# CBD Toolkit - Guidance for the development and implementation of a National Invasive Species Strategy and Action Plan (NISSAP)

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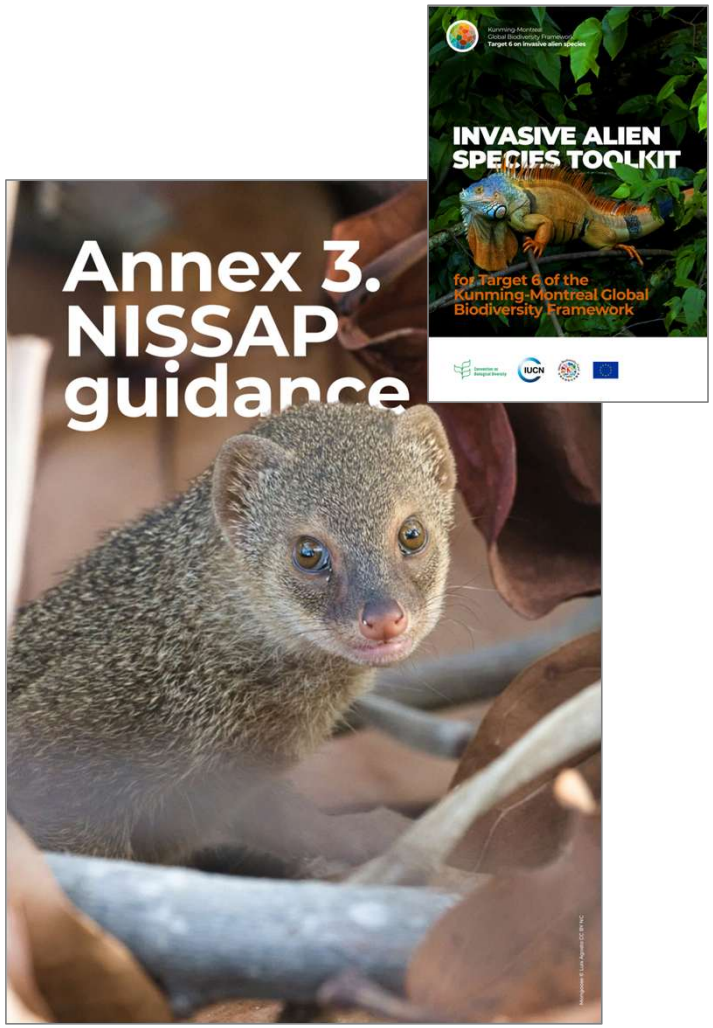
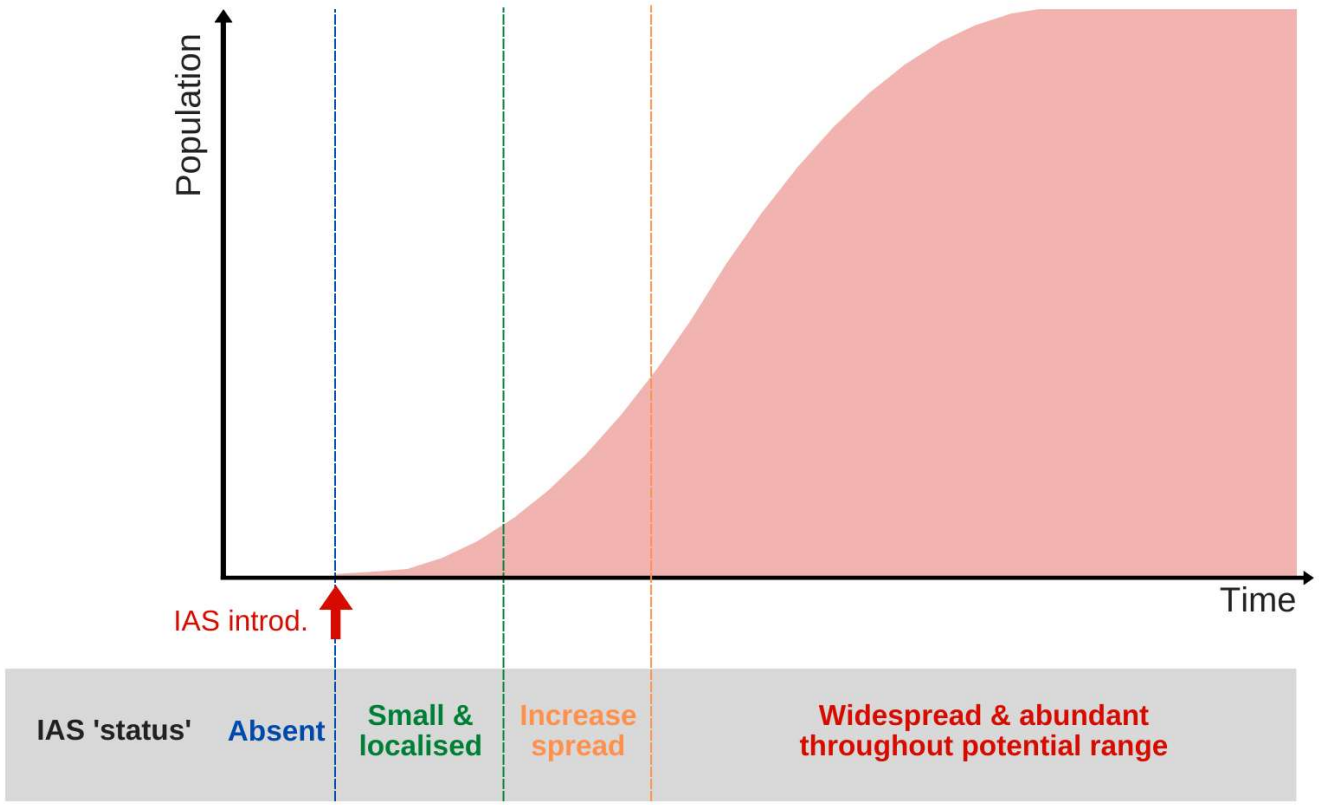
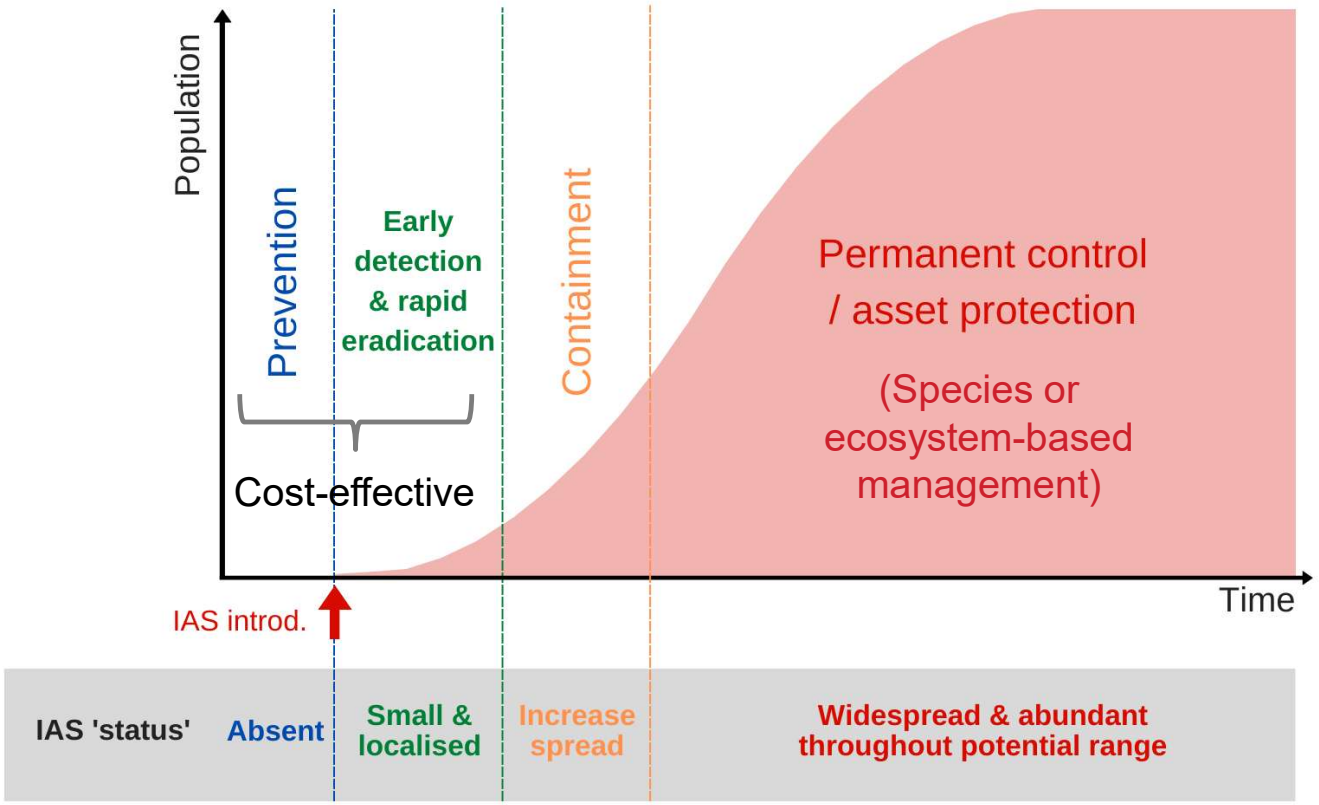


