



**Pacific  
INVASIVES  
INITIATIVE**

## **Invasive Species Management in the Pacific: A Review of National Plans and Current Activities**

Cook Islands  
Fiji  
Federated States of Micronesia  
Kiribati  
Marshall Islands  
Niue  
Palau  
Papua New Guinea  
Samoa  
Solomon Islands  
Tonga  
Vanuatu

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Partnership

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## Executive Summary

This review was prepared by the Pacific Invasives Initiative (PII) on request from the Pacific Invasives Partnership (PIP). It was undertaken to examine the invasive species management components within the National Biodiversity Strategy and Action Plans of twelve Pacific island countries (PICs): Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.

The results of the review show that invasive species management is included as a component in eleven National Biodiversity Strategy and Action Plans, Marshall Islands being the only country not to include invasive species management. Five countries have also developed National Invasive Species Action Plans: Federated States of Micronesia (for Kosrae, Pohnpei and Yap), Kiribati (for Kiribati and Line Islands), Marshall Islands, Palau and Samoa; to support their National Biodiversity Strategy Action Plans and to provide a framework for invasive species management.

Management activities identified in the National Biodiversity Strategy Action Plans and National Invasive Species Action Plans were then analysed and compared with the nine thematic areas identified in the Guidelines for Invasive Species Management in the Pacific to identify any gaps within the invasive species management components of each PICs. Some common omissions from the strategic plans include: post-treatment restoration measures, pre-export control procedures, political support, best practice standards, baseline information gathering, monitoring, prioritization, and research on priority invasives.

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## ACRONYMS

CBD	Convention on Biological Diversity
CEPF	Critical Ecosystems Partnership Fund
FSM	Federated States of Micronesia
GEF	Global Environment Fund
JICA	Japan International Cooperating Agency
NBSAP	National Biodiversity Strategy Action Plan
NISAP	National Invasive Species Action Plan
PICs	Pacific Island Countries
PICTs	Pacific Island Countries and Territories
PII	Pacific Invasives Initiative
PILN	Pacific Invasives Learning Network
PIP	Pacific Invasives Partnership
PNG	Papua New Guinea
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme

# 1. INTRODUCTION

The main objectives of this review are to:

1. Assess the alignment of the invasive species components of National Biodiversity Strategy Action Plans (NBSAPs) and National Invasive Species Action Plans (NISAPs) with the Guidelines for Invasive Species Management in the Pacific: A Pacific strategy for managing pests, weeds and other invasive species<sup>1</sup>.
2. Identify gaps in effectively addressing the invasive species issue in PICs.
3. Identify areas where assistance from the Pacific Invasives Partnership (PIP) member agencies may be required.

Only Twelve PICs were included in this review as they were the only ones which have developed NBSAPs or that could be located. They are: Cook Islands, Fiji, Federated States of Micronesia (FSM), Kiribati, Niue, Palau, Papua New Guinea (PNG), Samoa, Solomon Islands, Tonga and Vanuatu.

## 1.1 The invasive species problem

Invasive species (often called pests and weeds) are introduced<sup>2</sup> plants, animals and other organisms that can cause harm to the environment or human livelihoods. They are mostly spread through human activity, deliberately or unintentionally, and include insects, weeds, fungi, bacteria, viruses, fish, mammals, snails and other species. Many of these harmful organisms are already present in Pacific Island Countries and Territories (PICTs) where they are having detrimental impacts on: food production, forestry, tourism, reducing land values, damaging buildings, obstructing waterways, disrupting trade and transportation, and cause or transmit diseases of humans, animals and crops. This is worsened by the fact that PICTs often have limited human and financial resources available to deal with such threats.

## 1.2 Background to NBSAPs

The development of NBSAPs was a result of the Earth Summit in Rio de Janeiro in 1992 when the Convention on Biological Diversity (CBD) was formulated. The provisions of the Convention are set out as 42 Articles. Article 6<sup>3</sup> includes a requirement for each Contracting Party, 'in accordance with its particular conditions and capabilities, to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity...' This Article is mandatory and creates an obligation for national biodiversity planning for countries that have ratified the CBD.

The CBD does not provide mandatory themes (issues) that should be covered in the NBSAPs. It is up to the individual country on what themes they want to include that best suit their needs and challenges. A review of NBSAPs by Eleanor Carter<sup>4</sup> identified three common themes of NBSAPs and five cross-cutting issues. Invasive species was identified as a cross-cutting issue. Some countries have therefore further developed National Invasive Species Action Plans (NISAPs) to address invasive species threats. NISAPs provide a framework and identify key actions that need to be taken to effectively address and manage the threat and impacts of new and existing invasive species.

Five of the twelve countries in this review have developed NISAPs: Kiribati (one for Kiribati as a whole and one specific for the Line Islands), Federated States of Micronesia (i.e. Kosrae, Pohnpei and Yap), Marshall Islands, Palau and Samoa. Therefore, a total of eight NISAPs have been developed to date.

## 1.3 Background to the Guidelines

The CBD does not provide guidelines for countries on how to produce an NBSAP, but since the Rio Summit there have been numerous recommendations and guidelines on various issues to support countries in the development of

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<sup>1</sup> It should be noted that most of the NBSAPs were developed prior to the endorsement of the Guidelines in 2008.

<sup>2</sup> Introduced species are plants, animals and other organisms taken beyond their natural range by people, deliberately or unintentionally.

<sup>3</sup> <http://www.cbd.int/convention/articles.shtml?a=cbd-06>

<sup>4</sup> Carter, E. (2007) National Biodiversity Strategies & Action Plans: Pacific regional review. SPREP

their NBSAPs. The Secretariat of the Pacific Regional Environment Programme (SPREP) was commissioned by its member countries to develop an invasive species strategy for all countries and agencies in the Pacific region. A draft invasive species strategy was first produced in 2000. A revision of the strategy in 2006-2007 resulted in the development of the Guidelines for Invasive Species Management in the Pacific: A Pacific strategy for managing pests, weeds and other invasive species<sup>5</sup> (hereafter “the Guidelines”). The Guidelines were endorsed by the 19<sup>th</sup> meeting of SPREP Council in September 2008 and the meeting of Secretariat of Pacific Community (SPC) Heads of Agriculture and Forestry, the same month, and published in 2009.

The goal of the Guidelines is, ‘to assist PICTs in planning the effective management of invasive species, thereby reducing the negative impacts of invasive species on their rich and fragile natural heritage, communities and livelihoods’. Its objectives are grouped into nine thematic areas in three sections. Thematic areas:

- A. Foundations
  - A1. Generating support
  - A2. Building capacity
  - A3. Legislation, Policy and Protocols
- B. Problem Definition, Prioritization and Decision-making
  - B1. Baseline & Monitoring
  - B2. Prioritization
  - B3. Research on priorities
- C. Management Action
  - C1. Biosecurity
  - C2. Management of established invasives
  - C3. Restoration

All nine thematic areas must be taken into account when planning an effective invasive species programme. However, it is not suggested that all nine thematic areas need to be addressed. The Guidelines are intended to be a comprehensive list to assist planning, and each agency using them is expected to select its own priorities from the list and develop them in its own plans. Not all objectives will be necessary for every invasive species plan. The Guidelines provide a guide to PICTs in developing their invasive species work and to international and regional agencies in developing their assistance to PICTs.

