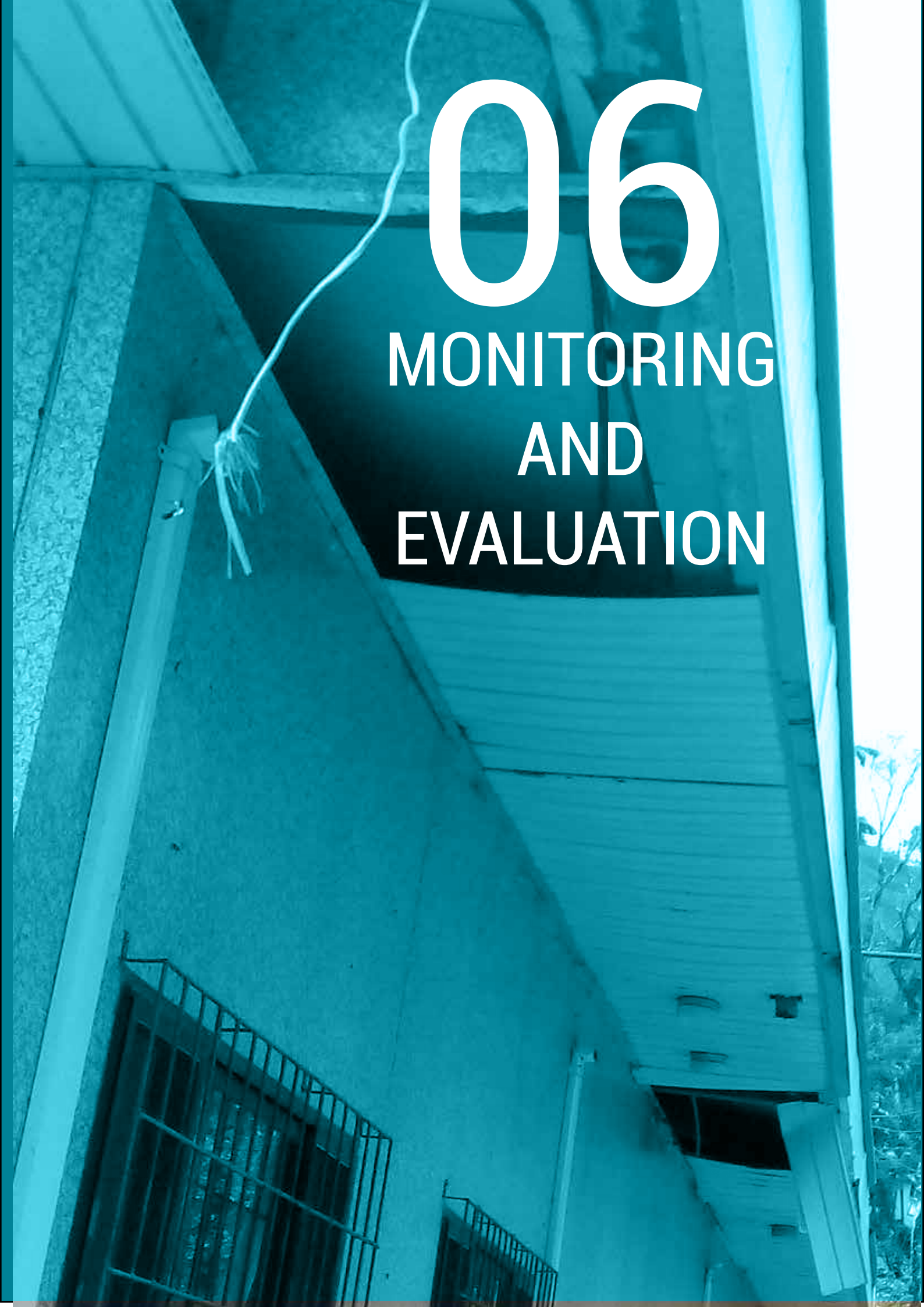
05 INSTITUTIONAL ARRANGEMENTS

The institutional arrangement for the integration of DRM and CCA in Pohnpei is shared between the Environment Protection Agency (EPA) and the Department of Public Safety. However given that climate change and disasters impacts other sectors the responsibility of the JSAP will have to be shared in a wider group that will include the NGOs and private sector and communities.

The establishment of the Pohnpei Joint Risk Management (JRM) Network coordinated by the Department of Public Safety and to include membership from the NGOs and private sector and government agencies is crucial to oversee the implementation.

The State Disaster Committee which is chaired by the Governor and comprises of government agencies and Red Cross, will be the official link where updates of implementation will be submitted to by the Department of Public Safety.





06 MONITORING AND EVALUATION

The monitoring and evaluation (M&E) of the JSAP is intended to achieve a number of objectives:

1. To provide for regular reports to the Pohnpei State Government on the progress of JSAP implementation.
2. To provide a mechanism to stimulate discussion and identify new initiatives that may evolve from the implementation of targeted actions.
3. To provide a mechanism for feedback and acquittals to donor partners and organizations of the funds used and progress made in relation to JSAP implementation.

The responsibility for monitoring and evaluation of the JSAP will be vested in the Department of Public Safety, who will work closely with OEEM at the national level, in the data gathering and analysis phase. The Department of Public Safety will develop appropriate templates for all M&E reports, however pre-existing frameworks will be drawn on to allow for close alignment of Pohnpei's state strategies and reducing duplication in reporting requirements. Additional components of the JSAP M&E framework are as follows:

- Setting of specific, well defined, tangible goals and indicators
- Monitoring on a quarterly basis to coincide with government budgetary requirements
- Reviewing the M&E framework regularly to ensure it maintains feasibility and is meaningful in tracking progress
- Including quantitative and qualitative measures of progress
- Including innovative tools for monitoring change, and potential benefits, at the community level
- Ensuring results of M&E are taken back to the communities
- Regular meetings forums with sectors (state government, municipal government, NGOs and private sector) to report JSAP progress.