# What can we do?



IPBES “Curbing the rising number of invasive alien species and reducing their spread and impact are achievable”

# What can we do?



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GLOBAL BIODIVERSITY FRAMEWORK

- Target 6 – invasive alien species

Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by:

i. identifying and managing pathways of the introduction of alien species
ii. preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent, by 2030,
iii. eradicating or controlling invasive alien species especially in priority sites, such as islands.

Impacts from new IAS

Impacts from existing IAS

Overall aim

Actions

Quantitative element

1. Sensitive sites vulnerable to impacts
2. Susceptible sites to introductions

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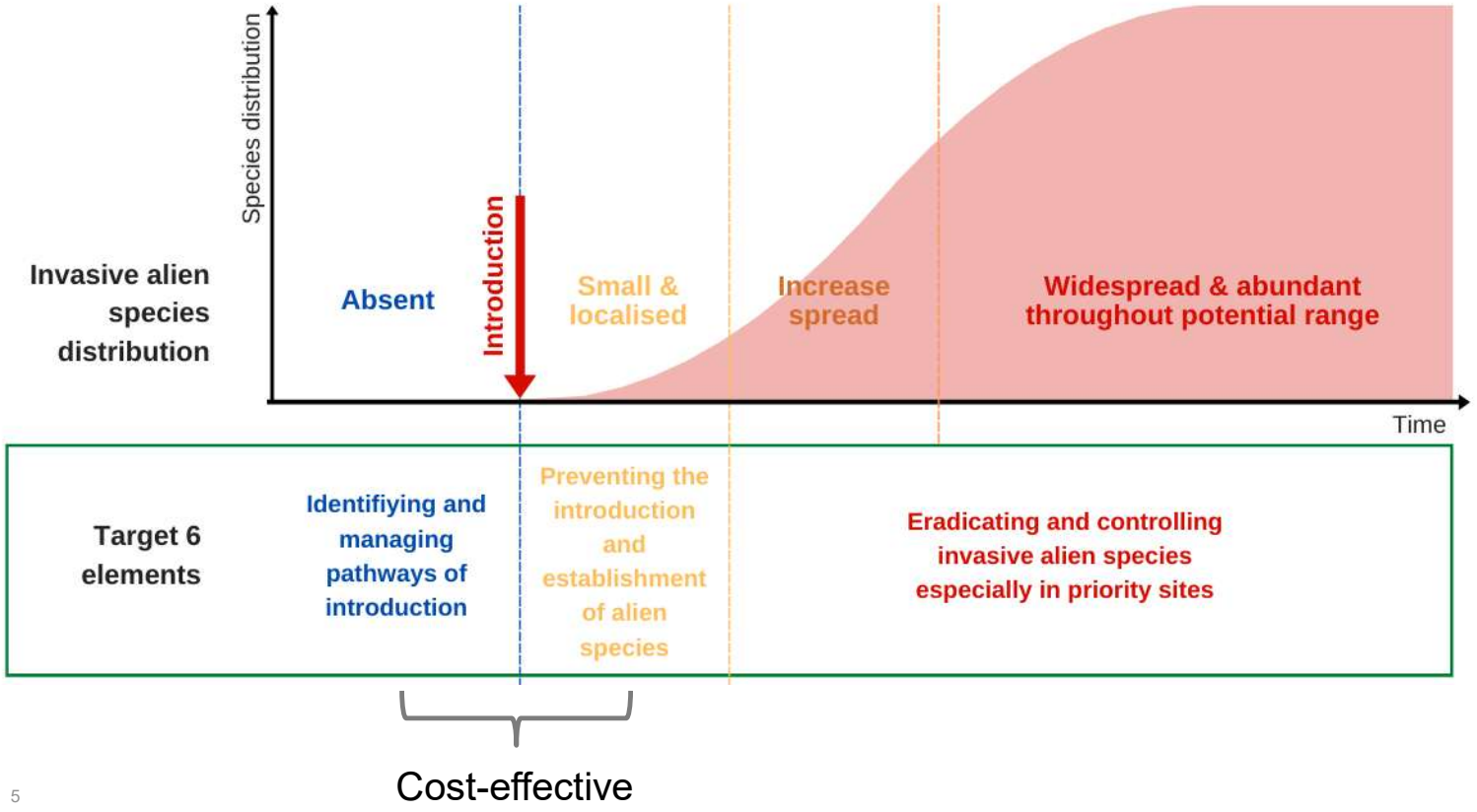
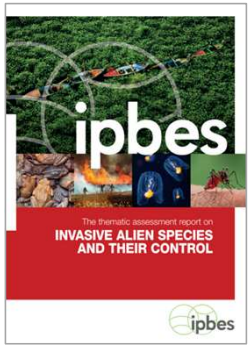
# GLOBAL BIODIVERSITY FRAMEWORK



# Why implement IAS measures through a National Invasive Species Strategy and Action Plan?




"National-scale strategies and action plans are **instrumental to successfully managing biological invasions**"

IPBES 2023

- Strategic approach
- Facilitates national coordination
- Strengthens collaboration cross–sector and whole-of-society
- Complement objectives set out in National Biosecurity Strategies and Action Plans – provides more detail to guide action
- Identifies priority actions that are most likely to succeed
- Sets out clear goals, objectives, and actions – incl.:
  - Timelines
  - Budget and capacity needs
  - Assigns responsibilities
  - Indicators
- Allows for assessment of success and continued adaptive management
- More likely to take cost-effective actions and achieve the desired outcome

# Toolkit NISSAP guidance

- Produced to provide countries with a strategic framework to address threats from IAS

- Aligned with Target 6
  - Pathway management
  - Prevention of introduction and establishment of priority IAS
  - Management of IAS from priority sites

- Some countries have made very little progress
  - Lots has been done in the Pacific – incl. guidance on strategy development
  - This guidance may be useful when you come to update/adapt your existing plans