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<sup>5</sup> SPREP.(2009). Guidelines for invasive species management in the Pacific: a pacific strategy for managing pests, weeds and other invasive species. Apia, Samoa.



## **2. THE REVIEW PROCESS AND METHODOLOGY**

- Desktop review of the twelve NBSAPs and comparison with the Guidelines with relevant information extracted.
- Desktop review of the eight NISAPs from five countries and comparison to the Guidelines with relevant information extracted.
- Questionnaires were distributed to the twelve NBSAP coordinators with eight out of 12 being returned.

The NBSAPs were obtained from the CBD website and the NISAPs from SPREP. The design of the questionnaire was based on the nine thematic areas of the Guidelines; it was developed to gather information on the type of management activities currently being planned or undertaken in these countries.

The information in this review, as far as it has been possible to verify, is accurate as of September 2010. It should also be taken into consideration that the majority of the NBSAPs were developed prior to the Guidelines being endorsed in 2008 (Appendix 1) and thus did not follow their structure and content.

## 3. RESULTS

### 3.1 NBSAP

Of the twelve NBSAPs that were reviewed for invasive species components, only one country, the Marshall Islands did not include invasive species. However, they later developed a NISAP (see below).

The review revealed that only the Federated States of Micronesia addressed at least some of the objectives in all nine thematic areas of the Guidelines.

Table 1 provides a summary of the thematic areas from the Guidelines identified in the NBSAPs. Gaps were identified in terms of which countries did not address each thematic area. The thematic areas are ordered from least to most addressed, the country gaps were:

1. C3 - Restoration (not included by all countries)
2. B1- Baseline & Monitoring (not included by 5 countries: Kiribati, Marshall Islands, Niue, Palau and PNG)
3. B2 - Prioritization (not included by 5 countries: Kiribati, Marshall Islands, PNG, Samoa and Tonga)
4. B3-Research on priorities (not included by 4 countries: Cook Islands, Marshall Islands, Palau and PNG)
5. A2- Capacity Building (not included by 3 countries: Cook Islands, Kiribati and Marshall Islands)
6. A3-Legislation, Policy and Protocols (not included by 2 countries: Kiribati and Marshall Islands)
7. C1-Biosecurity (not included by 2 countries: Kiribati and Marshall Islands)
8. C2- Management of established invasives (not included by 2 countries: Marshall Islands and Tonga)
9. A1- Generating support - (not included by 1 country: Marshall Islands)

**Table 1: Summary of Thematic Areas from the Guidelines identified in NBSAPs**

	A. Foundations			B. Problem Definition, Prioritization and Decision Making			C. Management Action		
Country	A1 - Generating Support	A2 - Building Capacity	A3 - Legislation, Policy & Protocols	B1 - Baseline & Monitoring	B2 - Prioritization	B3 - Research on priorities	C1 - Biosecurity	C2 - Management of established invasives	C3 - Restoration
Cook Islands	Y	N	Y	Y	Y	N	Y	Y	N
Fiji	Y	Y	Y	Y	Y	Y	Y	Y	N
FSM	Y	Y	Y	Y	Y	Y	Y	Y	N
Kiribati	Y	N	N	N	N	Y	N	Y	Y
Marshall Islands	N	N	N	N	N	N	N	N	N
Niue	Y	Y	Y	N	Y	Y	Y	Y	N
Palau	Y	Y	Y	N	Y	N	Y	Y	N
PNG	Y	Y	Y	N	N	N	Y	Y	N
Samoa	Y	Y	Y	Y	N	Y	Y	Y	N
Solomon Islands	Y	Y	Y	Y	Y	Y	Y	Y	N
Tonga	Y	Y	Y	Y	N	Y	Y	N	N
Vanuatu	Y	Y	Y	Y	Y	Y	Y	Y	N

### 3.2 NISAP

Five countries: the Federated States of Micronesia (three of its four states: Kosrae, Pohnpei and Yap); Kiribati (Kiribati and Line Islands); Marshall Islands; Palau and Samoa have developed a total of eight NISAPs. The review revealed that only Samoa's addressed all nine thematic areas of the Guidelines. Samoa's NISAP stated that it was developed with the Guidelines that were currently in draft at the time.

Table 2 provides a summary of the thematic areas from the Guidelines identified in the NISAPs. The following gaps were identified and are ordered by thematic area from least to most addressed:

1. C3 - Restoration (not addressed by 7 NISAPs: FSM-Pohnpei, Kosrae and Yap; Kiribati and Line Islands; Marshall Islands and Palau)
2. B1 - Baseline & Monitoring (not addressed by 5 NISAPs: FSM-Pohnpei and Kosrae; Kiribati and Line Islands; Palau)
3. B3 - Research on Priorities (not addressed by 5 NISAPs: FSM – Pohnpei, Kosrae and Yap; Kiribati and Line Islands)
4. B2 - Prioritization (not addressed by 3 NISAPs: FSM – Kosrae; Kiribati and Line Islands)
5. A3 - Legislation, Policy and Protocols (not addressed by 2 NISAPs: FSM – Yap and Kiribati–Line Islands)
6. C1 - Biosecurity (not addressed by 2 NISAPs: FSM – Pohnpei and Kosrae)

Thematic areas: A1. Generating support, A2. Building capacity and C2 Management of established invasives are addressed by all eight NISAPs, but not all objectives under these thematic areas are addressed.

**Table 2: Summary of Thematic Areas from the Guidelines identified in the NISAPs**

Country	A. Foundations			B. Problem Definition, Prioritization and Decision Making			C. Management Action		
	A1 - Generating Support	A2 - Building Capacity	A3 - Legislation, Policy & Protocols	B1 - Baseline & Monitoring	B2 - Prioritization	B3 - Research on priorities	C1 - Biosecurity	C2 - Management of established invasives	C3 - Restoration
FSM - Pohnpei	Y	Y	Y	N	Y	N	N	Y	N
FSM – Kosrae	Y	Y	Y	N	N	N	N	Y	N
FSM - Yap	Y	Y	N	Y	Y	N	Y	Y	N
Kiribati	Y	Y	Y	N	N	N	Y	Y	N
Kiribati -Line Islands	Y	Y	N	N	N	N	Y	Y	N
Marshall Islands	Y	Y	Y	Y	Y	Y	Y	Y	N
Palau	Y	Y	Y	N	Y	Y	Y	Y	N
Samoa	Y	Y	Y	Y	Y	Y	Y	Y	Y

### 3.3 QUESTIONNAIRE

Eight out of twelve questionnaires were returned from: Cook Islands, Kiribati, Niue, Palau, PNG, Samoa, Solomon Islands and Vanuatu. All respondents were the NBSAP Coordinators in their countries, i.e. government representatives, and all respondents were staff of their country's environment department or division. All NBSAPs coordinators were also sent the Guidelines to refer to.

The following gaps were identified, ordered by thematic area from least to most addressed:

1. C3 – Restoration (not mentioned by 3 countries: Cook Islands, Niue and Solomon Islands)
2. A2 – Capacity Building (not mentioned by 2 countries: Solomon Islands and Niue)
3. B3 - Research on Priorities (not mentioned by 2 countries: Cook Islands and Niue)
4. B1 – Baseline and Monitoring (not mentioned by 1 country: Vanuatu)

## 4. NBSAP & NISAP REVIEW

The following is the review of the twelve NBSAPs and the eight NISAPs. It is organised based on the thematic areas identified in the Guidelines.

