



## NATIONAL INVASIVE SPECIES STRATEGY



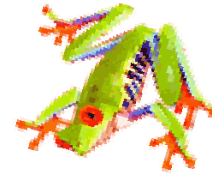
## COMMUNICATIONS, EDUCATION AND PUBLIC AWARENESS STRATEGY

Carried out under the project

***Mitigating the Threats of Invasive Alien Species in the Insular Caribbean***

Project No. GFL / 2328 – 2713-4A86, GF-1030-09-03

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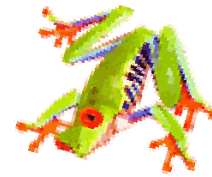


## PREFACE

*Saint Lucia has rich levels of endemism in its diverse fauna and flora which has been impacted on by IAS introductions. Faunal introductions range from the era of the Amerindians who brought dogs, agoutis to the era of European colonization which saw unintentional introduction of the ship rat or house rat, the Norway rat and the house mouse. Some IAS introductions are plants that were introduced as species of horticultural interest or for potential agricultural economic activity. Invasive Alien Species have been formally recognized as a threat to Saint Lucian biodiversity since at least 1998.*

*In June 2010, the Government of Saint Lucia embarked on the preparation of a National Invasive Species Strategy (NISS). The aims of this Strategy are to (i) minimize the harmful effects of invasive species on the environment, economy and society through coordination of efforts at all levels of Saint Lucian society; and (ii) facilitate cooperation within the Caribbean region to prevent the movement of invasive species. The NISS will also inform coherent policies, legislation, regulation and management of invasive species in Saint Lucia. Additionally, it will provide a communications strategy that will help raise public awareness so that all sectors of Saint Lucian society actively support efforts to minimise the risk and impact of invasives on Saint Lucia.*

*A series of background papers have been prepared to inform the NISS. Two of the papers review the status of aquatic and terrestrial IAS. Yet another report reviews the different IAS Pathways in Saint Lucia. The compendium also includes Reports on an evaluation of Communications, Education, Public Awareness Strategy and Actions and a Critical Situation Analysis of IAS Status and Management. A Report on Policy Gaps and Needs Analysis reviews the aforementioned reports and sets out to evaluate the extent to which IAS prevention, eradication and control are fully incorporated in national legislation and in biodiversity and other relevant policies, strategies and action plans, consistent with international law.*



*The multi-sectoral nature of IAS issues demands the involvement of governmental and nongovernmental agencies, as well as a broad range of stakeholders from the private sector and general public. There is little awareness of IAS beyond the agriculture and trade sectors. An awareness survey on issues related to IAS was undertaken in early 2010. The objective of the survey was to identify areas where public awareness-raising and training are most needed, so that tailor-made programmes and curricula can be designed and implemented in order to raise awareness of the impact of IAS in Saint Lucia. The results of the survey showed that despite clear evidence of on-going environmental education having an impact, the understanding of biodiversity issues remains rather limited and largely restricted to the better-educated professionals.*

*One of the key strategies to safeguard against damages caused by IAS is the empowerment of all stakeholders to act in a responsible manner conducive to the prevention of entry of new invasive species, and the control and management of existing invasive species. The presence of national, regional or international policies and agreements, legal instruments, institutional frameworks and action plans can have only minimum impact if they are not supported by a community that understands and as a result responds positively to regulations pertaining to a proposed invasive species management and control. Consequently the NISS has to be complemented by a Communications, Education and Public Awareness Strategy (CEPA).*

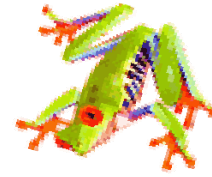
*The CEPA provides the link from science and ecology to people's social and economic reality; It deals with the processes that motivate and mobilize individual and collective action. It comprises a range of social instruments including information exchange, dialogue, education, and marketing. The CEPA instruments, however, work best when part of a broader instrument mix - e.g. combined with legal, financial and other instruments - that is used to develop, implement and manage the National Invasive Species Strategy (NISS).*

*The purpose of the CEPA presented here is two –fold:*



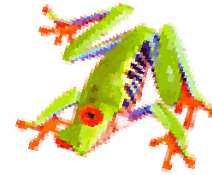
- ❖ *Increase the public's understanding of the proposals for managing IAS in Saint Lucia and creating broadly based support for the NISS. The CEPA will be a tool to effectively engage and manage multi-stakeholder dialogue to plan and implement the NISS. With appropriate handling these processes will develop a sense of ownership of the problem and the solutions so that the management of IAS is sustained; and*
- ❖ *Communicate the substance of the Strategy to different target groups, each of whom will have a different stake in IAS Management in Saint Lucia.*

*It is envisaged that this IAS CEPA, if implemented systematically and is sufficiently resourced, will facilitate and support all stakeholders in decision-making; foster policy change by making policy makers aware of the issues of IAS; make information understandable and meaningful; and foster acceptance of new policies, legislation and regulations.*



## ACRONYMS

CEHI	Caribbean Environmental Health Institute
CEPA	Communications, Education and Public Awareness
GIS	Government Information Service
IAS	Invasive Alien Species
MALFF	Ministry of Agriculture, Lands, Fisheries and Forestry
MEAs	Multilateral Environmental Agreements
NCA	National Conservation Authority
NEMO	National Emergency Management Organisation
NGOs	Non-governmental organisations
NIAS	National IAS Team
NISS	National Invasive Species Strategy
PSAs	Public Service Announcements
SBA	School Based Assessments
SLASPA	Saint Lucia Air and Sea Ports Authority
SLSWMA	Saint Lucia Solid Waste Management Authority



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# SAINT LUCIA NATIONAL INVASIVE SPECIES STRATEGY

## COMMUNICATIONS, EDUCATION AND PUBLIC AWARENESS (CEPA)

### 1.0 WHAT IS AN INVASIVE SPECIES (IS)?

Invasive Species (IS) are plants (bacteria and viruses included), and animals (mammals, birds, reptiles, amphibia, insects, sponges) that are introduced in a region where they previously did not naturally occur. A

**In most instances the invading species is non-native but due to favourable environmental conditions, it is able to establish itself and compete successfully with local species**

species needs to be able to not only survive in its new location, but also to thrive, which means, it must be able to reproduce and colonize the new habitat. As species establish themselves in new locations they can

alter ecological relationships among native species and can affect ecosystem function, economic value of ecosystems, and human health. Consequently, in order to protect native biological diversity in any country, caution must always be taken to monitor the introduction, establishment and spread of non-native species.