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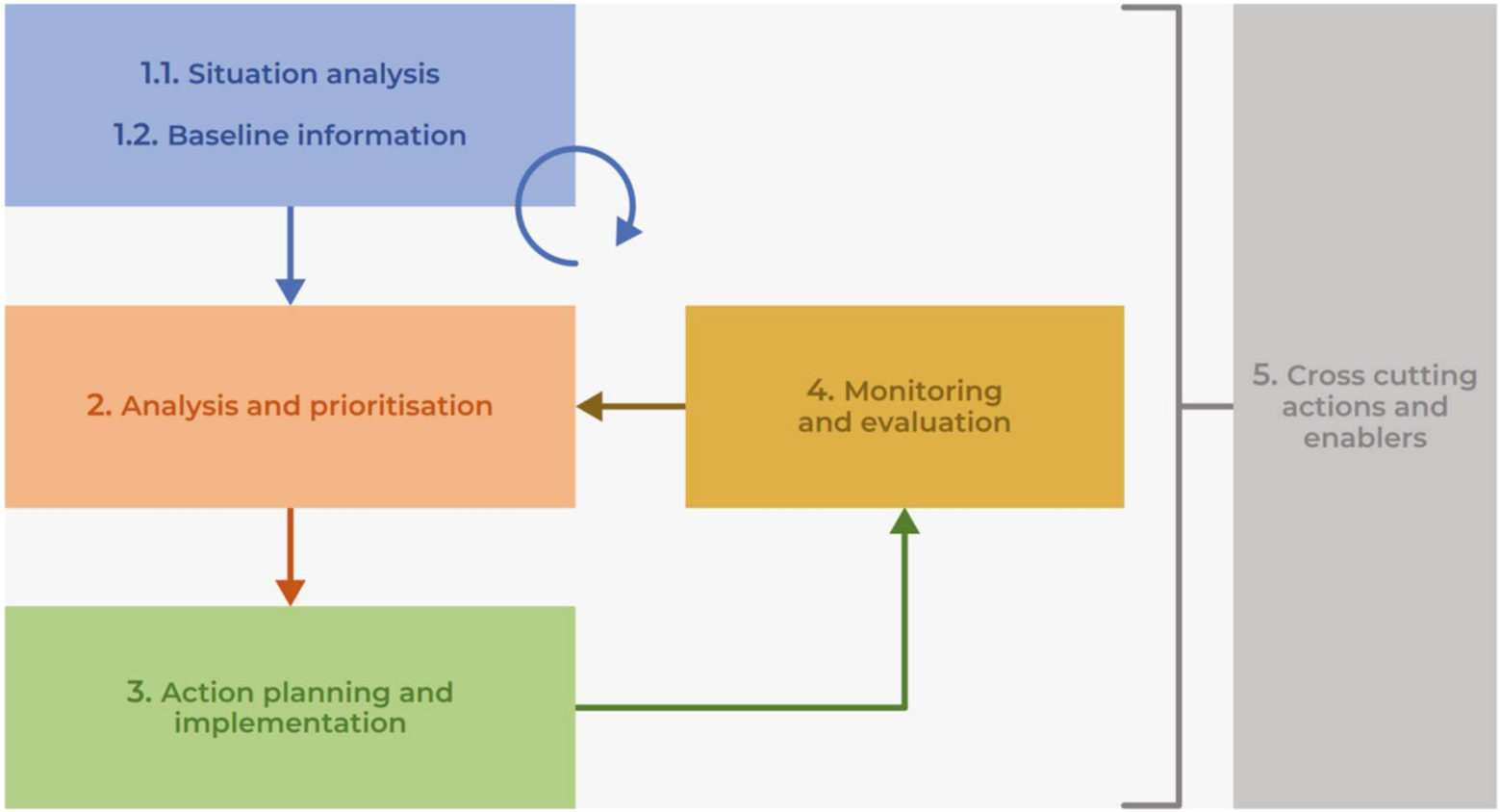
GLOBAL BIODIVERSITY FRAMEWORK

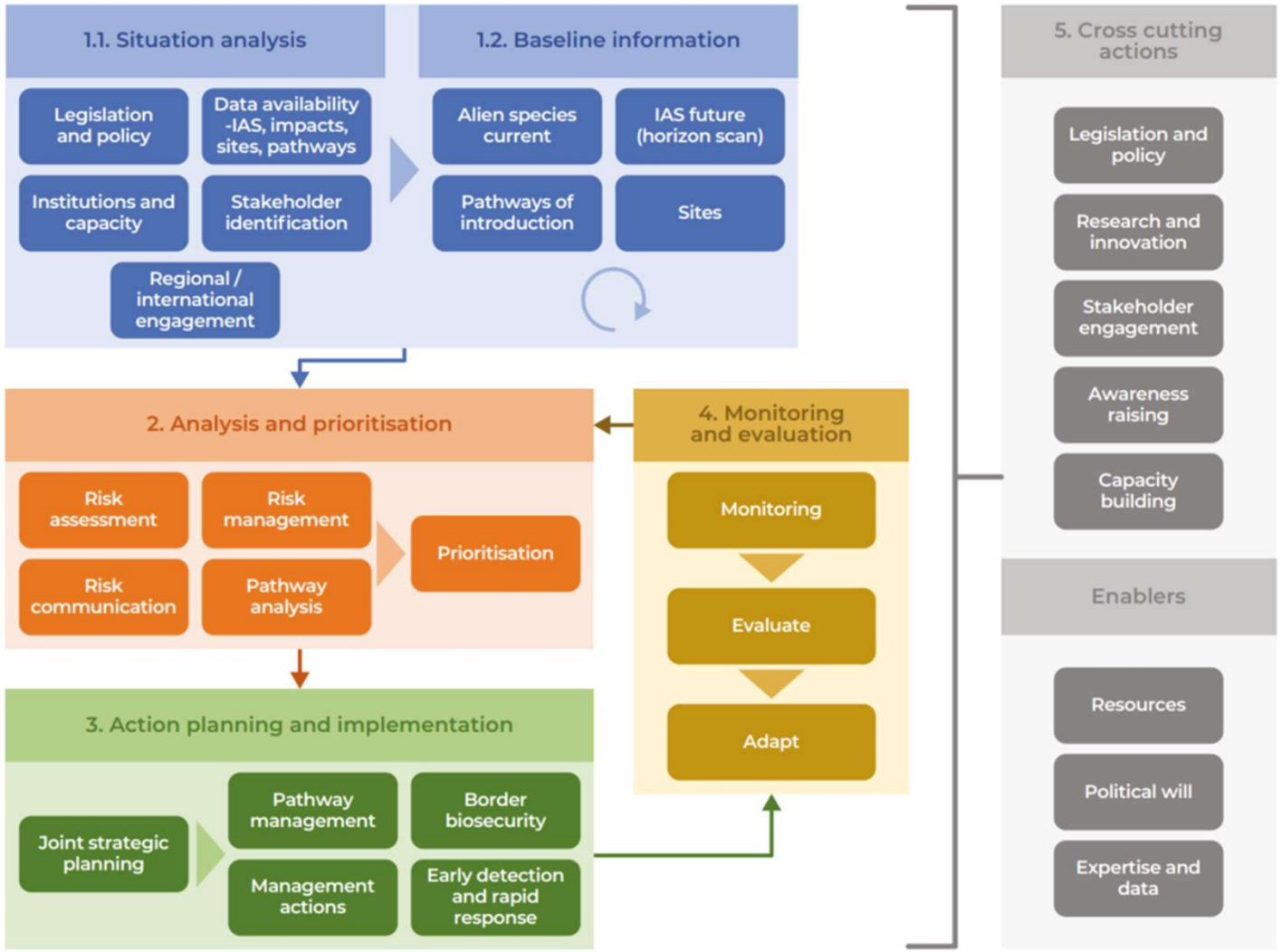
# NISSAP process



# NISSAP elements

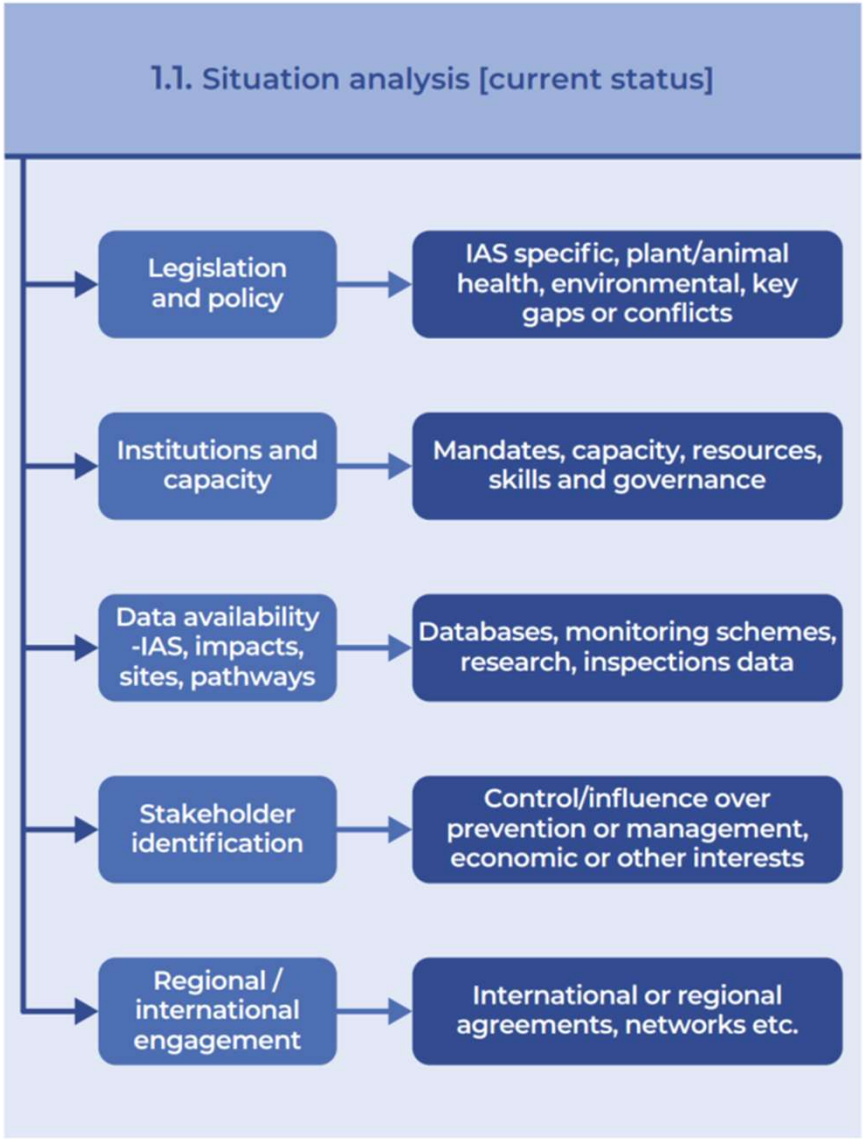
- For each step, we have identified a series of elements that can be considered
- Not all the elements listed here are needed to develop or implement an effective NISSAP.
- The levels of engagement, data mobilisation and actions taken need to reflect national circumstances.
- Any action taken, no matter how small, can result in significant benefits.