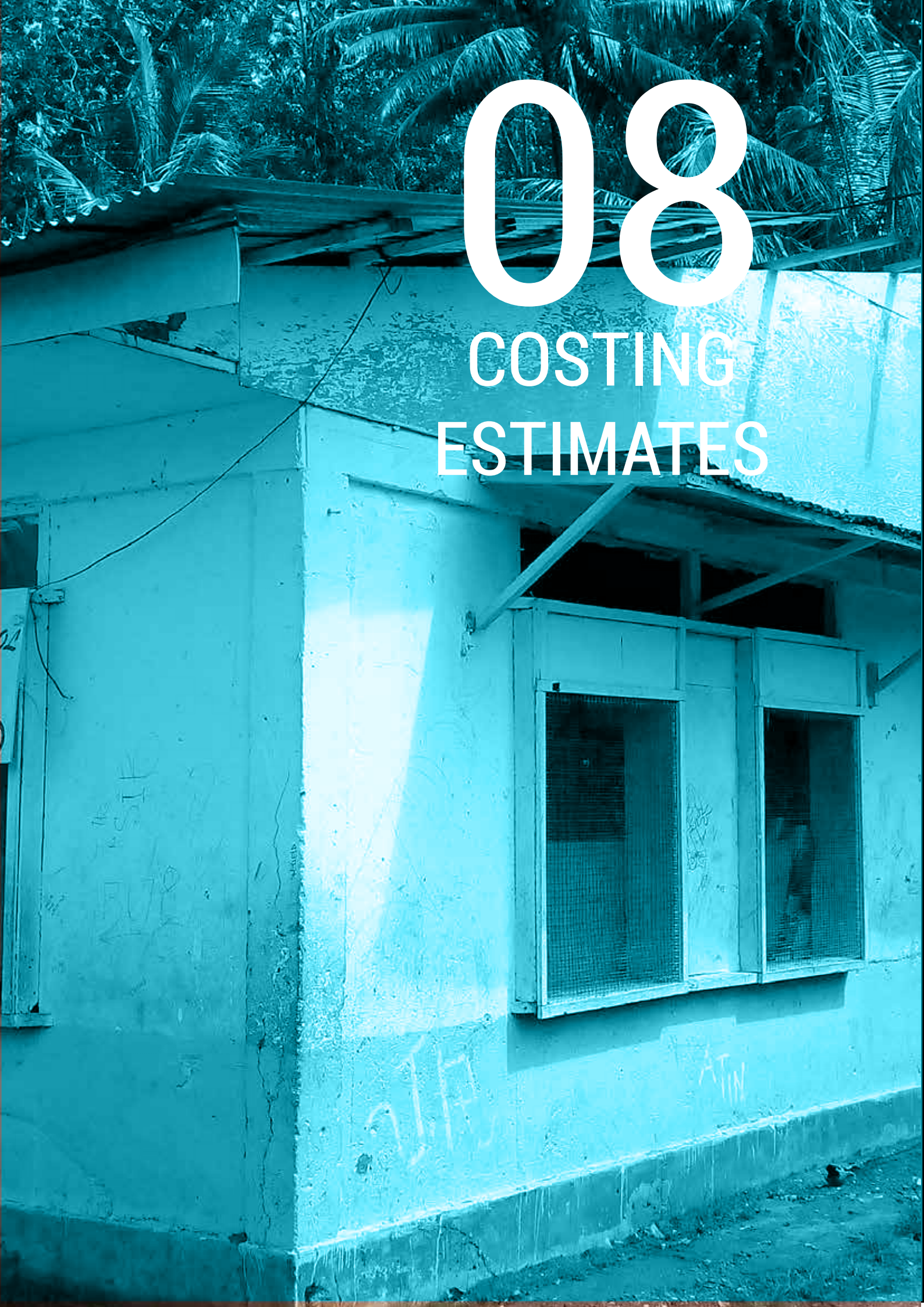
In order to ensure that the outcome of M&E reports lead to further strategic planning in relation to climate change and disaster risk management (and thus in turn ensure that a dynamic process of planning is maintained), the Department of Public Safety will instigate a formal review of the JSAP following the first three years of implementation. The result of such a review may be adapted as the 'second phase' of a rolling JSAP program. Ultimately, the challenge is to formally mainstream or incorporate the issues related to climate change and disaster risk management into the state and national sustainable development strategy, sectoral and corporate plans and budgets.

07 ACTIVITY MATRIX

The detailed description of the activities for each of the sectors for the JSAP, along with action's, sub-actions and the lead and supporting agencies and costs, are found in Appendix D.

A summary of the key Priority Areas and key objectives is provided below, with the detail found below.

1. HEALTH Objective 1.1: Effective response to disease in case of disaster
2. EDUCATION Objective 2.1: Communities aware about climate change and effects and disaster risk management Objective 2.2: Integrate climate change and disaster risk reduction in school curriculum Objective 2.3: School children educated on food security
3. SOCIAL PROTECTION Objective 3.1: Safe shelters for community in time of disaster Objective 3.2: Effectively respond to and care for vulnerable groups in case of disaster Objective 3.3: Community friendly and accessible emergency number Objective 3.4: Marine safety Objective 3.5: Settlement options for relocation of outer island communities to mainland
4. AGRICULTURE AND FISHERIES Objective 4.1: Strengthen food security in Pohnpei
5. ENVIRONMENT Objective 5.1: Shoreline protection of outer islands Objective 5.2: Ensure water security of Pohnpei Objective 5.3: Ensure energy security of Pohnpei Objective 5.4: Clean streams and rivers on main island
6. INFRASTRUCTURE Objective 6.1: Improve critical infrastructure in Pohnpei to withstand disasters and climate change Objective 6.2 Zoning laws in place to reduce risks of climate change and disaster risk Objective 6.3 Infrastructure and state development codes reduce risk to climate change and disaster risk Objective 6.4 Uniform land information through centralised GIS Objective 6.5 Enable settlement from low lying land (at risk) to higher grounds Objective 6.6 Improve management of solid waste Objective 6.7 Functional communication for outer islands in time of disaster
7. ECONOMIC RESILIENCE Objective 7.1: Encourage environment friendly actions through tax incentives Objective 7.2: Strengthen the business environment in Pohnpei to ensure it is conducive to a robust private sector
8. CLIMATE CHANGE AND DISASTER RISK MANAGEMENT COORDINATION Objective 8.1: Disaster Task equipped to effectively respond to disaster Objective 8.2: All sectors in Pohnpei receive consistent guidance on responding to disaster or emergency Objective 8.3: Local preparedness and response plans developed across Pohnpei State Objective 8.4: Communities experienced in preparedness and disaster response Objective 8.5: Pohnpei State and Municipalities equipped with necessary supplies and resources to respond to disaster Objective 8.6: Strengthen early warning systems in Pohnpei State Objective 8.7: Increase awareness and coordination in accessing funding sources