Alien – that is non-native – species have been introduced both accidentally and intentionally. Intentional introductions are and have been, motivated by economic, environmental and social considerations. Many introductions, however, are unintentionally coming into the islands of the Caribbean Region with other goods and, in the case of marine invasive alien species (IAS), in the ballast water of ships. Although only a small percentage of these alien species will become invasive, when they



do their impacts have the potential to be immense, insidious and usually irreversible. Although not all alien species will become invasive or threaten the environment, this is an area in which a clear policy approach is necessary because of its potentially wide-ranging impacts when they do become invasive and because of the difficulties, including financial costs, especially in reversing its impacts for the region. Increased mobility and human interaction have been key drivers in the spread of IAS. On the one hand, increasing global connectedness – through trade, travel and tourism – has enriched the lives of people all over the world, through increased opportunities for sharing information and knowledge as well as improved access to a range of biodiversity.

One of the key strategies to safeguard against damages caused by IAS is the empowerment of all stakeholders to act in a responsible manner helping to prevent the entry of new invasive species, and the control and management of existing invasive species. The presence of national, regional or international policies and agreements, legal instruments, institutional frameworks and action plans can have only minimum impact if they are not supported by a community that understands and as a result responds positively to

regulations on a proposed invasive species management and control.

## 1.1 ARE THERE ALIEN INVASIVE SPECIES IN SAINT LUCIA?

Invasive Species have been formally recognized as a threat to Saint Lucian biodiversity since at least 1998. The First National Biodiversity Strategy and Action Plan lists 13 invasives; all were agricultural and livestock pests.

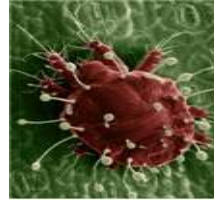
Most commonly known IAS<sup>i</sup> in Saint Lucia are:

- ❖ the Giant African Snail (GAS) (*Achatina fulica*),
- ❖ the Pink Hibiscus Mealy Bug (PHMB) (*Maconellicoccus hirsutus*),





- ❖ the coconut mite (*Aceria guerreronis*), and the red palm mite (RPM) (*Raoiella indica*)



- ❖ Schistosomiasis which causes bilhaziere and impacts on human



- ❖ the Tropical Bont Tick (*Amblyomma variegatum*) which impacts on livestock health



Other existing invasives in Saint Lucia include the invasive iguanas in the Southwest of the island; the Macro algae (Browns, Reds, and Greens), white Cedar thrips; and the Varroa mite.



Adult male green iguana (© M. Morton, DWCT).

In addition to these commonly known invasives, there are many more that have been listed in the 2010 Reference List of Invasive Alien Species for Saint Lucia.

Category of Invasives	Total Number of Invasives
Terrestrial	78
Aquatic	19



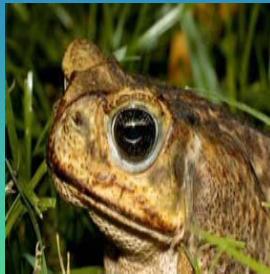
**Macro Algae** is an alien invasive species that grows in sand as clumps. Stiff blades trap silt and transform reefs into mudflats. Also forms dense meadows in deep water



**Varroa Mite** feed on the bee's blood, weakening its immune system and transmitting diseases such as Deformed Wing Virus which leaves the bee with short and useless wings.

# **“WORLD’S WORST 100 INVASIVE ALIEN SPECIES”**

**Nine are found in Saint Lucia**



**Cane Toad**



**Rat**



**Catclaw Mimosa**



**Giant Cane**



**Water Hyacinth**



**Feral Cat**



**Feral Pig**



**African Tulip Tree**



**Mozambique Tilapia**

## 2.0 MITIGATING THE THREAT OF INVASIVE ALIEN SPECIES (IAS) IN THE INSULAR CARIBBEAN

St. Lucia is one of five insular Caribbean states - and the only OECS country - participating in a GEF-funded regional project “*Mitigating the Threat of Invasive Alien Species (IAS) in the Insular Caribbean*”, which initiated activities in St. Lucia in October 2009. The multi-sectoral nature of IAS issues demands the involvement of governmental and nongovernmental agencies, as well as a broad range of stakeholders from the private sector and general public. There is little awareness of IAS beyond the agriculture and trade sectors.

An awareness survey on issues related to IAS was undertaken in early 2010. The objective of the survey was to identify areas where public awareness-raising and training are most needed, so that tailor-made programmes and curricula can be designed

and implemented in order to raise awareness of the impact of IAS in Saint Lucia.

The results of the survey showed that despite clear evidence of on-going environmental education having an impact, the understanding of biodiversity issues remains rather limited and largely restricted to the better-educated professionals. Cultivated species that have been introduced several generations ago were frequently and incorrectly viewed as indigenous to Saint Lucia, including some highly invasive species, such as water hyacinth.

Deforestation was the most frequently mentioned threat to terrestrial biodiversity, followed by garbage, chemicals and pollution, three threats that coincided with the freshwater threats of greatest concern. The top three perceived threats to marine biodiversity were garbage, pollutions and oil spills. Invasive Alien Species ranked 18<sup>th</sup> as a perceived threat to terrestrial biodiversity and 21<sup>st</sup> as a marine threat; they did not feature at all in perceptions of freshwater threats. None of the respondents regarded

IAS among the top two threats to marine biodiversity.