# NISSAP elements



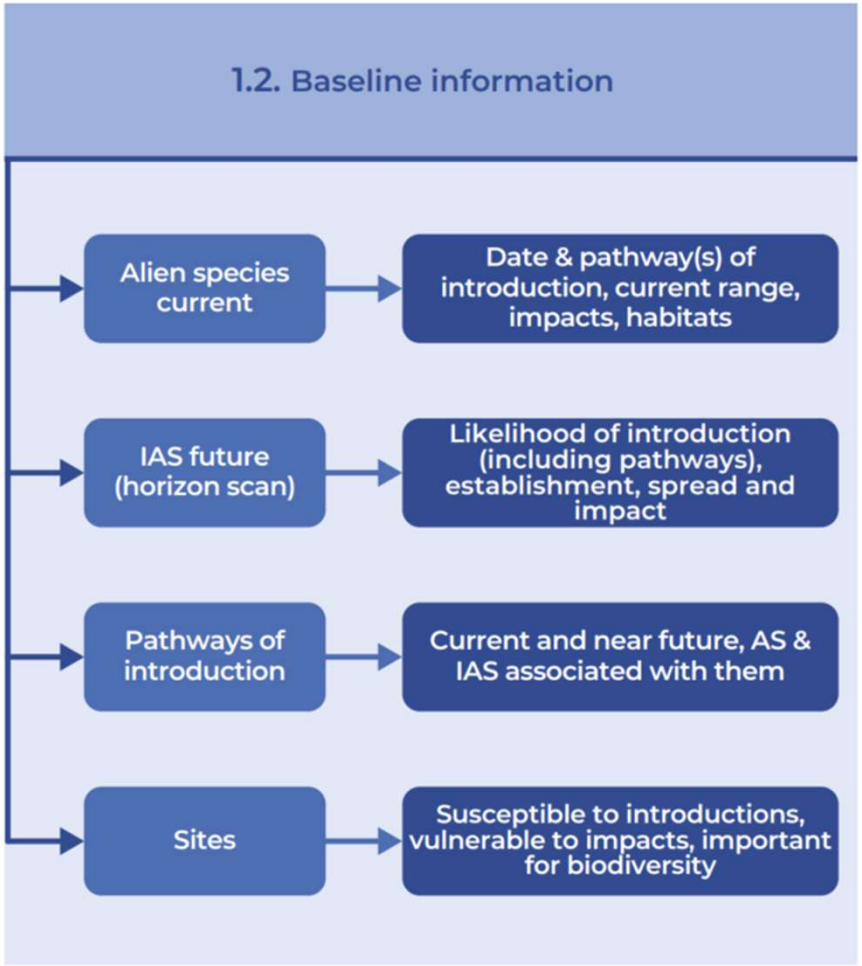
# 1.1. Situation analysis

- Before developing a NISSAP it is important to understand the current situation of actions taken to address IAS at a national level.
- A situation analysis will support the identification of existing capacity and actions, but also the gaps and needs.
- Engagement across government ministries (e.g. fisheries, forestry, agriculture, environment, trade, customs and transport) may be needed in order to undertake a situation analysis



# 1.2. Baseline information

- Compiling available baseline information, on alien and IAS, pathways of introduction, and sites, will support the decision-making process to develop a NISSAP.
- Recognising knowledge gaps in the baseline data is important but shouldn't stop action being taken.
- Baseline information should be maintained and updated on a regular basis if possible.



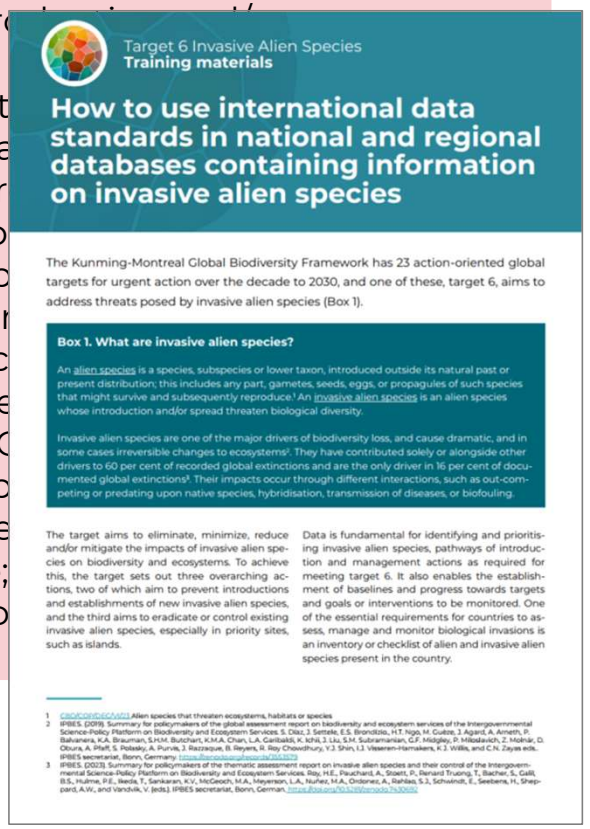
# 1.2. Baseline information

## Species lists

- A list of **currently established alien species** is the foundation of the baseline information
  - Start with IAS that are currently known or suspected to have impacts on nature in the country
  - Access global data sources – e.g. Global Register of Introduced and Invasive Species – national checklists of alien species
  - Adding other information on alien species, such as evidence of impacts, pathways of introduction, can help with prioritisation (see box)

**Invasive alien species lists can include:**

- Species scientific and common name
- Higher taxonomy, and species 'group'
- Pathways of introduction (CBD categories)
- Date of first intr… establishment
- Occurrence/dist…
- Environment/ha…
- Pathways of spr…
- Degree of estab…
- Evidence of imp… mechanism of i… competition etc…
- Impacts to the e… impacts (e.g. EIC…
- Evidence of imp…
- Management re… example: None; ongoing; contro… control failed.


Target 6 Invasive Alien Species
Training materials

How to use international data standards in national and regional databases containing information on invasive alien species

The Kunming-Montreal Global Biodiversity Framework has 23 action-oriented global targets for urgent action over the decade to 2030, and one of these, target 6, aims to address threats posed by invasive alien species (Box 1).

**Box 1. What are invasive alien species?**

An alien species is a species, subspecies or lower taxon, introduced outside its natural past or present distribution; this includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce.[1] An invasive alien species is an alien species whose introduction and/or spread threaten biological diversity.

Invasive alien species are one of the major drivers of biodiversity loss, and cause dramatic, and in some cases irreversible changes to ecosystems[2]. They have contributed solely or alongside other drivers to 60 per cent of recorded global extinctions and are the only driver in 16 per cent of documented global extinctions[3]. Their impacts occur through different interactions, such as out-competing or predating upon native species, hybridisation, transmission of diseases, or biofouling.

The target aims to eliminate, minimize, reduce and/or mitigate the impacts of invasive alien species on biodiversity and ecosystems. To achieve this, the target sets out three overarching actions, two of which aim to prevent introductions and establishments of new invasive alien species, and the third aims to eradicate or control existing invasive alien species, especially in priority sites, such as islands.