### A. FOUNDATIONS

#### A1. Generating Support

*Raising awareness of the impacts of invasive species on biodiversity, the economy, human health and socio-cultural values, and generating support for action to manage and reduce them.*

A1.1: Develop awareness-raising programmes and materials for key regional, national, sectoral and community target groups, including curriculum development for the formal education.

##### **NBSAPs**

Eleven out of the twelve NBSAPs recognized the importance of generating support. Only the Marshall Islands did not include components of generating support for invasive species in their NBSAP (Table 3). Most NBSAPs included a considerable amount of work for the development of awareness raising programmes and materials (e.g. posters and pamphlets) for different audiences from politicians to the general public and for incorporating invasive species into formal education, from primary school to university courses.

PICs identified the importance and value of having the public well informed and educated in invasive species management. It should be noted though that public awareness and education is a cross cutting issue within NBSAPs and therefore most of the NBSAPs presented it as a separate strategic theme/goal/focus/objective within the NBSAP, not specifically focused on invasive species.

##### **NISAPs**

All eight NISAPs addressed the importance of improving the knowledge and understanding of key stakeholders and the wider public by developing awareness programmes and materials; and also to incorporate invasive species management topics into the education system (Table 4).

A1.2: Ensure national support by mainstreaming invasive species with national and regional decision-makers.

##### **NBSAPs**

None of the NBSAPs mentioned mainstreaming of invasive species with national and regional decision makers.

##### **NISAPs**

Only Kiribati's NISAP identified the need to mainstream invasive species with its national decision-makers by incorporating invasive species into the Kiribati National Development Strategy.

A1.3: Identify and develop long-term external funding mechanisms for the support of invasive species management in the Pacific island countries and territories.

##### **NBSAPs**

Ten PICs recognized that their governments cannot realistically fund all the activities in their NBSAPs and that external support will need to be sought (Table 3).

##### **NISAPs**

All eight NISAPs recognized the need to develop funding mechanisms to support and implement the actions that were identified within them, both from donor agencies and in-kind support from their governments, communities, NGOs, private agencies and citizens (Table 4).

#### A1.4 Secure support for invasive species issues among local communities

##### **NBSAPs**

Only six NBSAPs identified the importance of involving communities with invasive species management programmes.

##### **NISAPs**

Four NISAPs: Kiribati, Line Islands, Pohnpei and Kosrae, recognized the importance of ensuring long term commitment from local communities (Table 4). The commitment from communities was expected to be established with the formation of community or church associations that would work on invasive species issues, having clearly defined roles and responsibilities.

## **A2. Building Capacity**

*Develop the institutions, skills, infrastructure support, information management, networks and exchanges required to manage invasive species effectively.*

A2.1: Establish and maintain competent regional support and coordination for invasive species management in Pacific island countries and territories.

##### **NBSAPs & NISAPs**

This objective is aimed at international and regional agencies working within the Pacific region supporting invasive species management in PICTs, and as such is not expected to be included in national plans.

A2.2: Strengthen and maintain competent national and territorial institutions and staffing, to coordinate and manage invasive species programmes and promote full participation, including local communities, in invasive species management.

##### **NBSAPs**

Nine NBSAPs identified the need for qualified staff to carry out effective invasive species management, especially for quarantine staff and conservation/environment officers conducting biological surveys and implementing control or eradication programmes. They also recognized the importance of establishing invasive species committees with multi-agency, cross-sector representation (Table 3).

##### **NISAPs**

Five NISAPs identified the need to have staff dealing with invasive species who are knowledgeable and skilled in invasive species management from early detection to control and eradication techniques (Table 4)

A2.3: Develop national invasive species strategies and action plans.

##### **NBSAPs**

When the NBSAPs were developed only three countries: Fiji, Palau and Solomon Islands identified the need to develop national invasive species strategies to supplement their NBSAPs. However, to date five PICs have developed NISAPs (Federated States of Micronesia for the states of Kosrae, Pohnpei and Yap; Kiribati for Kiribati as a whole and the Line Islands; the Marshall Islands; Palau and Samoa).

##### **NISAPs**

All eight documents are National Invasive Species Strategies and Action Plans that are living documents and are intended to be reviewed every three to five years.

A2.4: Promote existing training programmes and develop new ones to cover all aspects of the invasive species management process, from planning and fundraising to dissemination of lessons learnt.

### **NBSAPs & NISAPs**

This objective is more suited to international and regional agencies working within the Pacific region supporting invasive species management of PICTs. Nine NBSAPs and five NISAPs did identify the need for qualified trained staff and this was covered above in objective A2.2.

#### **A2.5: Develop and upgrade regional and national facilities for invasive species management**

##### **NBSAPs**

Six NBSAPs identified the need to strengthen and upgrade quarantine facilities to prevent new species from entering their countries (Table 3).

##### **NISAPs**

Despite the wide recognition of this objective in NBSAPs, only Kiribati's two NISAPs addressed the need to provide equipment and facilities to help control and prevent the introduction and establishment of invasive species.

#### **A2.6: Develop regional and national taxonomic support for invasive species management**

##### **NBSAPs & NISAPs**

None of the plans addressed the need to develop taxonomic support for invasive species management.

#### **A2.7: Develop regional information resources on invasive species, including internet-based information systems, which are easily accessible both within and outside the region.**

##### **NBSAPs**

Three countries addressed the need to establish databases for invasive species information: Fiji, Solomon Islands and Tonga (Table 3). An internet search revealed databases for only the Cook Islands and Samoa among the twelve countries reviewed. However, other countries may have developed databases that are not internet based.

##### **NISAPs**

Only Samoa's NISAP addressed the maintenance of two of its databases: Pest List database hosted by Quarantine Samoa and the Biodiversity database hosted by the Ministry of Natural Resource and Environment which can be found online<sup>6</sup>. The Pest List database provides information on agricultural pest occurrences within a country, to facilitate trade in terms of the International Plant Protection Convention and the International Standards for Phytosanitary Measures. The system is designed for use by the 22 PICTs that the Secretariat of the Pacific Community (SPC) serves<sup>7</sup>.

#### **A2.8: Strengthen and maintain networks of expertise, resources, linkages, meeting, workshops and exchanges between countries, territories, scientific institutions and other sources of technical and research assistance that facilitate communication, cooperation and information sharing between invasive species workers.**

##### **NBSAPs**

Only three NBSAPs identified the significance of linking closely with regional programmes to receive updated information on invasive species, skills exchanges and information sharing programmes (Table 3). However, to date, all of these countries do call on PIP member organisations for technical advice and support, training and access to expertise within and outside the Pacific and six countries (FSM, Kiribati, Marshall Islands, Niue, Palau and Samoa) have joined the Pacific Invasives Learning Network (PILN). All 12 of

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<sup>6</sup>Information on Samoa's biodiversity can be found at <http://www.mnre.gov.ws/biodiversity/default.cfm>

<sup>7</sup>Vernon R., 2003. The Pacific Pest List Database for agricultural trade facilitation. EPP0 Bulletin, Volume 33, Issue 3, pp 501-504  
<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2338.2003.00682.x/abstract>

these countries have also taken part in the Pacific Ant Prevention Programme and FSM, Marshalls and Palau are part of the Micronesia Regional Invasive Species Council.