## 2.1 RECOMMENDATIONS FROM THE AWARENESS SURVEY<sup>ii</sup>

- ❖ As a foundation to the public education campaign, the fundamental concepts of biodiversity should be reinforced.
- ❖ Cultivated species that have been introduced several generations ago were frequently and incorrectly viewed as indigenous to Saint Lucia. This widespread misconception needs addressing systematically and suitable case-study species (plant and animals) for terrestrial and aquatic ecosystems are suggested.
- ❖ The IAS public education campaign should build its programme around a solid conceptualization of IAS, their effects and dynamics.
- ❖ Saint Lucians appear very open to the destruction of existing IAS and to collaboration with authorities for IAS management. Some respondents expressed a preference for invasive animals to be taken into captivity. The risks of such an approach need to be disseminated. Overall, there is a highly constructive public attitude that should be cultivated by a transparent information policy.
- ❖ Television, radio and internet were the most important information sources for environmental issues in Saint Lucia and should all be employed by a multimedia campaign. Television enjoys the widest audience so that IAS television programmes should be designed to have general appeal. Radio is most suitable to reach the mature generation and should lean towards traditional values. Local radio stations could be instrumental in disseminating pilot-specific information in a targeted manner. While students ranged somewhat above national average for awareness on general

biodiversity, their incipient concepts of IAS issues were disappointingly below national average. Education programmes for schools and colleges should make extensive use of the internet in order to reach this target group, together with their teachers.

- ❖ Saint Lucians are very open to the option of destroying (killing) IAS that had entered the national territory. Interestingly, prevention in form of entry quarantine was also very desirable. Furthermore, respondents desire awareness-raising activities and relevant legislation to be enacted and implemented by authorities, including the introduction of penalties.
- ❖ There was significant baseline awareness of the importance of Saint Lucia's off-shore islands for the survival of certain plant and animal species among respondents in the Vieux Fort area. However, the exact effect of ridding the off-shore islands of rats and mongooses

and subsequently keeping them predator-free was less well understood.

- ❖ People were recognised as the main vector for terrestrial IAS, via both deliberate and accidental introductions. Sea and air currents were held responsible for most introductions of aquatic IAS.

One of the key strategies to safeguard against damages caused by IAS is the empowerment of all stakeholders to act in a responsible manner conducive to the prevention of entry of new invasive species, and the control and management of existing invasive species. The presence of national, regional or international policies and agreements, legal instruments, institutional frameworks and action plans can have only minimum impact if they are not supported by a community that understands and as a result responds positively to regulations pertaining to a proposed invasive species management and control. Consequently the NISS has to be complemented by a Communications, Education and Public Awareness Strategy (CEPA).



### 3.0 WHAT IS A CEPA?

Communication, Education and Public Awareness (CEPA) are important instruments for the management of invasive species. The CEPA provides the link from science and ecology to people's social and economic reality; It deals with the processes that motivate and mobilize individual and collective action. It comprises a range of social instruments including information exchange, dialogue, education, and marketing. The CEPA instruments, however, work best when part of a broader instrument mix - e.g. combined with legal, financial and other instruments - that is used to develop, implement and manage the National Invasive Species Strategy (NISS).

#### 3.1 WHAT IS THE ROLE OF CEPA IN THE NISS?

The CEPA will provide tools<sup>iiii</sup> to:

- ❖ Facilitate and support all stakeholders in decision-making;

- ❖ Foster policy change by making policy makers aware of the issues of IS
- ❖ Make information understandable and meaningful
- ❖ Foster acceptance of new policies, legislation and regulations

#### 3.2 WHEN WILL WE USE THE CEPA IN THE NISS?

- ❖ When **formulating the NISS** - Increases the public's understanding of the proposals for managing IAS in Saint Lucia and creating broadly based support for the NISS. The CEPA will be a tool to effectively engage and manage multi-stakeholder dialogue to plan and implement the NISS. With appropriate handling these processes will develop a sense of ownership of the problem and the solutions so that the management of IS is sustained.
- ❖ When **implementing the NISS** – to communicate the substance of the Strategy to different target groups, each of whom will have a different stake in IS management in Saint Lucia.

## THE ROLE WILL CEPA PLAY IN IMPLEMENTING THE NISS

The CEPA will *inter alia*:

- ❖ Identify the different types of IS that are found in Saint Lucia and their present status
- ❖ Identify the different stakeholders who should be involved in the preparation and implementation of the NISS
- ❖ Describe the different pathways through which IS can enter Saint Lucia and explain how each of these pathways should be managed to prevent further entry of ISA into Saint Lucia
- ❖ Provide information on how different types of IAS present in Saint Lucia should be managed
- ❖ Identify the different types of media to use for different messages and to target different stakeholders.
- ❖ Identify some of the information products to be used during the formulation and the implementation of the NISS
- ❖ Indentify the training needs of the different target groups