08 COSTING ESTIMATES

Costing estimates for activities are provided below. Costs include both financial and in-kind contributions for each of the eight sectors.

Table 7: Cost estimates for Pohnpei's JSAP

COSTING ESTIMATES		
SECTOR 1: HEALTH		
OBJECTIVE	Total Costs (Financial and In-kind)	
1.1	Effective response to disease in case of disaster	$346,000
SECTOR 1: HEALTH OVERALL TOTAL		$346,000
SECTOR 2: EDUCATION		
2.1	Communities aware about climate change and effects and disaster risk management	$202,412
2.2	Integrate climate change and disaster risk reduction in school curriculum	$0
2.3	School children educated on food security	$0
SECTOR 2: EDUCATION OVERALL TOTAL		$202,412
SECTOR 3: SOCIAL PROTECTION		
3.1	Safe shelters for community in time of disaster	$146,233
3.2	Effectively respond to and care for vulnerable groups in case of disaster	$74,355
3.3	Community friendly and accessible emergency number	$44,265
3.4	Marine safety	$46,125
3.5	Settlement options for relocation of outer island communities to mainland	$147,205
SECTOR 3: SOCIAL PROTECTION OVERALL TOTAL		$458,163
SECTOR 4: AGRICULTURE		
4.1	Strengthen food security in Pohnpei	$652,334
SECTOR 4: AGRICULTURE OVERALL TOTAL		$652,334
SECTOR 5: ENVIRONMENT		
5.1	Shoreline protection of outer islands	$234,338
5.2	Ensure water security of Pohnpei	$229,828
5.3	Ensure energy security of Pohnpei	$329,195
5.4	Clean streams and rivers on main island	$0
SECTOR 5: ENVIRONMENT OVERALL TOTAL		$464,167
SECTOR 6: INFRASTRUCTURE		
6.1	Improve critical infrastructure in Pohnpei to withstand disasters and climate change	$10,167,760
6.2	Zoning laws in place to reduce risks of climate change and disaster risk	$72,144
6.3	Infrastructure and state development codes reduce risk to climate change and disaster risk	$175,673

6.4	Uniform land information through centralised GIS	$91,372
6.5	Enable settlement from low lying land (at risk) to higher grounds	$32,598
6.6	Improve management of solid waste	$5,039,898
6.7	Functional communication for outer islands in time of disaster	$57,874
SECTOR 6: INFRASTRUCTURE OVERALL TOTAL		$15,637,320
SECTOR 7: ECONOMIC RESILIENCE		
7.1	Encourage environment friendly actions through tax incentives	$49,699
7.2	Strengthen the business environment in Pohnpei to ensure it is conducive to a robust private sector	$24,891
SECTOR 7: ECONOMIC RESILIENCE OVERALL TOTAL		$74,589
SECTOR 8: COORDINATION OF DRM AND CC		
8.1	Disaster Task equipped to effectively respond to disaster	$246,688
8.2	All sectors in Pohnpei receive consistent guidance on responding to disaster or emergency	$139,535
8.3	Local preparedness and response plans developed across Pohnpei State	$13,692
8.4	Communities experienced in preparedness and disaster response	$24,600
8.5	Pohnpei State and Municipalities equipped with necessary supplies and resources to respond to disaster	$154,002
8.6	Strengthen early warning systems in Pohnpei State	$404,424
8.7	Increase awareness and coordination in accessing funding sources	$21,054
SECTOR 8: COORDINATION DRM AND CC OVERALL TOTAL		$1,003,995
TOTAL COST (FINANCIAL AND IN-KIND)		$18,614,256

A summary of breakdown of costs is provided in the Table below

Table 8: Summary of breakdown of costs

Sectors	Total Financial	Total in Kind	Overall Total
Sector 1 Health	319,600	27,000	346,600
Sector 2 Education	140,450	61,962	202,412
Sector 3 Social protection	418,623	39,540	458,163
Sector 4 Ag & Fisheries	577,190	75,144	652,334
Sector 5 Environment	223,912	14,931	238,843
Sector 6 Infrastructure	15,446,550	190,770	15,637,320
Sector 7 Economic Resilience	59,640	5,964	65,604
Sector 8 Coordination of DRM & CC	836,595	14,949	851,544
OVERALL TOTAL	18,022,560	591,696	18,614,256
Percentage	97%	3%	

It is clear from the breakdown that the financial costs (97%) dominate the costs. Financial costs will be required from external partners to implement the priorities. The in kind costs (3%) is the contribution of the state and other supporting partners by way of staff time that will be supporting the implementation of the priorities.

09
APPENDICES

APPENDIX A: Key documents consulted

Australian Government Bureau of Meteorology (2011) Current and future climate of the Federated States of Micronesia. Australian Government, Canberra.