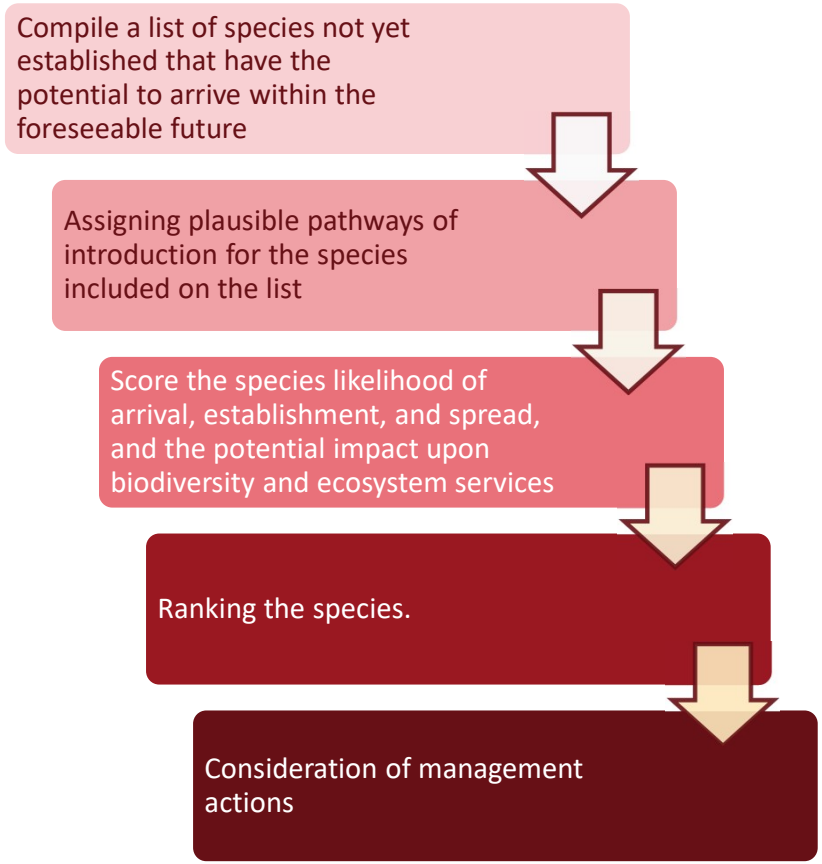
Data is fundamental for identifying and prioritising invasive alien species, pathways of introduction and management actions as required for meeting target 6. It also enables the establishment of baselines and progress towards targets and goals or interventions to be monitored. One of the essential requirements for countries to assess, manage and monitor biological invasions is an inventory or checklist of alien and invasive alien species present in the country.

Toolkit additional guidance on data standards for IAS databases

# 1.2. Baseline information

## Future IAS – Horizon scan

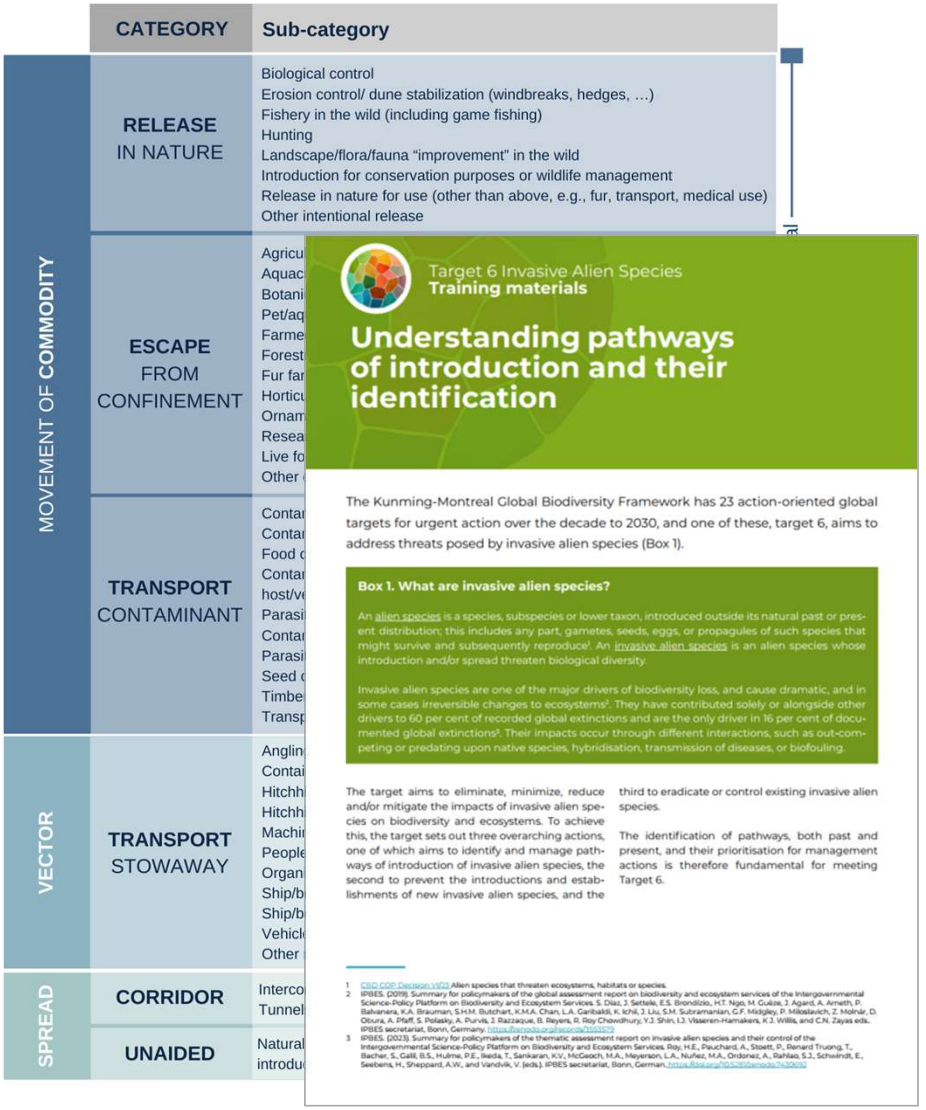
- Used to identify and prioritise alien species that are likely to arrive in the near future.
- This information will help prioritise pathways of introduction and support the development of measures to prevent introductions
- Can be undertaken using a structured process involving expert elicitation and consensus-building (see chart), and can still be applied where there is a lack of evidence



# 1.2. Baseline information

## Pathways of introduction

- Pathways are the routes and mechanisms of the introduction and spread of invasive alien species
- Identifying the pathways of introduction of past and future alien species introductions into the territory is the first step towards developing pathway action plans – aim of preventing the transport and introduction of IAS
- Can be undertaken using a structured process involving expert elicitation and consensus-building, and can still be applied where there is a lack of evidence (see chart)




Toolkit additional guidance on pathways

# 1.2. Baseline information

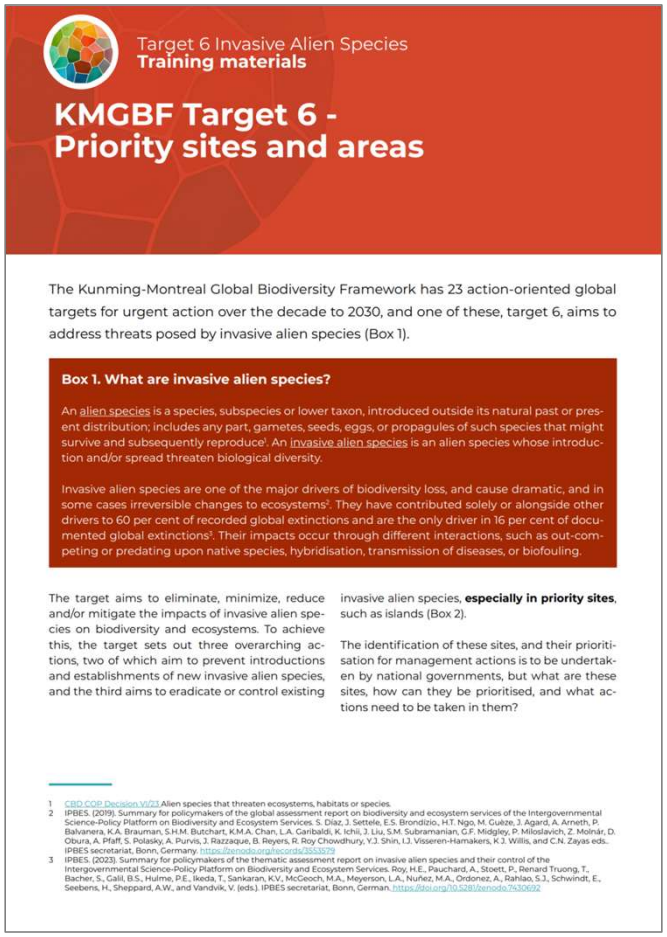
## Sites

- T6 - aims to eradicate or control existing invasive alien species, **especially in priority sites**, such as islands