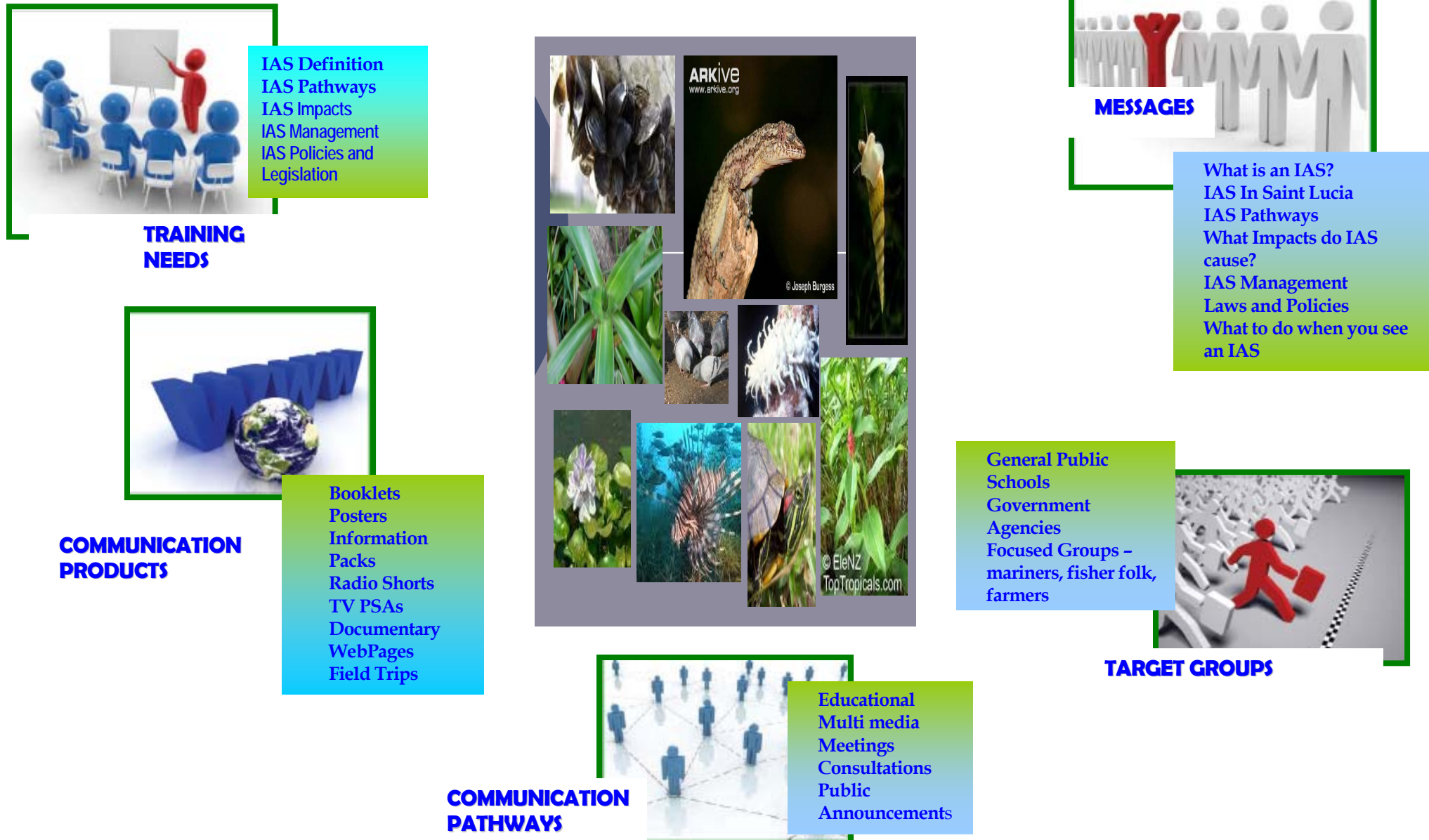
## MESSAGES for STAKEHOLDERS



What is an IAS  
 IAS In Saint Lucia  
 IAS Pathways  
 What Impacts do IAS cause?  
 IAS Management  
 Laws and Policies  
 What to do when you see an IAS  
 Contact agencies



**Figure 1: CEPA MIND MAP FOR SAINT LUCIA'S NISS**



### 3.3 HOW DO WE INCORPORATE THE CEPA INTO THE NISS PROCESS<sup>iv</sup>?

#### Formulating the NISS

Identifying the stakeholders

Making people aware of the NISS process;

- inviting participation
- running effective participatory activities to collect ideas, knowledge and plan;
- knowledge, attitude and perceptions surveys;
- explore policy options to be dealt with by the NISS with key stakeholders.

#### Keeping up the pace of the NISS

Network with interest groups, scientific institutions, regional organisations, NGOs;

- Regular briefings
- Interviews and meetings with interest groups and press
- scientific reports



#### Implementing the NISS

- Networking to mobilise groups
- Partnerships
- Inter-sectoral dialogue
- Information materials
- Explaining other instruments (MEAs)
- Campaigns
- Education
- Capacity building
- Evaluation of CEPA impact

#### Monitoring and Evaluation of the NISS

Public information

- Information on changes to policy/legal instruments
- Regular surveys of opinions and attitudes to IAS

### 3.4 OBJECTIVES OF THE CEPA

- ❖ Disseminate information on IAS to improve general understanding of the issue
- ❖ Increase awareness of a particular species and its impact
- ❖ Encourage stakeholders to take a specific action (e.g. fishermen to clean boats and equipment to prevent spread of IAS)
- ❖ Bring about a change in attitude toward an invasive species which is popular yet destructive
- ❖ Build support for the use of controversial IAS management techniques (e.g. eradication rather than holding in captivity)
- ❖ Motivate people to participate in programmes and activities

The CEPA will form agency partnerships for collaboration in the development and delivery of key messages to multi-stakeholder groups. The vehicle for delivery of messages will include all popular information media such as radio, television, internet, newspapers, art, science, culture, music, electronic game technology and be delivered

through schools, workshops, talk shows, advertisements, PSA, and information videos.

The intention is to significantly enhance public understanding of IAS and build and appreciation for the need to manage and control IAS in the country and region. Stakeholders must also be motivated to respond positively to the call for action.

## 4.0 WHO ARE THE NISS STAKEHOLDERS FOR THE CEPA?

<b>General Public</b>	The general public can be both a driver of IS problems and the group that is left to deal with the effects of IS problems. The support of the general public is vital for the success of an overall IS strategy as well as for specific programmes. Lack of public interest or hostility on the other hand can actually diminish success.
<b>School Children</b>	Schools at all levels are the starting point to build 'IAS awareness'. They can be a very effective group for the transmission of messages.
<b>Focused Stakeholders</b>	When IAS issues are relevant to their particular interest, they tend to be more receptive to the need for management and prevention.

There are different groups of **Focused Stakeholders** in Saint Lucia who are impacted by and impact on different categories of invasives.

### marine

Marina operators and workers	Water sports operators	SLASPA	Saint Lucia Marine Association	Coastal Communities
Dive operators	Boat chandlers	Customs and Excise	Shipping Agents	
Stevedores	Workers in dry docks	Crop Protection Unit	Boat Owners	
Water taxi operators	Fisher folk	Public Health Officials	Marine Tour Operators	
	Marine Police	Fisheries Department	Hucksters	

## terrestrial

Tour Guide Operators  
Pet Shop Owners  
Plant/Garden Shop Owners  
Horticulturalists

SLSWMA  
NCA  
SLASPA  
Crop protection Unit  
Customs and Excise

Ports Police  
Public health Officials  
Farmers and Farmer Organisations  
Water Front Restaurants  
Beach Vendors

Bonsai Association  
Mail/Courier Companies  
Airlines Agents  
Export/Import Companies  
Hucksters

Communities

## industry

Shipping Companies  
Mariculture operators  
Pet Trade  
Ship Handlers and stevedores

Trucking Companies  
Mail/Courier Services  
Airline Agents  
Tour Guiding  
Boat Owners

Marine Tour Operators  
Dry Dock operators  
Horticulturalists  
Cut flower trade

## media

Print  
Radio  
Television

## policy makers

Depending on the situation, this group will include local and national government, its officials, agencies and institutions. This includes those who form strategies and influence policy, as well as those who are involved in its implementation.