Australian Government Bureau of Meteorology (2013) Climate Change in the Pacific: Scientific Assessment and New Research | Volume 2: Country Reports - Chapter 4 Federated States of Micronesia. Australian Government, Canberra.

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URS (2005) Multi-state multi-hazard mitigation plan for the Federated States of Micronesia. Prepared for National Emergency Management Office, Pohnpei. URS Project No. 27654135.00500, September 2005.

UNISDR, SPC, SPREP (2012) Summary Report on the Post-HFA Consultation – 23-29 July 2012, Pohnpei, Federated States of Micronesia.

APPENDIX B: Disaster-related roles and responsibilities for Pohnpei

Table 9: Disaster-related roles and responsibilities for Pohnpei

ORGANISATION/ PERSON	ROLES AND RESPONSIBILITIES
Governor	• Declare a state of emergency if needed • Designation of a state DCO • Designation of a command post • Designation of shelters • Declaration of various states of warning • Mobilization of the emergency task forces and initiation of necessary property and life-saving measures, evacuations, mass care, etc • Initiation of damage assessment as soon as feasible when a disaster occurs and communication to the FSM President when national and/ or US FEMA or other foreign assistance is needed • Designation of a representative to work with NEMO who is the FSM point of contact on all disaster-related matters • Designation of a disaster application center and a disaster field office
State DCO	• Maintaining and updating the State Preparedness Plan • Developing public awareness and training programs in cooperation with other State departments and agencies • Coordinating the State sponsored training and public awareness programs with appropriate department and agency heads • Preparation of requests for disaster or mitigation assistance to the National government, or through the National government to foreign governments or other international organizations or agencies • Ensuring that warnings are issued to the public when the Governor declares different warning stages • Performing all other emergency coordination functions that may be necessary given the demands of the given disaster or emergency situation
Emergency Operations Center/ Command Post	• Provides a point of centralized control, coordination and direction of emergency operations • Serves as a place for key staff to effectively work together, share information and decision-making, and assists in making the most effective use of resources • Staff report to the command post after a disaster has occurred or when the Governor declares that a treat has been identified

Source: URS (2005).

APPENDIX C: Elements of capacity

Table 13 provides details on the 'elements of capacity', used by workshop participants to gauge strengths and weaknesses across Pohnpei State.

Table 10: Elements of capacity

CAPACITY	DESCRIPTION
Human	Skills, health, knowledge, education, ability to labour, physical capability
Social	Networks, social claims, social relations, affiliations, associations, land tenure.
Natural	Natural resource stocks (fisheries, forests, coastal ecosystems, fresh water) & environmental services from which resource flows must be managed
Physical	Capital items that can include infrastructure, equipment and improvements in genetic resources (crops, livestock).
Financial	Capital base - cash, credit/debt, savings, Compact Funds, development partner projects, other economic assets

APPENDIX D: Costing of Actions and Sub-actions

Sector 1 - Health

ACTION	**SUB ACTION**	**FINANCIAL COST**	**IN KIND COST**	**TOTAL**
Objective 1.1: Effective response to disease in case of disaster				
1.1.1 Strengthen Dept. of Health response to epidemic outbreaks	Equip health staff to respond to water borne disease	36,400	6,231	42,631
	Procure necessary equipment and drugs to cope with major outbreak	50,000	0	50,000
	Educate the community on disease prevention	233,200	20,769	253,969
	OVERALL SECTOR TOTAL	319,600	27,000	346,600

Sector 2 - Education

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
Objective 2.1: Communities aware about climate change and effects and disaster risk management				
2.1.1 Develop and implement an ongoing CC and DRM education and awareness program appropriate for specific communities (main and outer islands)	Develop content of education materials	94,800	15,808	110,608
	Develop specific communication and awareness raising strategy for communities on CC and DRM	0	0	0
	Ensure disability inclusiveness within awareness raising activities	0	0	0
Sub total		**94,800**	**15,808**	**110,608**
2.1.2 Provide awareness program, workshops, trainings to all stakeholders on: - Disaster & Climate Change Risk Reduction/ Adaptation - State Disaster Plan	Community based workshops	0	0	0
	Radio	0	0	0
	TV / reporting / documentary		0	0
	Social media	0	0	0
	Brochures / flyers / comic books	45,650	46,154	91,804
Sub total		**45,650**	**46,154**	**91,804**
TOTAL		**140,450**	**61,962**	**202,412**
Objective 2.2: Integrate climate change and disaster risk reduction in school curriculum				
2.2.1 Strengthen capacity of teachers to deliver lessons incorporating climate change and disaster risk management	Provide trainings to all classroom teachers	94,800	17,423	112,223
	Collaborate with regional resource laboratories (SPREP, PREL, IOM, SPC, McREL, Northwest Education Laboratory, Island Research and Education Initiatives (IREI), etc.)	0	0	0
	Invite environmental agencies (Gov and NGO) to conduct educational program at schools on selected topics	0	0	0
	Conduct classroom observations/Feedback	0	0	0
	Develop integrated lessons to include CCA/DRM	0	0	0
	Review lesson plans	0	0	0

Sub Total		94,800	17,423	112,223
2.2.2 Develop materials and resources relevant to Pohnpei climate change and disaster context	Develop scope of work for project	0	0	0
	Engage any existing staff to support materials and resource development	0	0	0
	Monitor implementation of project	0	0	0
	Evaluate end product of project	0	0	0
	Publish teaching materials	0	0	0
Sub Total		**0**	**0**	**0**
TOTAL		**0**	**0**	**0**
Objective 2.3: School children educated on food security				
2.3.1 Strengthen capacity of teachers to deliver lessons incorporating food security	Provide trainings to all classroom teachers	0	0	0
	Collaborate with Agriculture Dept and Health Dept to develop resources and materials	0	0	0
Sub Total		**0**	**0**	**0**
2.3.2 Revive & strengthen traditional skills and practices for agriculture	Invite senior citizens to share on traditional skills/ knowledge on agriculture practices	0	0	0
	Integrate lessons to include traditional skills/knowledge specific to CCA and DRR	0	0	0
	Carry out training in schools	0	0	0
Sub Total		**0**	**0**	**0**
TOTAL		**0**	**0**	**0**
OVERALL SECTOR TOTAL		**140,450**	**61,962**	**202,412**