#### **NISAPs**

Four NISAPs recognized that it was important to strengthen existing national, regional and international partnerships and to establish new ones as well as cooperative arrangements to maximise the sharing and exchange of information, research, technologies, technical capacity and other resources (Table 4). This reflects the newly prepared NISAPs and the emergence of regional partnerships during the past few years.

### **A3. Legislation, Policy and Protocols**

*Ensure that appropriate legislations, policies, protocols and procedures are in place and operating, to underpin the effective management of invasive species.*

A3.1: Develop, promote and adapt an effective policy and legal framework for invasive species management in the Region.

#### **NBSAPs**

Ten NBSAPs recognized the importance of reviewing and making amendments to current policies and legislations (Table 3), to ensure issues that are covered in NBSAPs such as invasive species are effectively incorporated in government developmental policies and the integration of objective and actions into legislative amendments being undertaken by relevant departments and as necessary develop appropriate legislation on biosecurity.

#### **NISAPs**

Six NISAPs identified the need to review and amend legislations and policies to ensure that invasive species issues are included, especially in areas such as: trade – import and export; development – Environmental Impact Assessments (EIAs) to assess the invasive threats posed by developments; and legislation controlling ballast water and hull fouling.

A3.2: Develop and promote sound policies and effective, standardised protocols derived from consistent legislation and aligned with applicable international requirements, for invasive species management in the region, based on sound scientific information and management principles.

#### **NBSAPs**

Four NBSAPs: FSM, Samoa, Solomon Islands and Tonga identified that it was important to review or develop new legislation to ensure that it was aligned with international requirements and also recognized the importance of making appropriate changes to the screening process for introduced species to include assessment of possible impacts on native biodiversity (Table 3).

#### **NISAPs**

None of the NISAPs addressed this objective, despite its recognition in NBSAPs.

A3.3: Ensure full Pacific participation in the development of international standards, conventions and programmes that govern or affect invasive species issues, including movement in commerce, to ensure that they reflect the Pacific needs.

#### **NBSAPs**

Four NBSAPs identified the need in cooperating, coordinating and participating at regional and international meetings/workshop involved with international conventions

#### **NISAPs**

Only Palau's NISAP identified the need to join and actively participate with regional working groups to prevent and manage invasive species (Table 4).



**Table 3: Thematic Area. A. Foundations identified in NBSAPs**

Objectives	Cook Islands	Fiji	FSM	Kiribati	Marshall Islands	Niue	Palau	PNG	Samoa	Solomon Islands	Tonga	Vanuatu	No. of NBSAPs objective identified in
<b>A1.1</b>	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	<b>11</b>
<b>A1.2</b>	N	N	N	N	N	N	N	N	N	N	N	N	<b>0</b>
<b>A1.3</b>	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	<b>10</b>
<b>A1.4</b>	N	Y	N	N	N	Y	Y	N	Y	Y	Y	N	<b>6</b>
<b>A2.1</b>	This objective is more specific to regional/international agencies working on ISM in the Pacific												
<b>A2.2</b>	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	<b>9</b>
<b>A2.3</b>	N	Y	N	N	N	N	Y	N	N	Y	N	N	<b>3</b>
<b>A2.4</b>	This objective is more specific to regional/international agencies working on ISM in the Pacific												
<b>A2.5</b>	N	N	Y	N	N	Y	N	Y	Y	Y	Y	N	<b>6</b>
<b>A2.6</b>	N	N	N	N	N	N	N	N	N	N	N	N	<b>0</b>
<b>A2.7</b>	N	Y	N	N	N	N	N	N	N	Y	Y	N	<b>3</b>
<b>A2.8</b>	N	N	N	N	N	Y	N	Y	N	Y	N	N	<b>3</b>
<b>A3.1</b>	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	<b>10</b>
<b>A3.2</b>	N	N	Y	N	N	N	N	N	Y	Y	Y	N	<b>4</b>
<b>A3.3</b>	N	N	N	N	N	N	Y	N	Y	Y	Y	N	<b>4</b>

**Table 4: Thematic Area A. Foundations identified in NISAPs**

Objectives	FSM- Yap	FSM- Pohnpei	FSM- Kosrae	Kiribati-Tarawa	Kiribati - Line Islands	Marshall Islands	Palau	Samoa	No. of NISAPs objective identified in
<b>A1.1</b>	Y	Y	Y	Y	Y	Y	Y	Y	<b>8</b>
<b>A1.2</b>	N	N	N	Y	N	N	N	N	<b>1</b>
<b>A1.3</b>	Y	Y	Y	Y	Y	Y	Y	Y	<b>8</b>
<b>A1.4</b>	N	Y	Y	Y	Y	N	N	N	<b>4</b>
<b>A2.1</b>	This objective is more specific to regional/international agencies working on ISM in the Pacific								
<b>A2.2</b>	N	N	Y	Y	Y	Y	N	Y	<b>5</b>
<b>A2.3</b>	Y	Y	Y	Y	Y	Y	Y	Y	<b>8</b>
<b>A2.4</b>	This objective is more specific to regional/international agencies working on ISM in the Pacific								
<b>A2.5</b>	N	N	N	Y	N	N	N	N	<b>1</b>
<b>A2.6</b>	N	N	N	N	N	N	N	N	<b>0</b>
<b>A2.7</b>	N	N	N	N	N	N	N	Y	<b>1</b>
<b>A2.8</b>	Y	N	N	Y	Y	N	N	Y	<b>4</b>
<b>A3.1</b>	N	Y	Y	Y	N	Y	Y	Y	<b>6</b>
<b>A3.2</b>	N	N	N	N	N	N	N	N	<b>0</b>
<b>A3.3</b>	N	N	N	N	N	N	Y	N	<b>1</b>

## **B.PROBLEM DEFINITION, PRIORITIZATION AND DECISION-MAKING**

### **B1. Baseline and monitoring change**

*Establish a baseline of information on the status and distribution of invasive species in the Pacific and a programme for detecting change, including range changes and emerging impacts.*

B1.1: Generate, update and make available status and distribution information and checklists of invasive species and native species for all member countries and territories.

#### **NBSAPs**

Seven NBSAPs: Cook Islands, Fiji, FSM, Samoa, Solomon Islands, Tonga and Vanuatu identified the need to promote and encourage research to identify, document, map and develop long-term monitoring programmes for invasive species (Table 5). Existing species information was to be reviewed to identify gaps that need to be addressed and also to create lists of invasive species. Surveys were identified as needed to map location and distribution.

#### **NISAPs**

Only three NISAPs: Yap, Marshall Islands and Samoa identified the importance of gathering baseline information for the management of invasive species. Most of the information related to determining and mapping current distribution, past spread and potential future dispersal of invasive species (Table 6).

B1.2: Monitoring invasive species movement between countries, territories and islands, at ports and other entry points. This is biosecurity surveillance, and is covered under objective C1.4.

B1.3: Design and promote a series of standard techniques for monitoring the spread of invasive species within islands.

#### **NBSAPs**

Only two NBSAPs identified the need to develop research and monitoring programmes for invasive species (Table 5). However, they did not state that standard techniques would be developed.