MALFF  
SLASPA  
NEMO  
Ministry of Health  
SLSWMA

Customs and Excise  
Town and Village Councils  
Ministry of Community Development  
GIS  
Marine Police

## 5.0 IMPLEMENTING THE CEPA

CEPA as one of the tools of the NISS will effectively engage and manage multi-stakeholder dialogue to plan and implement IS management interventions. With appropriate handling these processes will develop a sense of ownership of the IS problem and the solutions so that action is sustained. CEPA will be used with the other instruments that have been put in place through the NISS.

### Appreciating multi-stakeholder processes in Saint Lucia

The Multi stakeholder process recognises that most complex problems will never be solved by one group alone. The only option is to bring those with an interest in the issue together and engage the different perspectives from science, community, farmer, environmentalist, economic, policy and political in dialogue. Multi-stakeholder processes enable different perspectives to be presented and debated, scenarios and options to be evaluated, decisions to be taken, action implemented and learning based on reflection on the actions.

#### LEGISLATION

Laws  
Regulations  
Conventions

#### FACILITIES

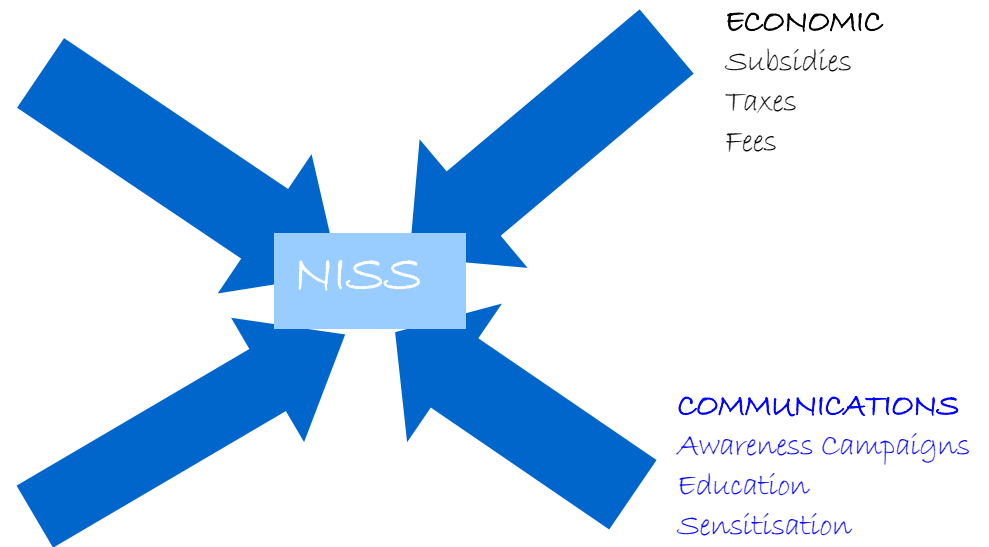
Equipment  
Infrastructure  
Tools

#### ECONOMIC

Subsidies  
Taxes  
Fees

#### COMMUNICATIONS

Awareness Campaigns  
Education  
Sensitisation



## 5.1 INTERNAL COMMUNICATIONS within the MALFF and SLASPA which are the two main public sector agencies involved in IS management.

Means	Purpose	Comments
<b>In-house electronic newsletter</b>	Provide regular, brief information on status of IAS in Saint Lucia and possible outbreaks of new IS	Easy to produce and can be circulated electronically. The Communications Unit at the MALFF is best suited for the Task
<b>Policy Manual</b>	A Manual providing general information on IAS in Saint Lucia – Reference List of IAS, Actions to be undertaken when an IS is encountered, legislation, regulations and policies in place, list of major public sector agencies involved in IS management contact names and telephone numbers	This Manual should be provided in collaboration between the MALFF, SLASPA and Ministry of Health.
<b>Orientation Programme</b>	Introductory programmes for new staff at Research, Crop Protection Unit, and Vet. Services, Forestry, Fisheries, SLASPA, Marinas	This is an introductory programme which is best delivered by the Crop Protection Unit. The purpose is to familiarize new staff to pertinent issues of IS in Saint Lucia, including management protocols, policies, and laws and regulations.
<b>Poster Sized Bulletins</b>	Summarised information on IAS under observation; legislation and policies, contact information	These poster sized BULLETINS should be placed at strategic locations in a building so that relevant staff can have easy access to reference information – MALFF; SLASPA; NEMO
<b>Staff Meetings</b>	Quarterly staff meetings between relevant staff at MALFF and SLASPA and NEMO to discuss status of IS management and challenges and constraints	Should include appropriate MALFF and SLASPA staff and NEMO representatives
<b>Capacity Development</b>	Training of appropriate MALF Staff, SLASPA Staff, Staff at Marinas etc	Different types of training and training modalities will be used for different groups of stakeholders who need to be educated and sensitised on issues of IAS



## 5.2 PROPOSED CEPA ACTIONS FOR NISS STAKEHOLDERS

A national IAS focal team (NIAST) or committee will implement the CEPA and oversee the implementation of the NISS.