Sector 3 – Social Protection

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
Objective 3.1: Safe shelters for community in time of disaster				
3.1.1 Identify and communicate safe shelter locations to communities	Inspect and assess current designated shelters	2,565	3,000	5,565
	Implement recommendations of assessment (ie providing shelters, proper roofing)	28,065	1,000	29,065
	Where existing infrastructure not available assess options for alternative safe shelter	34,701	1,500	36,201
	Ensure accessibility for people living with disability	34,701	3,000	37,701
	Communicate safe shelters locations to community	34,701	3,000	37,701
Total		**134,733**	**11,500**	**146,233**
Objective 3.2: Effectively respond to and care for vulnerable groups in case of disaster				
3.2.1 Identify & register / prepare map of vulnerable individuals in community	Work with Traditional Leaders, Municipal Gov., NGOs and other stakeholders to identify vulnerable	23,320	125	23,445
	Prepare a register of vulnerable individuals at Municipal and village level	23,320	605	23,925
Sub Total		**46,640**	**730**	**47,370**
3.2.2 Develop response strategy for vulnerable individuals in time of disaster	Work with Traditional Leaders, Municipal Gov., NGOs and other stakeholders to identify plan of response in case of disaster	23,120	20	23,140
	Document and communicate plan	1,515	20	1,535
	Periodically review register and update plans	2,270	20	2,290

Sub Total		26,905	60	26,965
TOTAL		73,545.00	790.00	74,335.00
Objective 3.3: Community friendly and accessible emergency number				
3.3.1 Institute emergency number (911) (instead of 'long' State Gov. number	Develop MoU between FSM Telecom and DCO	-	500	500
	Decide central emergency number and local (Municipal) emergency numbers	2,500	1,000	3,500
	Community education on emergency number	3,500	6,000	9,500
	Ensure accessibility for people living with disability	24,765	6,000	30,765
TOTAL		**30,765**	**13,500**	**44,265**
Objective 3.4: Marine safety				
3.4.1 Enact and regulate boat safety	Conduct boating safety campaign through existing organisations	27,800	3,750	31,550
	Audit boats for use of equipment (EBIRP, EVRP, VMS)	10,825	3,750	14,575
TOTAL		**38,625**	**7,500**	**46,125**
Objective 3.5: Settlement options for relocation of outer island communities to mainland				
3.5.1 Consider options and prepare plans as appropriate for resettlement	Assess risks to outer island communities	38,575	1,250	39,825
	Hold community consultations on identified risks and consider options	25,125	1,250	26,375
	Policy / laws passed by State government	26,665	1,250	27,915
	Secure sea/ air transport for families, communities	25,715	1,250	26,965
	Secure land for resettlement on main island	24,875	1,250	26,125
TOTAL		**140,955**	**6,250**	**147,205**
OVERALL SECTOR TOTAL		**418,623.00**	**39,540.00**	**458,163.00**

Sector 4 – Agriculture and Fisheries

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
Objective 4.1: Strengthen food security in Pohnpei				
4.1.1 Assess potential viability of salt resistant / drought resistant crops in outer island and main island	Carry out feasibility study on needs and appropriateness of alternate crops (accessibility and availability of climate change resilient local food crops)	26,580	5,704	32,284
	Set up nurseries for raising crops on main and outer islands (in-situ sites to increase the current number)	48,580	11,390	59,970
	Distribute seedlings of salt resistant crops	24,080	0	24,080
	maintenance of nurseries	0	11,400	11,400
	Training for vegetable gardens	4,500	0	4,500
	Training for production, consumption, processing and preservation of local food crops	4,500	0	4,500
	Promote appropriateness of agroforestry in line with CC and disaster risk (traditional agroforestry	4,500	0	4,500
Sub Total		**112,740**	**28,494**	**141,234**
4.1.2 Conduct agroforestry community training	Set up nurseries for agroforestry	36,000	0	36,000
	Distribute seedlings	25,080	11,400	36,480
	Carry out feasibility study on needs and appropriateness of aquaculture and coastal fisheries in line with CC	26,900	0	26,900
Sub Total		**87,980**	**11,400**	**99,380**

4.1.3 Conduct community based training on aquaculture	Establish fish stock	15,200	15,885	31,085
	Distribute fish stock	12,630	0	12,630
	Carry out feasibility study on appropriateness of FADs for Pohnpei State	26,000	11,538	37,538
Sub Total		**53,830**	**27,423**	**81,253**
4.1.4 Develop FAD (fish activating devices) off main and remote islands	Procure FADs and install	66,000	0	66,000
	Periodic monitoring and maintenance of FADs	6,500	0	6,500
Sub Total		**72,500**	**0**	**72,500**
4.1.5 Establish milling of traditional crops	Procure taro and breadfruit mills	158,800	0	158,800
	Distribute mills to communities	4,880	0	4,880
	Periodic monitoring of functionality of mills	4,880	0	4,880
Sub Total		**168,560**	**0**	**168,560**
4.1.6 Promote traditional food preservation methods / practices	Document practices on food preservation	35,500	2,308	37,808
	Carry out training and promotion in schools (& communities)	17,200	77	17,277
	Training on food packaging	16,880	3,135	20,015
	Develop promotional materials, phamplets, post cards. Flyers	12,000	2,308	14,308
Sub Total		**81,580**	**7,827**	**89,407**
OVERALL SECTOR TOTAL		**577,190**	**75,144**	**652,334**