- ***Sensitive* sites** - if impacts from invasive alien species were to occur, there would be severe consequences to biodiversity or ecosystem services - consider eradication, early detection

- ***Susceptible* site** - there is a high risk of introductions of alien species, and provides an opportunity for their establishment - important for early detection and rapid response

Toolkit additional guidance on sites



Target 6 Invasive Alien Species
**Training materials**

**KMGBF Target 6 - Priority sites and areas**

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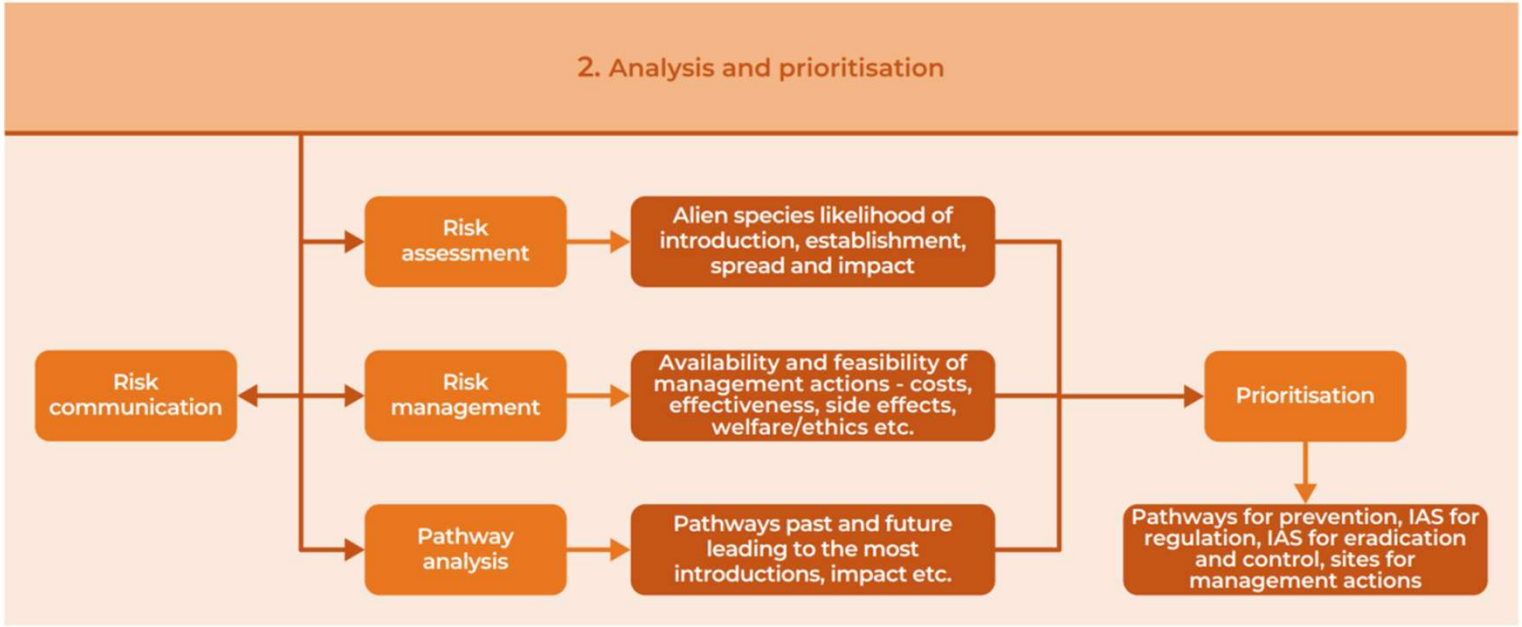
The identification of these sites, and their prioritisation for management actions is to be undertaken by national governments, but what are these sites, how can they be prioritised, and what actions need to be taken in them?

1 CBD COP Decision VI/23 Alien species that threaten ecosystems, habitats or species.
2 IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E.S. Brondízio, , H.T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K.A. Brauman, S.H.M. Butchart, K.M.A. Chan, L.A. Garibaldi, K. Ichii, J. Liu, S.M. Subramanian, G.F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y.J. Shin, I.J. Visseren-Hamakers, K.J. Willis, and C.N. Zayas eds.. IPBES secretariat, Bonn, Germany. https://zenodo.org/records/3553579
3 IPBES. (2023). Summary for policymakers of the thematic assessment report on invasive alien species and their control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Roy, H.E., Pauchard, A., Stoett, P., Renard Truong, T., Bacher, S., Galil, B.S., Hulme, P.E., Ikeda, T., Sankaran, K.V., McGeoch, M.A., Meyerson, L.A., Nuñez, M.A., Ordonez, A., Rahlao, S.J., Schwindt, E., Seebens, H., Sheppard, A.W., and Vandvik, V. (eds.). IPBES secretariat, Bonn, German. https://doi.org/10.5281/zenodo.7430692

# 2. Analysis and prioritisation

- Purpose – inform decisions on effective resource allocation and actions
- Builds on baseline information collected



# 2. Analysis and prioritisation

## Risk analysis

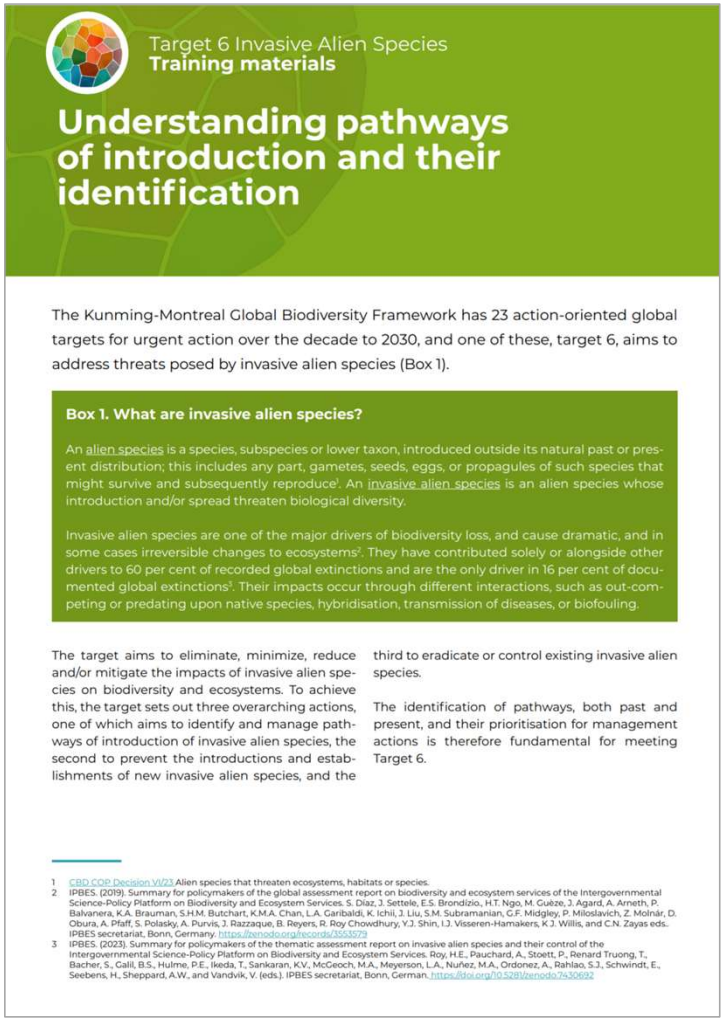
- **Risk assessment** - a systematic process used to evaluate the potential for an alien species to be introduced, establish, spread, and cause negative impacts in a defined area.
- **Risk Management** - a structured assessment on the availability and feasibility of management actions - costs, effectiveness, side effects, welfare/ethics etc. to eliminate, minimise or mitigate the impacts of IAS.