STAKEHOLDERS	INFORMATION	MESSAGES AND CHANELS
General Public	<ul style="list-style-type: none"> <li>❖ What are IAS</li> <li>❖ What impacts do IAS create – environmental, health, economic, positive and negative</li> <li>❖ IAS Pathways – arrival, spread</li> <li>❖ IAS Management Hierarchy – prevention, early detection and rapid response, control, mitigation</li> <li>❖ Management Options</li> </ul>	<p><b>Brochure on Invasive Species in Saint Lucia:</b></p> <ul style="list-style-type: none"> <li>❖ what re invasive alien species;</li> <li>❖ how do they arrive in Saint Lucia;</li> <li>❖ examples of invasives found in Saint Lucia;</li> <li>❖ impact on the economy and society of these invasives</li> <li>❖ what to do when you see an invasive</li> <li>❖ who to contact</li> </ul> <p><b>Information Brochures</b> on Entry Restrictions of Certain Plants and Animals to be placed at all points of entry</p> <p><b>Pubic Service Announcements</b></p> <ul style="list-style-type: none"> <li>❖ Radio Shorts in Kweyol</li> <li>❖ TV spots in English</li> <li>❖ Documentary on Invasives in the Caribbean (25 mins.)</li> </ul> <p><b>Posters</b></p> <ul style="list-style-type: none"> <li>❖ Various Pathways – Schools <ul style="list-style-type: none"> <li>❖ Libraries</li> <li>❖ General public</li> <li>❖ SLASPA – ports of entry</li> <li>❖ Marinas</li> <li>❖ Pet Shops</li> <li>❖ Various public places</li> </ul> </li> <li>❖ Selected Invasives – picture poster + special information <ul style="list-style-type: none"> <li>❖ Schools</li> <li>❖ Libraries</li> </ul> </li> </ul>

School Children	<ul style="list-style-type: none"> <li>❖ What are IS</li> <li>❖ What impacts do IS create – environmental, health, economic, positive and negative</li> <li>❖ IS Pathways – arrival, spread</li> <li>❖ IS Management Hierarchy – prevention, early detection and rapid response, control, mitigation</li> </ul>	<p style="text-align: center;"><b>CREATION OF AN IS MASCOT FOR PRIMARY SCHOOLS</b></p> <p><b>Primary</b></p> <p><b>Teacher Packs</b></p> <ul style="list-style-type: none"> <li>❖ Informational briefs on prioritised IAS</li> <li>❖ Cartoon booklets and colouring books using the IS Mascot</li> <li>❖ Role Play and drama</li> <li>❖ Songs</li> <li>❖ Field Trips too observe invasives</li> <li>❖ Infusion into curriculum – social science, general science</li> </ul> <p><b>Secondary and Tertiary</b></p> <p><b>Teacher Packs</b> containing</p> <ul style="list-style-type: none"> <li>❖ Informational briefs on prioritised IS</li> <li>❖ Posters</li> <li>❖ Brochures</li> <li>❖ Briefing Sheets on each of the selected invasives</li> <li>❖ Work Activity Sheets</li> </ul> <p>Infusion into curriculum – social science, general science</p> <p><b>Field trips</b> to observe invasives</p> <p><b>Information/ field work</b> for SBAs (to be provided by Department of Forestry) – social science, geography</p> <p><b>Poems</b> in literature curriculum</p> <p><b>Plays</b> in literature curriculum</p> <p><b>WebPages</b> on existing Ministry of Education and School websites – electronic Information Packs</p> <p><b>Science Fairs</b> – promoted by the Ministry of Education for primary, secondary and tertiary schools on IAS detection, eradication and control</p>
Focussed Stakeholders	Marine	<p>Signage –</p> <ul style="list-style-type: none"> <li>❖ Things that yachtee should NOT do while in the Marina, e.g. Not walk their animals in the marina unless they have been inspected. REGIONAL</li> <li>❖ How do you treat Ballast Water? – REGIONAL</li> </ul>

		<p>Posters - Marine invasives</p> <ul style="list-style-type: none"> <li>❖ Marine Pathways – REGIONAL</li> <li>❖ Informational Brochures on regulations on the importation of exotic animals and plants</li> </ul> <p>WebPages – to be uploaded on existing marine sites, e.g. SLASPA, Marinas, SMMA, Marine Industries of Saint Lucia, etc.</p> <p>Training : Marine Invasives Pathways Management</p>
	Terrestrial	<p>Electronic Bill Boards at the airports to carry messages on the regulation of imports of potential IS</p> <p>Information sheets for Pet Shops to distribute to clients on how to manage unwanted aquatic species</p> <ul style="list-style-type: none"> <li>❖ Posters in public places</li> <li>❖ Kweyol Radio Shots for farmers, fisher folk and rural communities</li> <li>❖ TV documentaries o Existing IAS high risk species and threats posed by them</li> <li>❖ Posters and brochures on halting entry and spread of IAS places in Health Centres and other places of medical care</li> <li>❖ Preparation of Emergency Plan for IAS Epidemic or other form of outbreak</li> <li>❖ Training REGIONAL</li> </ul> <ul style="list-style-type: none"> <li>- Farmers and landowners on early detection and response protocols</li> <li>- Community Health workers on how to prevent spread of IAS</li> <li>- plant and animal inspection officers, and Forestry officers from the MALFF, Customs and Ports Police to regulate imports of potential terrestrial IS</li> <li>- Fisheries Officers, SLASPA, Ports Police to regulate potential imports of potential marine IAS</li> </ul>
	Media	<ul style="list-style-type: none"> <li>❖ Training REGIONAL</li> <li>❖ Field Trips</li> </ul>
	Policy Makers	<p>Training REGIONAL</p> <ul style="list-style-type: none"> <li>- to enhance their understanding of IAS issues;</li> <li>- to increase their knowledge on international conventions and protocols that impact on IAS management in Saint Lucia</li> <li>- to increase their knowledge of the range of regulations and early detection and response protocols</li> </ul>

### 5.3 PROPOSED CEPA ACTIONS FOR NISS PROGRAMMES<sup>v</sup>

CEPA options will be considered for 4 NISS Programmes:

1. Prevention
2. Early Detection and Rapid Response
3. Eradication and Containment
4. Impact Mitigation

In general, for effective **Prevention** the following should exist:

- ❖ Information materials on IAS threats and mechanisms to mitigate impacts, developed and available at Ministries of Agriculture, Health, Customs, and Tourism. Information brochures are also provided to travel and airline agencies for placement in travel magazines, and to be distributed to travelers. Brochures are also sent to all local air and seaports.
- ❖ Summary of import regulations, especially those related to imports of fauna and flora, are posted at all air and sea ports and communicated to ports of origin of travelers.
- ❖ Information on IAS is publicly displayed at all air and sea ports in order to garner support and compliance to rules, from travelers, fishers, importers and the general public.
- ❖ Radio and TV bulletins are issued to travelers, in English and Creole. These are developed by the National IAS Focal Team.
- ❖ A Saint Lucia NISS Website which is interactive: IAS management and control games, models which define potential impacts from IAS invasions, information on mitigation and control measures. There should be a section for posting of comments and queries. Information on regulation and monitoring of the import of

exotic fish, plants, snails and reptiles for the aquarium and horticultural trades. In-depth risk analyses results should be posted for public information.