Sector 5 – Environment

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
OBJECTIVE 5.1: SHORELINE PROTECTION OF OUTER ISLANDS				
5.1.1 Carry out assessment on needs for shoreline protection in outer islands and mainland	Carry out assessment of vulnerabilities on outer islands and main island	151100	0	151100
	Prioritise areas for immediate - short-medium-longer term action	0	0	0
	Identify context specific appropriate response including natural or man made	0	0	0
Sub Total		**151100**	**0**	**151100**
5.1.2 Create community awareness about shoreline protection	Develop specific communication and awareness raising strategy for shoreline protection	21100	7023	28123
	Ensure disability inclusiveness within awareness raising strategy	5000	0	5000
	Conduct community workshops	11245	0	11245
	Prepare and broadcast Radio talkback	0	0	0
	Produce brochures / flyers / comic books	5000	0	5000
	Reduce dredging activities	5000	0	5000
Sub Total		**47345**	**7023**	**54368**
5.1.3 Conduct shoreline protection projects in outer islands and mainland (high risk areas)	Carry out community based shoreline protection projects (as appropriate use of endemic species planting, wave breakers, man made channels)	14900	0	14900

	Traditional skills knowledge transfer, especially in use of skills / knowledge in construction of retaining walls	13970	0	13970
Sub Total		**28870**	**0**	**28870**
5.1.4 Establish shoreline protection regulations	Establish laws and ordinances to maintain natural shoreline protection	0	0	0
	Enforce regulations	0	0	0
Sub Total		**0**	**0**	**0**
TOTAL		**227315**	**7023**	**234338**
Objective 5.2: Ensure water security of Pohnpei				
5.2.1 Ensure water security of main island	Conduct survey to identify households scarce of drinking water	24045	8038	32083
	Procurement and distribution of water tanks / pipes	110000	0	110000
Sub Total		**134045**	**8038**	**142083**
5.2.2 Conduct drought awareness programs to educate people on water conservation	Community workshops	11745	11000	22745
	Radio talkback	0	0	0
	Brochures / flyers / comic books	5000	0	5000
Sub Total		**16745**	**11000**	**27745**
5.2.3 Ensure water shed management	Community awareness on watershed management	20000	0	20000
	Zoning enforcements	20000	0	20000
	Monitor periodically zoning enforcement	20000	0	20000
Sub Total		**60000**	**0**	**60000**
5.2.4 Assess environmental impact of expanding water network	Inspections and assessments of facilities	0	0	0
	Implement upgrade plans	0	0	0
Sub Total		**0**	**0**	**0**
TOTAL		**210790**	**19038**	**229828**

Objective 5.3: Ensure energy security of Pohnpei				
5.3.1 Increase the use of renewable energy (solar, wave, wind, hydro)	Assess alternate energy sources (solar, wave, wind, biogas, hydro etc.)	81245	8038	89283
	Undertake existing Energy Source Audit across all Municipalities	70945	8038	78983
	Identify options for environmentally friendly energy sources	70945	8038	78983
Sub Total		**223135**	**24115**	**247250**
5.3.2 Enhance energy efficiency at household level	Conduct Energy Awareness Programs to general public and government to use environmentally friendly sources of energy	70945	11000	81945
Sub Total		**70945**	**11000**	**81945**
TOTAL		**294,080**	**35,115**	**329,195**
Objective 5.4: Clean streams and rivers on main island				
5.4.1 Assess water quality of rivers	Carry out tests	0	0	0
	Communicate tests to public	0	0	0
Sub Total		**0**	**0**	**0**
5.4.2 Carry out 'clean up' activities	Community based clean up activities	0	0	0
	Community based periodic monitoring of river health	1000	0	1000
Sub Total		**1000**	**0**	**1000**
5.4.3 Conduct community awareness on ensuring clean rivers	Community workshops	1900	0	1900
	Radio talkback	1200	0	1200
	Brochures / flyers / comic books	40000	0	40000
	Enforcement against 'dumping' through fines	0	0	0
Sub Total		**3100**	**0**	**3100**
TOTAL		**4,100**	**0**	**4,100**
OVERALL SECTOR TOTAL		**736,285**	**61,177**	**797,462**

Sector 6 – Infrastructure

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
OBJECTIVE 6.1: IMPROVE CRITICAL INFRASTRUCTURE IN POHNPEI TO WITHSTAND DISASTERS AND CLIMATE CHANGE				
6.1.1 Assess and upgrade critical infrastructure (roads, drainage, water, sewerage, utilities, telecom) to withstand disasters and climate change	Inspect and assess facilities and make recommendations	59,900	28,038	87,938
	Implement upgrade plans	10,001,500	6,577	10,008,077
Sub Total		**10,061,400**	**34,615**	**10,096,015**
6.1.2 Assess risks of climate change and/or disaster to key assets including airport, port, schools, medical centres	Undertake assessment of key infrastructure	17,650	9,346	26,996
	Develop plan for upgrade / relocation as appropriate	10,700	1,462	12,162
Sub Total		28,350	10,808	39,158
6.1.3 Develop and implement an Operation and Maintenance Plan for Pohnpei State public infrastructure	Undertake audit of state facilities	-	18,692	18,692
	Develop O&M Plan going forward	9,245	4,650	13,895
Sub Total		**9,245**	**23,342**	**32,587**
TOTAL		**10,098,995**	**68,765**	**10,167,760**
Objective 6.2: Zoning laws in place to reduce risks of climate change and disaster risk				
6.2.1 Zoning laws in place which respond to climate change and DRM	Finalise and enact zoning regulations	1,605	185	1,790
	Increase public awareness of zoning regulations	2,350	185	2,535
	State Gov. and Municipal Gov. enforce zoning regulations	2,200	-	2,200
	Introduce and enforce Municipal level ordinances in line with zone requirements	5,500	-	5,500
Sub Total		**11,655**	**369**	**12,024**