# 2. Analysis and prioritisation

## Pathway analysis

- Pathway analysis clarifies which human activities have caused the introduction of alien species.
- Systematic examination of the various routes through which alien and IAS are introduced or spread.
- Can evaluate factors such as:
  - volume of traffic along the pathway
  - likelihood of known invasive species being transported along the pathway
  - vulnerability of the receiving ecosystems
  - potential impact of the alien species if introduced

Toolkit additional guidance on pathways



Target 6 Invasive Alien Species
**Training materials**

**Understanding pathways of introduction and their identification**

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The identification of pathways, both past and present, and their prioritisation for management actions is therefore fundamental for meeting Target 6.

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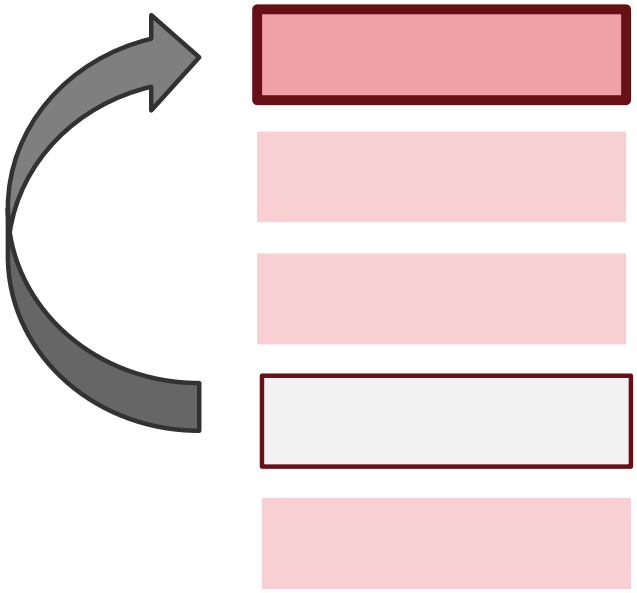
# 2. Analysis and prioritisation

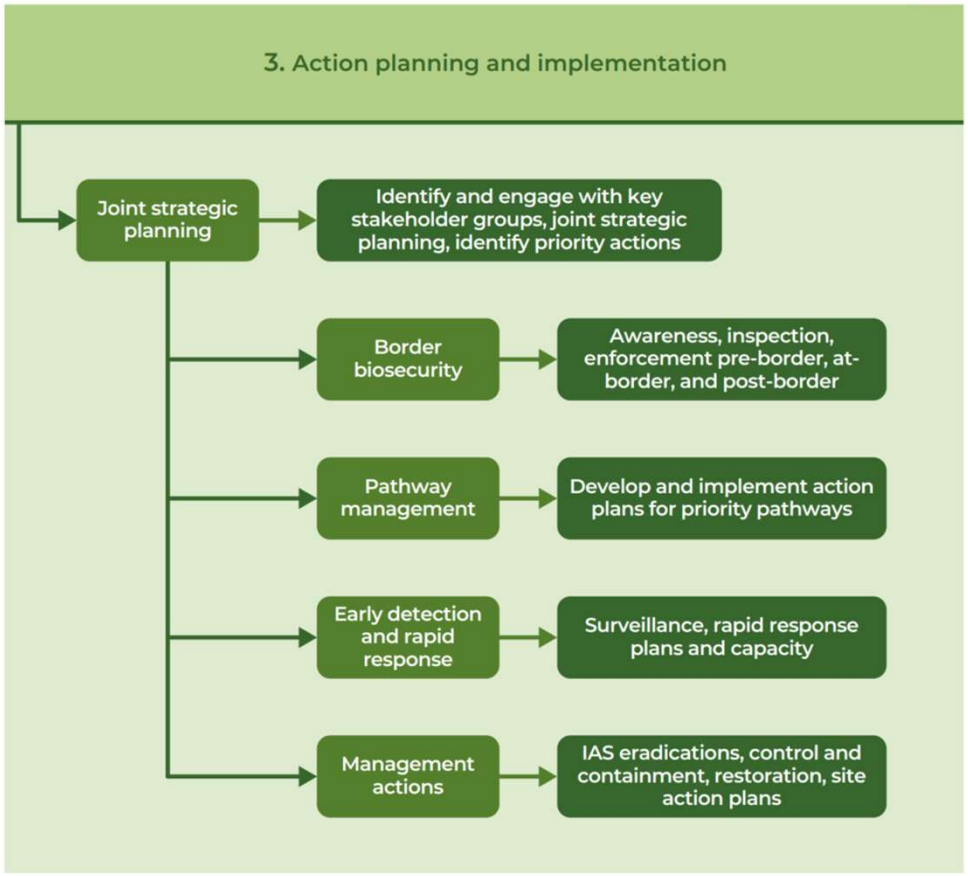
## Prioritisation

- Prioritisation processes should be a transparent, straightforward, and evidence-based evaluation that provides a basis for decision making
  - **Priority current IAS**, e.g. which are having harmful impacts and can be eradicated)
  - **Priority future IAS**, e.g. which are likely to arrive, spread and impact AND can be prevented and/or eradicated
  - **Priority pathways** of introduction and spread, e.g. those likely to introduce the most IAS in the near future leading to greatest impacts
  - **Priority sites**, e.g. sites that are both sensitive and susceptible



# 3. Action planning and implementation

- Builds on baseline information and priorities identified
- Need **joint strategic planning** to identify actions that need to be taken and formulate an achievable action plan (NISSAP)
- Consultation with relevant stakeholders and institutions at start of process
- NISSAP is a dynamic document – enables adaptive management through regular review.



# 3. Action planning and implementation

## NISSAP document

- Set out the overarching **goals** that need to be achieved
- Each goal with one or more **objectives** that detail what needs to happen to meet that goal.
- Specific **actions** that need to be implemented to attain the objective
  - Specific
  - Measurable
  - Assigned to someone
  - Resources need
  - Time-limited

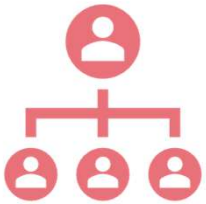
**Goal 1. Rate of introductions of new alien species are reduced**

- Objective 1.1 Quarantine branch applies risk assessment to proposed new introductions and establishes permitted and prohibited lists of organisms and products.
  - *Action 1.1.a.* Train quarantine staff in risk assessment
    - Responsible – Institute XYZ
    - Complete by – May 2026
    - Cost - $15,000 (Project XYZ via Institute)
  - *Action* 1.1.b. Include risk assessment procedures in biosecurity legislation
    - Responsible – Department of Agriculture
    - Complete by – June 2027
    - Cost – N/A (within Government budget)
- Objective 1.2 Quarantine and customs staff inspect 10% of all containers and 100% of passenger luggage for organisms, and safely decommission all organisms intercepted.
  - *Action 1.2.a.* Install x-ray machines at main airport
    - Responsible – Quarantine and customs
    - Complete by – May 2027
    - Cost - $25,000 (Project XYZ)
  - *Action 1.2.b.* Increase container inspection rate to 10% by recruiting 2 new staff
    - Responsible – Quarantine and customs (1 new staff each)
    - Complete by – April 2026
    - Cost – $80,000 (Government budget)

# 3. Action planning and implementation

## NISSAP governance

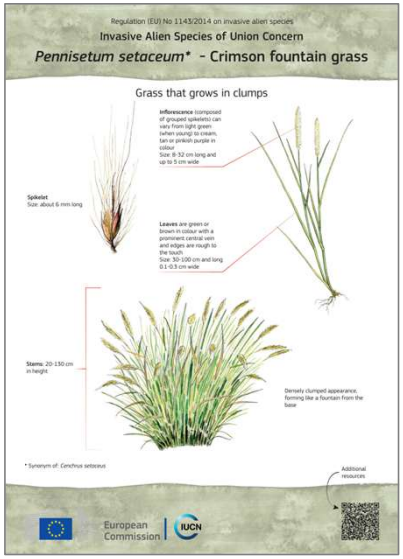
- A **committee** can be created to include experts from across different government authorities and key stakeholder groups.
- An institution taking the **coordination responsibility**. It should have access to technical and scientific support, and effective communication channels to relevant decision makers
- To support political decision-making - incorporate **economic principles**, so that the benefits from actions are not just presented in biodiversity gains but also economic, and public health