For effective ***Early Detection and Rapid Response*** the following are proposed:

- ❖ A mechanism for sharing data, and IAS information with the Caribbean –A Regional Information Exchange System.
- ❖ Early response guidelines per sector are publicized on radio and television every time new IAS are detected in country.
- ❖ Mechanisms are in place to enable the efficient and regular exchange of information between all relevant stakeholders.
- ❖ An electronic database for the uploading of information by focal points in the various agencies, (part of the NIAST), where this information may be accessed by the public and specific interest groups.
- ❖ Information materials for schools and the public on IAS.
- ❖ Information materials on local biological diversity, and on invasive species and their impacts, are developed as part of an Environmental Science syllabus.
- ❖ Posters on local biological diversity are placed in schools, and other public places, to increase student familiarity with local biodiversity.

- ❖ IAS issues are included in sector reform programmes, sector education programmes, land use planning schemes.
- ❖ Call-in radio shows in place to guide the public on responsible actions to take with regards to early detection and response.
- ❖ Information on common and emerging IAS developed and in circulation via popular media.
- ❖ Environmental education programmes in schools, which incorporate the teaching of aquatic species conservation, from primary to tertiary levels.
- ❖ Television and radio programs on early detection of IAS of current concern.
- ❖ Guidelines including a check list for the public with regards to actions to be taken when IAS are detected.

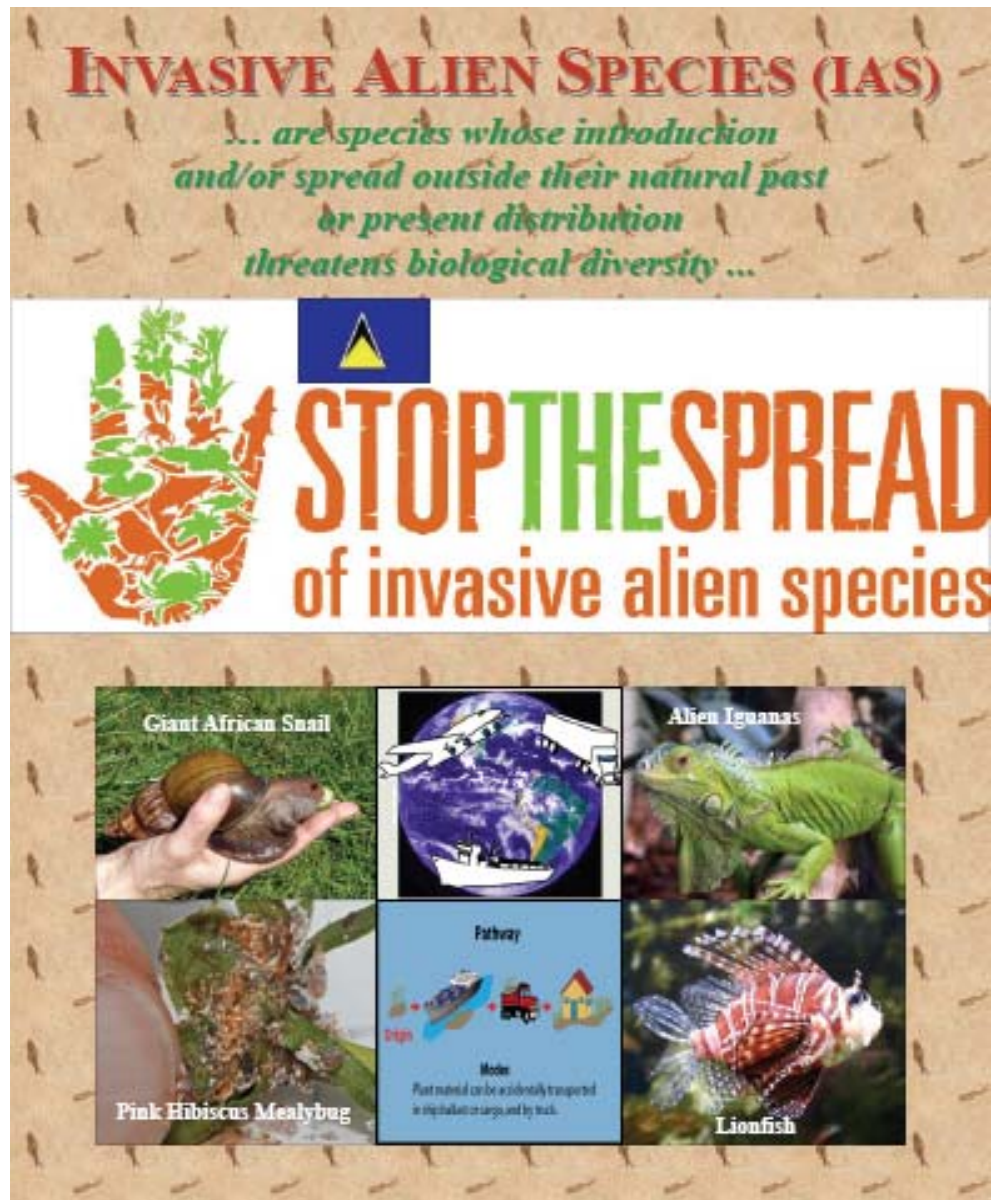
For effective ***Mitigation of Impact, Eradication and Containment***, the following, are proposed:

- ❖ Local community groups, institutions and individuals to undertake hazard mitigation measures through community consultations, stakeholder workshops.
- ❖ Radio and Television programmes developed on IAS and responsible public cooperation sought in times of crisis.