6.2.2 Enforce zoning laws relevant to piggeries	Inspect and assess compliance of piggeries	1,565	1,462	3,027
	Community awareness on zoning laws for piggeries	10,725	292	11,017
	Enforce zoning / health regulations	550	21,923	22,473
	Monitor periodically zoning enforcement	1,680	21,923	23,603
Sub Total		**14,520**	**45,600**	**60,120**
TOTAL		**26,175**	**45,969**	**72,144**
OBJECTIVE 6.3: INFRASTRUCTURE AND STATE DEVELOPMENT CODES REDUCE RISK TO CLIMATE CHANGE AND DISASTER RISK				
6.3.1 Standardise building codes	Review and revise building codes	18,700	1,462	20,162
	Standardise and enact building code regulations	-	577	577
	Increase public awareness of building codes	63,000	2,769	65,769
	State Gov. and Municipal Gov. enforce building code regulations	-	-	-
Sub Total		**81,700**	**4,808**	**86,508**
6.3.2 Standardise secondary road construction	Review and revise road construction standards	18,700	1,462	20,162
	Standardise and enact road construction (including drainage) regulations	16,350	-	16,350
	Increase public awareness of standards	-	-	-
	State Gov. and Municipal Gov. enforce regulations	-	-	-
Sub Total		**35,050**	**1,462**	**36,512**
6.3.3 Standardise fire safety regulations	Review and revise fire safety standards	19,000	1,462	20,462
	Enact regulations and by laws	14,750	2,923	17,673

	Increase public awareness of standards	5,150	8,769	13,919
	State Gov. and Municipal Gov. enforce regulations through safety inspections	600	-	600
Sub Total		**39,500**	**13,154**	**52,654**
TOTAL		**156,250**	**19,423**	**175,673**
OBJECTIVE 6.4: UNIFORM LAND INFORMATION THROUGH CENTRALISED GIS				
6.4.1 Streamline GIS information in Pohnpei State	Review and revise GIS practices	19,045	3,981	23,026
	Create central responsibility, depository of GIS information	19,045	3,615	22,660
	Ensure GIS information available for development purposes	38,090	7,596	45,686
TOTAL		**76,180**	**15,192**	**91,372**
OBJECTIVE 6.5: ENABLE SETTLEMENT FROM LOW LYING LAND (AT RISK) TO HIGHER GROUNDS				
6.5.1 Develop basic services to high lying areas (roads, water, telephone line)	State Govt. develop long term planning for new (areas) of development	10,850	2,192	13,042
	Within planning / zoning laws develop basic infrastructure	1,100	16,442	17,542
	Increase public awareness of climate change risks and options for new developments	1,575	438	2,013
TOTAL		**13,525**	**19,073**	**32,598**

OBJECTIVE 6.6: IMPROVE MANAGEMENT OF SOLID WASTE				
6.6.1 Improve solid waste management	Undertake community consultation on localised potential dump sites	13,975	1,827	15,802
	Identify options for connected Municipal / State solid waste management system	-	1,827	1,827
Sub Total		**13,975**	**3,654**	**17,629**
6.6.2 Improve sewage and wastewater systems for communities	Assess sewage needs, appropriate options and costs for improved sewerage systems	13,250	365	13,615
	Upgrade systems as per assessment recommendations	5,000,000	8,654	5,008,654
Sub Total		**5,013,250**	**9,019**	**5,022,269**
TOTAL		**5,027,225**	**12,673**	**5,039,898**
OBJECTIVE 6.7: FUNCTIONAL COMMUNICATION FOR OUTER ISLANDS IN TIME OF DISASTER				
6.7.1 Equip communities with 'disaster proof' communications	Procure G24 solar power and portable radios	13,250	6,313	19,563
	Distribute to relevant community members	700	146	846
	Monitor periodically functionality of equipment	75	146	221

Sub Total		**14,025**	**6,605**	**20,630**
6.7.2 Develop reliable radio communications system to reach outer islands	Undertake assessment of key infrastructure	25,700	1,462	27,162
	Develop plan for upgrade / relocation as appropriate	8,475	1,462	9,937
	Monitor periodically functionality of equipment	-	146	146
Sub Total		34,175	3,069	37,244
TOTAL		48,200	9,674	57,874
OVERALL SECTOR TOTAL		15,446,550	190,770	15,637,320

Section 7 – Economic Resilience

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
OBJECTIVE 7.1: ENCOURAGE ENVIRONMENT FRIENDLY ACTIONS THROUGH TAX INCENTIVES				
7.1.1 Consider the options for tax incentives for businesses investing in energy efficient appliances and renewable energy	1,800	962	2,762	
Sub Total		1,800	962	2,762
7.1.2 Involve the private sector in discussion regarding future energy needs for Yap to allow a competitive businesses environment beyond government utilities only	4,680	912	5,592	
Sub Total		**4,680**	**912**	**5,592**

7.1.3 Assess options for affordable insurance for businesses in Pohnpei relevant to disaster and CC	Begin dialogue with government around the need for affordable insurance options to be available for private sector businesses	9,500	3,077	12,577
	Begin discussions with SPC regarding the potential links to PICRAFI	10,500	192	10,692
Sub Total		**20,000**	**3,269**	**23,269**
7.1.4 Assess options for tax incentives to business in improving infrastructure (including roads and drainage)		14,000	3,077	17,077
		1,000	-	1,000
Sub Total		**15,000**	**3,077**	**18,077**
TOTAL		**41,480**	**8,219**	**49,699**
7.2 Strengthen the business environment in Pohnpei to ensure it is conducive to a robust private sector				
7.2.1 Assess opportunities to increase business activity, start up	Assess business development opportunities through business case study / scoping study	6,890	3,846	10,736
	Promote business start ups appropriate to economic and environmental opportunities	2,490	962	3,452
Sub Total		**9,380**	**4,808**	**14,188**