#### **NISAPs**

Only FSM-Yap and Samoa identified the need to monitor the spread of invasive species.

### **B2. Prioritization**

*Establish and implement effective systems for assessing risk and prioritizing invasive species for management.*

B2.1: Design, develop and implement simple and effective invasive species risk assessment and prioritization systems throughout the Pacific.

#### **NBSAPs**

Six NBSAPs identified the need to prioritize invasive species for management, especially with limited financial and human resources to implement management programmes (Table 5). They also identified the need to control future introductions through the establishment of permit requirements for living materials, providing background information on the species and also measures to prevent possible impacts on native biodiversity.

#### **NISAPs**

Five NISAPs recognized the need to identify, assess and prioritize existing invasives species for management.

### B3: Research on priorities

*Understanding priority invasive species, including research on species biology and impacts and development of effective control techniques*

B3.1: Carry out research on the impacts, ecology, biology and control of high priority invasive species.

#### NBSAPs

Fiji, FSM, Kiribati, Niue, Samoa, Solomon Islands, Tonga and Vanuatu identified the significance of ‘knowing your enemy’ in order to implement successful management of invasive species (Table 5). This is to be done through conducting biological surveys and studying the species to develop acceptable means of managing them.

#### NISAPs

Marshall Islands, Palau and Samoa identified the need to collect information on the impacts of invasive species on their environment, economy and other areas and to carry out research on their ecology and biology as well as identifying the best management techniques.

**Table 5: Thematic Area B. Problem definition, prioritization and decision-making identified in NBSAPs**

Objectives	Cook Islands	Fiji	FSM	Kiribati	Marshall Islands	Niue	Palau	PNG	Samoa	Solomon Islands	Tonga	Vanuatu	No. of NBSAPs objective identified in
<b>B1.1</b>	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	<b>7</b>
<b>B1.2</b>	N	N	N	N	N	N	N	N	N	N	N	N	<b>0</b>
<b>B1.3</b>	N	N	Y	N	N	N	N	N	N	Y	N	N	<b>2</b>
<b>B2.1</b>	N	Y	Y	N	N	Y	Y	N	N	Y	N	Y	<b>6</b>
<b>B3.1</b>	N	Y	Y	Y	N	Y	N	N	Y	Y	Y	Y	<b>8</b>

**Table 6: Thematic Area B. Problem definition, prioritization and decision making identified in NISAPs**

Objectives	FSM- Yap	FSM- Pohnpei	FSM- Kosrae	Kiribati-Tarawa	Kiribati - Line Islands	Marshall Islands	Palau	Samoa	No. of NISAPs objective identified in
<b>B1.1</b>	Y	N	N	N	N	Y	N	Y	<b>3</b>
<b>B1.2</b>	N	N	N	N	N	N	N	N	<b>0</b>
<b>B1.3</b>	Y	N	N	N	N	N	N	Y	<b>2</b>
<b>B2.1</b>	Y	Y	N	N	N	Y	Y	Y	<b>5</b>
<b>B3.1</b>	N	N	N	N	N	Y	Y	Y	<b>3</b>

## C.MANAGEMENT ACTION

### C1. Biosecurity

*Prevent the spread of invasive species across international or internal borders.*

C1.1: Pre-export control. Develop and implement improved inspection, treatment, packing and transportation procedures and methods, for transport leaving countries and islands harbouring priority invasive species.

#### **NBSAPs**

None of the NBSAPs identified the importance of pre-export control to prevent invasive species they have within their own countries from spreading to other countries.

#### **NISAPs**

Only Samoa's NISAP recognised the importance of pre-export control to reduce the risk of native species and invasive species escaping from Samoa and then invading other countries.

C1.2: Pre-border control. Implement a rigorous process of risk analysis in relation to the deliberate introduction of species and the movement of potential carrier goods between countries, and between islands within a country.

#### **NBSAPs**

Seven countries identified the importance of conducting risk analysis when intending to deliberately introduce a species in order to reduce the possibility of it becoming invasive in its host country.

#### **NISAPs**

Only the Marshall Islands NISAP stated that it was important to guard against intentional introductions from horticulture, agriculture and mariculture using quarantine and surveillance programmes. But several NISAPs did address the issue of controlling the spread of invasives species between islands within a country.

C1.3: At-border control. Establish and maintain effective quarantine, transport and border control systems at national borders and between islands within countries.

#### **NBSAPs**

Six NBSAPs identified the importance of strengthening quarantine processes at international ports of entry to prevent new invasive species from entering their countries and all six also identified the importance of discouraging the movement of species between islands within a country, especially where they are not already present (Table7)

#### **NISAPs**

Five NISAPs recognized the importance of identifying all likely entry pathways and therefore the need to strengthen quarantine services.

C1.4: Post-border rapid response. Establish and maintain effective systems to detect incursions of invasive species reliably and quickly, and mount rapid responses to them.

#### **NBSAPs**

Six NBSAPs identified the importance of making contingency plans for the containment and eradication of invasive species not yet present within their country and to establish an invasive species task force or identify responsible agencies that will be mobilized to deal with an incursion.

#### **NISAPs**

Five NISAPs identified the need to establish and maintain effective systems to detect new incursions and to apply rapid action against them.

SPC<sup>8</sup>, along with many of its member PICTs, including the twelve included in this review, have developed general Emergency Response Plans (ERP) for fruit fly incursions. However a number of countries have also developed either generic or species specific plans. The following countries have the following plans:

- Fiji – Fruit fly, giant African snail, Asian subterranean termite and invasive ants
- PNG - Coffee berry borer, sugarcane smut disease, cocoa pod borer, generic fruit fly, avian influenza, Newcastle disease of poultry and generic invasive ants.
- Samoa –generic fruit fly ERP, generic invasive ants ERP and a draft generic invasive species ERP.
- Solomon Islands – Giant African snail, generic fruit fly, avian influenza and generic invasive ants
- Cook Islands, FSM, Kiribati, Marshall Islands, Niue, Palau, Tonga and Vanuatu –generic fruit fly ERP and generic invasive ants.

The generic ERPs are used as a guide but are often modified by countries. The limited technical capacity in most of these countries makes it difficult to develop specific ERPs. For animal diseases the generic plan developed for avian influenza is the guide that is used<sup>7</sup>.

## **C2. Management of established invasives**

*Reduce or eliminate the impacts of established invasive species, by eradication, biological control, containment or physical-chemical control.*

C2.1: Develop and implement decision tools to assist in choice of management goal and technique.

### **NBSAPs**

Only the Solomon Islands identified the need to design management procedures for selecting management goals for each of its priority species including prevention of spread, control and eradication (Table 7).

### **NISAPs**

Only three NISAPs identified the need to have management tools for planning on deciding on best management options.

C2.2: Design and implement effective management programmes appropriate for each species and situation, and incorporate best-practice standards.

### **NBSAPs**

Ten NBSAPs identified their intentions of carrying out invasive species management programmes such as the eradication of rats, control and eradication of invasive weeds and the containment of tilapia (Table 7). See appendix 11.2 for a list of invasive species activities identified in NBSAPs.

### **NISAPs**

All NISAPs identified their intentions of carrying out management programmes, see appendix 11.3

## **C3. Restoration**

*Remedial action to restore native biodiversity or ensure recovery of other values, following invasive species management*

C3.1: Design and implement restoration projects to ensure that invasive species management projects achieve their ultimate goal, be it recovery of native species and ecosystems, economic values or other values.