- ❖ Science fairs promoted by the Ministry of Education for primary and secondary and tertiary schools to include IAS detection, eradication and control.
- ❖ Training within tertiary education institutions to advance scientific research related to IAS control and eradication.
- ❖ IAS, ecosystem management, applied science, environmental monitoring incorporated into science education syllabus.
- ❖ Regional meetings for joint action and monitoring of eradication / control measures.



## 6.0 SAMPLE CEPA PRODUCTS



Example of Poster used by the Sea Grant Programme in the USA



STICKER

**ANNOUNCEMENT**  
Entry of animals and animal products via  
yachts/boats



**Only animals for which a VETRINARY IMPORT PERMIT HAS BEEN GRANTED will be allowed to leave the vessel. Animals without permits must remain on board the vessel for the entire stay of the vessel.**

Apply for an import permit before you arrive in Saint Lucia. Application forms are available from the Division VETERINARY AND LIVESTOCK SERVICES, Ministry of Agriculture.

**BY ORDER OF THE VETERINARY AND LIVESTOCK SERVICES DIVISION OF THE MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES**

NOTICE BOARD AT ALL MARINAS AND PORTS



COMING SOON...

**A NATIONAL INVASIVE SPECIES STRATEGY**

Poster for the General Public

## SAINT LUCIA'S MOST UNWANTED ALIENS



GREEN IGUANA



GIANT AFRICAN SNAIL



WATER HYACINTH



MOZAMBIQUE TILAPIA

CONTACT THE MALFF IF YOU SEE ANY OF  
THESE ALIENS

Tel. Number:

## IDENTIFICATION CARDS



## FACT SHEETS



## INVASIVE SPECIES TEACHER'S PACK

This booklet is a compilation of selected educational materials on invasive species (IS). Materials have been assembled assist teachers in raising awareness and integrating IS studies into their curriculums.

Whether referred to as a invasive species, non indigenous, nuisance, or exotic species, they all represent the same problem - non-native plants and animals invading and harming our ecosystems. In their native habitats, these species are often harmless. However, when they enter new ecosystems where natural controls are absent, they may out-compete native plants and animals. They can alter and degrade habitats and deplete food supplies, posing threats not only to the environment, but to the economy, recreation and human health.

The purpose of this guide is to provide educators with a list of IS resource materials and a directory of contacts that can provide additional information on IS.

Included in this Pack are:

Fact Sheets on selected IS

Activity Sheets

Posters

Stickers

A series of identification cards for a variety of non-native plants and animals found in Saint Lucia, including nine of the most wanted invaders the cards include photos and descriptions, as well as how invaders pose problems.



## 7.0 WHO ELSE CAN ASSIST THE NIAST IMPLEMENT THE CEPA?

A number of policy, legislative, regulatory and institutional instruments and frameworks exist that direct support communications, education and public awareness on biodiversity conservation, environmental education, environmental health awareness and national hazard mitigation.

There are also opportunities under several legal instruments to address information exchanges with the public, pertinent to biodiversity conservation and IAS management, on waste water and solid waste management, import control, and disaster management.

- ❖ Under the Education, Health, Plant Propagation, Fisheries and Forest Management, Freshwater Management, Coastal Zone Conservation and Natural Disaster Mitigation policies, regulations, laws and institutions, there are mandates which facilitate the stakeholder awareness and education.
- ❖ Under the Biodiversity Convention, there is a clear mandate to inform and educate with the

intention to build capacity to conserve natural resources. Access to funding is also possible under this instrument.

- ❖ The Ministry of Education through its environmental policy and institutional framework is well positioned to support capacity building at primary, secondary and tertiary levels.
- ❖ The CEHI is set up to train experts in management of water related conservation through workshops and expert consultations. CEHI may also serve as a reference centre for the collection and dissemination of technical and scientific information, and can lead in the formation of technical networks for environmental conservation.
- ❖ The Ministry of Agriculture has several Departments under which informational materials may be developed which can directly support public awareness on IAS. The Ministry may also produce documents that inform the public on legislation and regulations that are necessary to ensure management of IAS. Such documents include Acts and Regulations on

Fisheries Management, Forest Conservation, Plant Protection, and Import of domesticated animals and wildlife.

- ❖ The Ministry of Health is also positioned to inform the public of events that may threaten human health and train staff and the public on means to combat the threat, mitigate impacts and aid in eradication and recovery efforts.
- ❖ The National Emergency Management Organization (NEMO) is mandated to undertake actions where necessary to inform the public of pending emergencies and procedures to help mitigate impacts from events that threaten people and places. NEMO thus can play a role in the development of information materials on IAS especially those which have already been identified as having capacities to cause epidemics, loss of capacity for the country to sustain itself – impacts on crops, farm lands, aquaculture systems, nursery grounds, foraging sites, recreation sites that support the economy via tourism - and other national emergencies.

## References

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- <sup>i</sup> Krauss, Ulrike, 2010 Critical Situation Analysis (CSA) of Invasive Alien Species (IAS) Status and Management, Saint Lucia carried out under the project *Mitigating the Threats of Invasive Alien Species in the Insular Caribbean* Project No. GFL / 2328 – 2713-4A86, GF-1030-09-03
  - <sup>ii</sup> Krauss, Ulrike. 2010. Invasive Alien Species (IAS) Awareness Baseline Survey, Saint Lucia. Carried out under the project *Mitigating the Threats of Invasive Alien Species in the Insular Caribbean* Project No. GFL / 2328 – 2713-4A86, GF-1030-09-03
  - <sup>iii</sup> Adapted from FAO Communication for Development Group (2006) *Communication for Sustainable Development*, World Congress on Communication for Development
  - <sup>iv</sup> Adapted from Hesselink, F.J. e.a., *Communication, Education and Public Awareness, a toolkit for the Convention on Biological Convention*, Montreal 2007.
  - <sup>v</sup> Felix, Marie Louise, 2010, *Invasive Alien Species Management. Communications, Education, Public Awareness Strategy and Actions*. Carried out under the project *Mitigating the Threats of Invasive Alien Species in the Insular Caribbean* Project No. GFL / 2328 – 2713-4A86, GF-1030-09-03