7.2.2 Employ incentives to retain and bring back skilled Islanders	Promote business start ups appropriate to economic and environmental opportunities	4,390	962	5,352
	Institute tax incentives for business start ups	4,390	962	5,352
Sub Total		**8,780**	**1,923**	**10,703**
TOTAL		**18,160**	**6,731**	**24,891**
OVERALL SECTOR TOTAL		**59,640**	**14,949**	**74,589**

Sector 8 – Coordination of climate change and disaster risk management

ACTION	SUB ACTION	FINANCIAL COST	IN KIND COST	TOTAL
Objective 8.1: Disaster Task equipped to effectively respond to disaster				
2	Develop Task Force plan	17,475	10,154	27,629
	Develop short-medium-long term planning for climate change	19,475	7,962	27,437
	Develop coordination plan for disasters	28,975	7,962	36,937
	Develop guidelines for distribution of goods and materials in case of disaster	12,725	3,185	15,910
	Train Task force members	18,465	7,962	26,427
	Create network for Task Force, including State Gov. sectors, Municipal Gov, Traditional Leaders, NGOs, Churches, Private Sector	14,675	3,981	18,656
	Conduct community awareness of Task Force responsibility	12,875	3,396	16,271

	Conduct regular communications on JSAP progress to stakeholders and community website, emails, forums)	11,875	6,646	18,521
	NGO sector coordinated through the Task Force to respond to CC and disaster	12,675	6,792	19,467
	Private sector coordinated through the Task Force to respond to CC and disaster	12,675	6,792	19,467
	Municipal governments coordinated through Task Force to respond to CC and disaster	13,175	6,792	19,967
TOTAL		**175,065**	**71,623**	**246,688**
Objective 8.2: All sectors in Pohnpei receive consistent guidance on responding to disaster or emergency				
8.2.1 Develop Handbook / Guidance on disaster preparedness and response	Coordinate with key sectors to develop community friendly content for Handbook	41,350	7,231	48,581
	Develop a multi-sector plan for communication to all sectors and communities	39,850	7,231	47,081
Sub Total		81,200	14,462	95,662
8.2.2 Distribute and communicate Handbook / Guidance to State sectors and Municipal Gov., traditional leaders, NGOs, schools, private sector,	Develop content of education materials	19,400	7,231	26,631
	Print handbooks	-	1,000	1,000
	Distribute Handbook within the community	7,500	731	8,231

	Conduct community based train the trainers workshops to communicate Handbook to communities	6,550	1,462	8,012
Sub Total		**33,450**	**10,423**	**43,873**
TOTAL		**114,650**	**24,885**	**139,535**
Objective 8.3: Local preparedness and response plans developed across Pohnpei State				
8.3.1 Prepare preparedness and response action plans at community level (including schools and churches)	Support development of local plans through Municipal governments based on Guidance/ Handbook	6,450	731	7,181
	Maintain register of community based plans	5,050	1,462	6,512
TOTAL		**11,500**	**2,192**	**13,692**
Objective 8.4: Communities experienced in preparedness and disaster response				
8.4.1 Conduct routine drills / exercises on emergency responses	Conduct desk based assessment of protocols and refine as necessary	2,850	650	3,500
	Conduct drills at different levels (state, municipal, community)	3,450	650	4,100
	Assess and evaluate drill exercise	3,350	650	4,000
	Revise protocols based on experience of drills	9,750	3,250	13,000
TOTAL		**19,400**	**5,200**	**24,600**
Objective 8.5: Pohnpei State and Municipalities equipped with necessary supplies and resources to respond to disaster				
8.5.1 Equip Pohnpei State with resources and materials to respond to disaster	Prepare list of necessary equipment, materials required to respond to likely disasters	3,115	365	3,480
	Carry out assets register of current equipment, materials available	495	2,192	2,687

	Prepare list of assets available through different actors on the island (NGO, Private sector, State, Municipal governments)	375	4,385	4,760
	Procure, as required additional equipment / materials	375	2,192	2,567
	Set up emergency store - provisions (including food, shelter, fuel) to support community in immediate aftermath of disaster (main island)	120,375	731	121,106
Sub Total		**124,735**	**9,865**	**134,600**
8.5.2 Provide disaster aid (emergency supplies) for all outer islands	Identify items of 'disaster aid kit'	73	148	
	Procure necessary provisions for responding to likely disasters	375	2,192	2,567
	Tain local caretakers of emergency store	375	4,385	4,760
	Monitor periodically quality of stores	375	4,385	4,760
Sub Total		**1,125**	**10,962**	**12,087**
8.5.3 Identify and prepare MOU multi purpose ship/ plane for disaster preparedness and response (providing training services, assessments, in case of disaster medical care and provisions)	Identify owners specific ships and planes	-	731	731
	Prepare MOU with owners of ships/ planes	2,200	4,385	6,585
Sub Total		**2,200**	**5,115**	**7,315**
TOTAL		**128,060**	**25,942**	**154,002**

Objective 8.6: Strengthen early warning systems in Pohnpei State				
8.6.1 Establish and strengthen local early warning systems and response	Develop MoU between FSM Telecom and DCO	-	4,385	4,385
	Establish a schedule for regular radio contact between mainland and outer islands	-	731	731
	Community based awareness of disaster alert system and identification of local community based approaches	-	6,577	6,577
	Develop community based disaster alert systems including sirens, church bells, chatty bettle, family assistance to vulnerable individuals	370,650	9,827	380,477
	Training for Outlying Islands on communication system and management of equipment	4,620	7,635	12,255
TOTAL		**375,270**	**29,154**	**404,424**
Objective 8.7: Increase awareness and coordination in accessing funding sources				
8.7.1 Develop central depository of funding opportunities	Create website of funding opportunities	10,400	365	10,765
	Encourage all sectors to share funding options on site	-	7,308	7,308
	Coordinate website	2,250	731	2,981
TOTAL		**12,650**	**8,404**	**21,054**
OVERALL SECTOR TOTAL		**836,595**	**167,400**	**1,003,995**