### **NBSAPs**

None of NBSAPs identified the need to develop and implement restoration projects (Table 7).

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<sup>8</sup> Roy Masamdu (pers. comm., 2010) Biosecurity & Trade Facilitation Officer, Land Resource Division, Secretariat of the Pacific Community

## NISAPs

Only Samoa's NISAP identified the need to develop and implement effective restoration methods after eradication.

**Table 7: Thematic Area C. Management Action identified in NBSAPs**

Objectives	Cook Islands	Fiji	FSM	Kiribati	Marshall Islands	Niue	Palau	PNG	Samoa	Solomon Islands	Tonga	Vanuatu	No. of NBSAPs objective identified in
<b>C1.1</b>	N	N	N	N	N	N	N	N	N	N	N	N	<b>0</b>
<b>C1.2</b>	Y	N	Y	N	N	Y	Y	Y	N	N	Y	Y	<b>7</b>
<b>C1.3</b>	N	N	Y	N	N	Y	Y	N	N	Y	Y	Y	<b>6</b>
<b>C1.4</b>	N	Y	Y	N	N	Y	Y	N	Y	Y	N	N	<b>6</b>
<b>C2.1</b>	N	N	N	N	N	N	N	N	N	Y	N	N	<b>1</b>
<b>C2.2</b>	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	<b>10</b>
<b>C3.1</b>	N	N	N	N	N	N	N	N	N	N	N	N	<b>0</b>

**Table 8: Thematic Area C. Management Action identified in NISAPs**

Objectives	FSM- Yap	FSM- Pohnpei	FSM- Kosrae	Kiribati-Tarawa	Kiribati - Line Islands	Marshall Islands	Palau	Samoa	No. of NISAPs objective identified in
<b>C1.1</b>	N	N	N	N	N	N	N	Y	<b>1</b>
<b>C1.2</b>	N	N	N	N	N	Y	N	N	<b>1</b>
<b>C1.3</b>	Y	N	N	Y	Y	Y	N	Y	<b>5</b>
<b>C1.4</b>	Y	N	N	Y	Y	N	Y	Y	<b>5</b>
<b>C2.1</b>	N	N	N	N	N	Y	Y	Y	<b>3</b>
<b>C2.2</b>	Y	Y	Y	Y	Y	Y	Y	Y	<b>8</b>
<b>C3.1</b>	N	N	N	N	N	N	N	Y	<b>1</b>

## 5. QUESTIONNAIRE REVIEW

The purpose of the questionnaire was to collect information on invasive species management activities currently planned or being implemented by each PIC to date. The questionnaire follows the thematic areas identified in the Guidelines. Eight out of twelve questionnaires were received, from Cook Islands, Kiribati, Niue, Palau, PNG, Samoa, Solomon Islands and Vanuatu. Below is a summary of the answers received. Please see appendix 11.4 for the full questionnaire template.

### A. FOUNDATIONS

#### A1. Generating support

Describe the support and awareness programmes on Invasive Species Management that has been implemented in your country? What were the results of these programmes?

Generating support was identified in all of the eight questionnaires received, with all eight countries carrying out public awareness activities such as: formal and informal outreach programmes; workshops with key stakeholder, schools and the general public; the development and dissemination of awareness materials on invasive species; and the use of all forms of media to spread the message of invasive species.

The support that was received by each country to carry out these activities varied greatly. Niue, for instance, identified minimal and unsustainable support. This was due to the lack of financial resources, technical support available and the high rate of staff turnover. Kiribati and Samoa identified a strengthening of local networks with multi-agencies working together. Palau's National Invasive Species Committee is supported by various NGOs and government agencies. National support is provided through funding, resolutions and policies from the national congress. Sub-regional support is provided through the Micronesia Chief Executives. Regional support is provided by SPC and PII and international support is provided by The Nature Conservancy and Food and Agriculture Organization.

Most of the questionnaires identified that there had been an increase in public awareness, with some acknowledging that there is no baseline information to see if the public's attitude and behaviour have really changed.

#### A2. Building capacity

Describe the projects that have been developed to build and strengthen the capacity for effective Invasive Species management? What results were achieved from these projects?

All the questionnaires, except for Solomon Islands and Niue, identified projects that strengthened capacity. Solomon Islands stated that it had yet to develop a specific project on strengthening the capacity of invasive species management, and Niue stated there is very little capacity building at the local level due to limited resources to carry out control and/or eradication projects on prioritized species. Capacity building is an on-going issue as staff turnover is very high.

The Cook Islands and PNG both identified projects that built the capacity of local communities to identify and carry out invasive species management.

Kiribati stated that the Pacific Invasives Learning Network (PILN) built the confidence of key agencies at the government and NGO level to develop strategic plans for invasive species. Kiribati also reported that the Phoenix Islands restoration project increased the confidence of staff to carry out eradication projects using tools and techniques learnt from experts who assisted in the project.

### **A3. Legislation, Policies and Protocols**

What legislation, policies and protocols for Invasive Species Management exist in your country? Describe any planned changes to current legislation, policies and protocols?

All the questionnaires, except for Samoa, listed relevant legislation, policies and protocols that cover invasive species management. Samoa stated that its legislation and policies are under review and they are currently developing an Environment Bill.

## **B. PROBLEM DEFINITION, PRIORITIZATION AND DECISION-MAKING**

### **B1. Baseline and monitoring**

Describe the baseline and/or monitoring programmes that have been developed. Which monitoring programmes are being implemented?

All countries except for Vanuatu are carrying out monitoring programmes. The degree to which the monitoring programmes are carried out varies, from Niue doing only visual monitoring of recurrence of species at several sites, to Palau carrying out exotic fruit fly surveillance, ant surveillance and invasive weed surveys which has all lead to the improvement of its border control.

### **B2. Prioritization**

Describe the processes for determining priority species for management in your country?

The Cook Islands, Kiribati, Palau and Vanuatu species priorities are determined by their NBSAP committees, National Invasive Species Committees and other relevant agencies. The Solomon Islands identify their priorities only through community consultations as well as research. Niue and PNG select priorities based on economic, environmental and livelihood impacts. Samoa has prioritized invasive species for management that are affecting areas of high priority as they represent some of the last remaining habitat for many of Samoa's endangered native wildlife.

### **B3. Research on priorities**

Briefly describe research initiatives that have been undertaken on priority species.

All the questionnaires except for the Cook Islands and Niue identified research projects that were being conducted on their identified priority species.

## **C. MANAGEMENT ACTION**

### **C1. Biosecurity**

Describe initiatives implemented to ensure tighter border control in the prevention of invasive species' movement at your country border and between islands within your country.

Palau and Vanuatu are awaiting their Biosecurity Bills to be passed into law to ensure tighter control to prevent invasive species movement inwards and out to other countries. The Cook Islands, Kiribati, Niue, PNG and Solomon Islands mentioned the enforcement of quarantine procedures via the inspection of all flights and ships to the island. Samoa stated that it was recently involved with biosecurity training that involved all relevant agencies and specific training for the Aleipata Marine Protected Area Committee on the Aleipata Islands which had a rat eradication operation in 2009.



On a scale of 1 to 10 with 1 being the least effective and 10 being the most effective, please assign a number that indicates how effective the implementation of biosecurity initiatives have been in your country?

The average answer given by countries was a 5 with Niue given the highest of 8.

1. Cook Islands – 5
2. Kiribati – 4 to 6
3. Niue – 8
4. Palau – 7
5. PNG – 6
6. Samoa – 5
7. Solomon Islands – 5
8. Vanuatu – no answer given

## **C2. Management of established invasives**

Describe management initiatives on priority Invasive Species in your country?

1. Cook Islands – Management of *Passiflora rubra* has resulted in a considerable reduction to 100m by 10m.
2. Kiribati – Completion of invasive species action plans, endorsed for full implementation at national level. Coordination of invasive species activities at national level. Ongoing eradication and survey expeditions to the Line and Phoenix Islands. Getting the Biosecurity Bill passed and endorsed. All activities have resulted in invasive species issues being undertaken effectively and has resulted in improved partnerships and pooling of resources at the government level.
3. Niue – Feral pig bounty system; trapping and shooting. Wedelia physical removal and spraying. Biocontrol agents for lantana and mimosa. Some successes have been noted with these projects but are still being monitored.
4. Palau – The creation of the Division of Invasive Species has created more funding and human resources to address invasive species.
5. PNG – Regular monitoring of *Salvinia* in Spepik River system has resulted in reduction in spread, both up and down the river system.
6. Samoa – Developed and implemented response plan for invasions, for example, the mongoose. Strengthening of networks with partners.
7. Solomon Islands- Proposed management plans for identified invasive species.
8. Vanuatu – Stated that due to lack of funding support from government to manage invasive species there are no management initiatives in place. Some work was done through project funding but they are not sustainable, except for the biocontrol on water hyacinth, water lettuce and brookstick weed which are very successful. Vanuatu acknowledged that it is willing to learn from regional agencies to share their lessons on successful methods used to manage the priority species it has identified. Vanuatu would also like to apply methods that are affordable and are environmentally friendly.

## **C3. Restoration**

Describe the efforts developed to reinstate both the natural and modified ecosystems from the impact of invasive species in your country?

The Cook Islands, Niue and Solomon Islands did not identify any restoration projects at present. All other countries identified restoration initiatives with results yet to be determined fully as they are still being monitored

## 6. CONCLUSION and RECOMMENDATIONS

The review has shown that invasive species management issues are included in most NBSAPs and all NISAPs; however these plans reveal significant gaps when compared with the nine thematic areas outlined in the Guidelines.

Under thematic area A Foundations, PICs identify the importance of generating support for invasive species management; building the capacity of their local staff and communities to implement activities; and recognize the importance of mainstreaming invasive species issues by ensuring its inclusion in appropriate legislations, protocols and policies.

Compared to the other thematic areas, A is very well covered within the plans; however, there is much need for generating more political/government support. Discussions among the Pacific group (comprising representatives of Fiji, French Polynesia, Kiribati, New Caledonia and the Solomon Islands, plus several international and regional organisations) at the April 2010 “Helping Islands Adapt” workshop in Auckland identified of the lack of political support as a fundamental problem which currently prevents adequate investment in managing the impacts of invasive species.

Involving communities in invasive species management programmes is essential to enhancing the chance of success. Securing support from local communities is extremely important, as community support will be the key to the success of invasive species management programmes or any biodiversity programme. In PICs land tenure is almost exclusively communally owned and therefore activities will mostly be located on this type of land.

Support and commitment from communities can be gained by allowing them participation in all aspects of invasive species management such as: public awareness, participation in surveys, participation in meetings, identifying their invasive species priorities, biosecurity and control and eradication of established invasive species.

Under thematic area B Problem definition, prioritization and decision-making, more growth is required. The review revealed that more effort needs to be put into: baseline information and monitoring; developing systems for assessing risk and prioritizing invasive species for management; and research on priority invasives.

Under thematic area C Management Action, there needs to be continued strengthening of biosecurity across all PICTs (including between islands within a country) to reduce the spread of invasive species, including having in place appropriate legislation and policies, strengthening of facilities, development and implementation of control procedures, staff capacity development and adequate human and financial resources.

Thematic area C also revealed that most countries do not know, or even recognise the need to know, how to plan an effective invasive species management programme that works towards well-defined and achievable goals; as only three NISAP and one NBSAP identified the importance of developing and implementing decision tools to assist in choice of management. It is very important to have decision tools to determine the feasibility and cost of different management options and to ensure the efficient use of limited management resources available.

Similarly, the plans do not recognize the need to seek out and apply best practice to their invasive species management programmes. More work is also needed to ensure restoration of native biodiversity to ensure recovery of other values after invasive species management programmes have been completed.

Most of the NBSAPs and NISAPs were developed before the Guidelines and these strategies are not static documents. Therefore, their review should be encouraged using the Guidelines as a framework, in order to render them more comprehensive and ensure effective invasive species programmes.

The following are key recommendations to PIP member agencies identified from the review. They are not in any order.

- Promote the use of the Guidelines to PICTs.
- Encourage PICTs when revising their NBSAPs to align invasive species components with the Guidelines, to make them more comprehensive.
- Encourage PICTs that have not developed NISAPs to do so, and encourage PICTs that have NISAPs to revise them in light of the Guidelines.
- Encourage PICTs to involve local communities in all areas of invasive species management from project selection to implementation and monitoring and evaluation to enhance the chances of projects succeeding and outcomes being sustained. Also encourage PICTs to consider developing where appropriate the capacity of the local communities in invasive species management.
- Continue to assist PICTs to develop their capacity for invasive species management in PICTs as staff turnover in PICTs is high.
- Assist PICTs to identify funding sources to implement their invasive species work.
- Assist PICTs to develop databases to store invasive species information.
- Encourage PICTs to develop a national and/or regional invasive species reference collections.
- Encourage PICTs to mainstream invasive species management through social marketing to decision-makers.
- Encourage PICTs to review and amend where appropriate legislation, policies and protocols.
- Encourage PICTs to participate fully in regional and international conventions, committees and working groups, to ensure that their needs are known and are adequately addressed.
- Assist PICTs to develop standard techniques for monitoring the spread of invasive species.
- Assist PICTs to develop prioritization systems.
- Encourage PICTs to carry out baseline research on invasive species.
- Assist PICTs to carry out research on their high priority invasive species.
- Continue to provide assistance to PICTs to develop and implement their ERPs
- Encourage PICTs to develop and implement pre-export procedures to stop native and invasive species from spreading from their country to neighbouring countries.
- Encourage PICTs to develop and implement decision tools to assist in the choice of management goals and techniques to be used in management of established invasives.
- Encourage PICTs to implement long-term monitoring programmes to ensure the adequate recovery of native species, ecosystems and other impacted values.
- Encourage PICTs to carry out awareness programmes targeted at politicians to gain government support
- Assist PICTs to seek out and apply best practice to their invasive species management programmes.
- Continue to provide assistance to PICTs on all invasive species issues.

## 7. APPENDICES

### 7.1 List of NBSAPs and NISAPs

Countries	NBSAP	Year completed	NISAP	Year completed
Cook Islands	Cook Islands Biodiversity Strategy and Action Plan	2001	No	
Fiji	Fiji Biodiversity Strategy and Action Plan.	1999	No	
FSM	The Federate States of Micronesia National Biodiversity Strategy and Action Plan.	2002	2006 -Pohnpei Invasive Species Strategic Action Plan.  2007 - Kosrae Invasive Species Taskforce Strategic Action.  2008 - Yap Invasive Species Taskforce Strategic Action Plan	Pohnpei – 2006 Kosrae - 2007 Yap - 2008
Kiribati	Republic of Kiribati National Biodiversity Strategies and Actions Plan.	2006	2007- Kiribati National Invasive Species Action Plan. Tarawa, Kiribati  2008- Line Islands Invasive Species Action Plan	Kiribati – 2007  Line Island - 2008
Marshall Island	The Republic of the Marshall Islands Biodiversity Strategy and Action Plan.	2000	Marshall Islands Invasive Species Taskforce Strategic Action Plan 2007-2010.	2007
Niue	Niue National Biodiversity Strategy and Action Plan.	2001	No	
Palau	Republic of Palau National Biodiversity Strategy and Action Plan	2005	Palau National Invasive Species Strategy	2004
PNG	Papua New Guinea National Biodiversity Strategy and Action Plan	2007	No	
Samoa	Samoa's Biodiversity Strategy and Action Plan: keep the remainder of the basket.	2001	National Invasive Species Action Plan. Apia, Samoa.	2008
Solomon Islands	Solomon Islands National Biodiversity Strategy Action Plan	2009	No	

Tonga	Kingdom of Tonga National Biodiversity Strategy and Action Plan	2006	No	
Vanuatu	Vanuatu National Biodiversity Strategy and Action Plan.	1999	No	

## 7.2 Management activities identified in NBSAPs

Below is the list of PICs with their identified management programmes taken from their NBSAPs

Cook Islands:

- Develop a community based programme to eradicate those invasive weeds and animal pests that are not yet wide spread on particular islands.
- Develop national programmes to assist with the control of the more serious invasive weeds and pests in both natural and man-modified ecosystems.

Fiji

- Evaluate island eradication possibilities for the mongoose.

FSM

- To identify and develop appropriate programs to ensure effective control and eradication of species threatening biodiversity.

Kiribati

- Control and, where possible, eradicate at least 2 alien invasive species that threaten viable populations of nationally ecological and cultural significant rare, threatened and endangered species.

Niue

- Control the number of feral pigs and encourage their eradication through the bounty system.

Palau

- Four species of invasive weeds (*Imperata cylindrical*, *Mikania micrantha*, *Schefflera actinophylla* and *Spathodea campanulata*) are presently the subject of eradication programmes

PNG

- Measures to control invasive alien species of flora, fauna and microorganisms

Samoa

- Develop programmes for the eradication and control of priority invasive species: African land snail, mint weed, Koster's curse, night blooming cestrum, cane toad, rattan and others.

Solomon Islands

- Management of invasive species and genetically modified organisms. Develop and implement national invasive species management strategy to manage established invasive species within the country

Vanuatu

- Control or eradication measures should be put in place once a species or variety becomes a problem.
- Establish demonstration projects with landholder communities as trials to control or find alternative uses for introduced species that have become problems.

## 7.3 Management activities identified in NISAPs

### FMS – Kosrae

- By the end of 2008, at least one of these species (Tangantangan) will be eradicated.

### FSM – Pohnpei

- By the end of 2008 at least four of the five targeted invasive species are eradicated.
- By end of 2007, tilapia infested areas in Palikir are identified, contained and controlled.
- Establish nets at river mouths and tributaries to control possible spread of tilapia, beginning of November 2006.
- To eradicate all introduced pigeons by December 2008.

### FSM – Yap

- Eradicate at least two priority species: African tulip, chain of love, imperator and mikania, rats on uninhabited islands.
- Control of other priority species: rats, cats, dogs, tilapia and weeds.

### Kiribati

- Feral cats and ship rats in Kiritimati Island, the Line and Phoenix Island Group under effective management
- Introduced myna birds under effective management
- Manage and control of at least one invasive alien species introduced from ballast waters in Kiribati.

### Kiribati – Line Islands

- By 2013 rats will be eradicated from the two key islets in Christmas in the Line Group and 2 islands in the Phoenix Group.

### Marshall Islands

- Control red ants
- To control chromolaena in Laura, airport areas, Bikini, Kili.
- To contain the spread of other invasive species.

### Palau

- Deal with established invasive species through integrated, cost-effective, and sustainable management.

### Samoa

- Eradication of rats and crazy ants from high priority conservation islands in the Aleipata Marine Protected Area.
- Control of myna birds.
- Mt Vaea restoration project
- Rattan palm management.

## 7.4 Questionnaire

<b>Name:</b> (PLEASE NOTE: Names will be kept confidential and will NOT be released) <b>Agency:</b> <b>Country:</b> <b>Does the information below come from your country's NBSAP or the NISAP?</b>	
<b><u>A) FOUNDATIONS</u></b>	
<b>A1. GENERATING SUPPORT</b>	
1	Describe the support and awareness programmes on Invasive Species Management that have been implemented in your country (include lead and participating agencies)?
2	What are the results of these programmes?
<b>A2. BUILDING CAPACITY</b>	
1	Describe the projects that have been developed to build and strengthen the capacity for effective Invasive Species management (include lead and participating agencies)?
2	What results were achieved from these projects?
<b>A3. LEGISLATION, POLICIES AND PROTOCOLS</b>	
1	What legislation, policies and protocols for Invasive Species Management exist in your country?
2	Describe any planned changes to current legislation, policies and protocols?
<b><u>B) PROBLEM DEFINITION, PRIORITIZATION AND DECISION-MAKING</u></b>	
<b>B1. BASELINE AND MONITORING</b>	
1	Describe the baseline and/or monitoring programmes that have been developed (include lead and participating agencies).
2	Which monitoring programmes are being implemented (include lead and participating agencies)?
<b>B2. PRIORITIZATION</b>	
1	Describe the processes for determining priority species for management in your country (include lead and participating agencies)?
2	List priority invasive species.
<b>B3. RESEARCH ON PRIORITIES</b>	
1	Briefly describe research initiatives that have been undertaken on priority species (include lead and participating agencies).
2	Briefly outline any present or anticipated long term results of these research initiatives.
<b><u>C) MANAGEMENT ACTION</u></b>	
<b>C1. BIOSECURITY</b>	
1	Describe initiatives implemented to ensure tighter border control in the prevention of invasive species' movement at your country border and between islands within your country (include lead

	and participating agencies).
2	On a scale of 1 to 10 with 1 being the least effective and 10 being the most effective, please assign a number that indicates how effective the implementation of biosecurity initiatives have been in your country?
<b>C2. MANAGEMENT OF ESTABLISHED INVASIVES</b>	
1	Describe management initiatives on priority Invasive Species in your country (include lead and participating agencies)?
2	What results were accomplished from these management initiatives?
3	What other Invasive Species Management initiatives have been undertaken (include lead and participating agencies)?
4	What results were accomplished from these management initiatives?
<b>C3. RESTORATION</b>	
1	Describe the efforts developed to reinstate both the natural and modified ecosystems from the impact of invasive species in your country (include lead and participating agencies)?
2	Briefly outline the results from these restoration efforts.