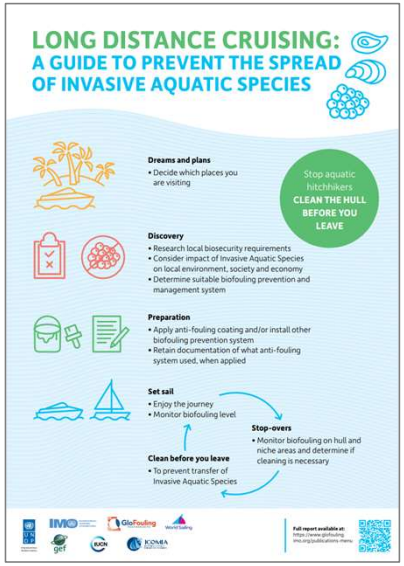


# 3. Action planning and implementation

## Pathway management

- Can have separate **Pathway Management Plans (PAPs)**
- Understand the pathway, consider: origins and transit routes; vectors; points of entry, release, or escape
- Identify relevant stakeholders and actors
- Consider actions that include:
  - Awareness raising and behaviour change
  - Minimise contamination of goods, vehicles etc.
  - Appropriate checks at the border
  - Codes of practice or regulation

# 3. Action planning and implementation

## Pathway management

- Due to the international nature of pathways, consider **regional or global collaboration**
- Engage with national authorities with mandates established under relevant international agreements
  - Plant and animal health
  - Marine shipping and ports
  - Trade
- Many IAS are vectors/hosts of pathogens – consider **One Health** approach to integrate actions with other sectors

# 3. Action planning and implementation

## Border security / biosecurity

- **Pre-border** – e.g., preventing imports from certain places, working with exporters to implement treatment procedures, a 'passport' system to verify compliance with standards.
- **At-border** – e.g., risk-based border inspections and quarantine for intentional and unintentional introductions. Taking a 'one-health' approach to biosecurity – collaboration across plant and animal health, human health, and environmental health sectors.
- **Post-border** – e.g., inspections at high-risk establishments, surveillance for early detection and rapid response capacity (see box)
- **E-commerce** – e.g., monitoring online commerce for breaches of national rules

**Early detection and rapid response**

- Prevention is not 100% effective
- Surveillance to rapidly detect new IAS is important to ensure the effectiveness of rapid response and eradication
- Implemented for priority susceptible and vulnerable sites
- Can target many IAS, or be focused on one or few priority IAS
- Active surveillance - repeatable surveys
- Passive surveillance – 'citizen science'
- Increasing role of innovative technologies

# 3. Action planning and implementation

## Site-based management actions

- When considering management actions for established IAS populations, **eradication should be considered as the first option**. Where eradication is not deemed to be feasible, then other management objectives such as **containment or control** to reduce the distribution, spread, or impacts should be considered.
- Consider **non-target effects**, e.g., upon native species, or increases in other IAS once the target IAS has been removed.
- **Integrated management**, where more than one approach is used either in parallel or sequence, can be more effective
- **Adaptive management** – changing approach based on results

**Management objectives for actions directly targeting invasive alien species populations:**

**Eradication** - Removal of the entire population from a defined geographic area, with no immediate risk of re-invasion.

**Containment** - Prevent the spread of a population from an area. Containment may also apply in the context of keeping an invasive alien species out of a defined geographic region within a broader (also known as 'exclusion').

**Control** - Reduce the abundance, distribution, or spread and impacts of a population from a defined geographic area interest.

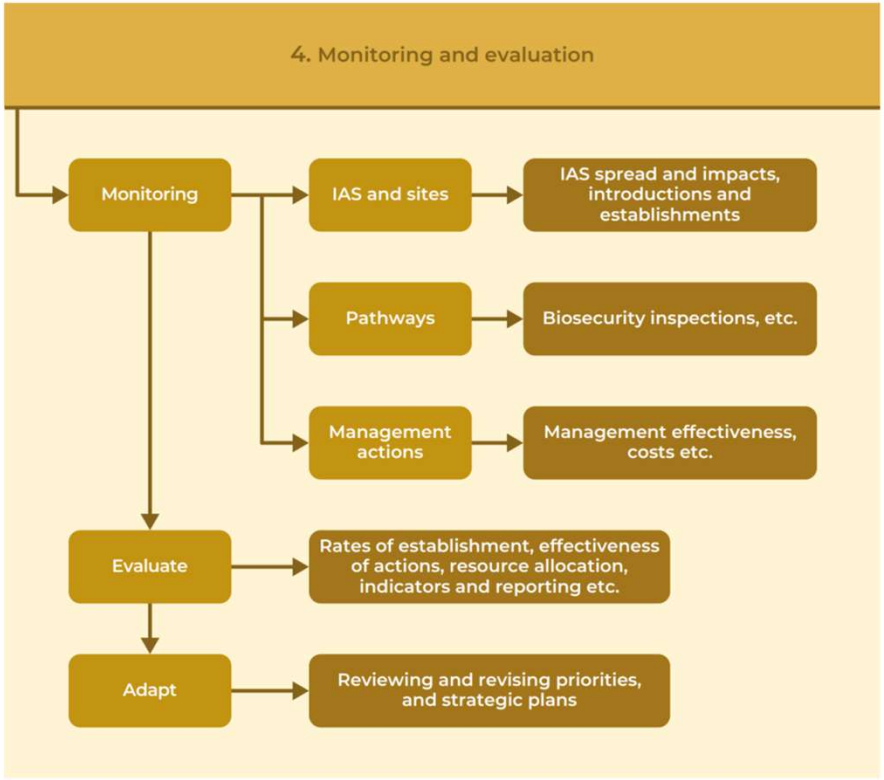
**Management actions targeting ecosystems or sites:**

Ecosystem based management

Restoration

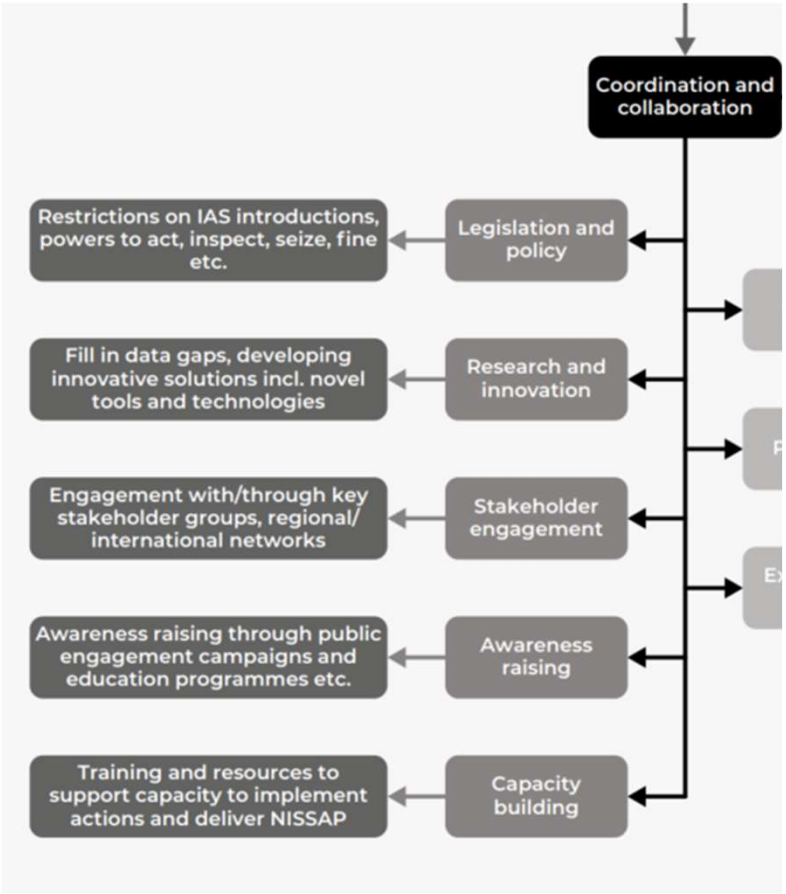
# 4. Monitoring and evaluation

- Implementation of the NISSAP should allow for adaptive management through integration of new evidence to update decision-making and actions
- Ongoing monitoring and evaluation will provide updates on the status of biological invasions and success of any interventions to allow a review of priorities, resource allocation
- Analysis of data from monitoring will also provide trends for indicators on targets, including the GBF headline indicator, 'the rate of IAS establishment'



# 5. Cross cutting action and enablers

- Having robust and effective **legislation** and policies will underpin actions to prevent the introduction and establishment of alien species and will provide the required mandates for institutions, including for collaboration across sectors.
- Requires a **whole-of-government** and **whole-of-society** approach.
- **Public understanding** of the risks associated with IAS, complemented by their informed cooperation, is critical to preventing new introductions.
- Identification of where training and support are needed to enable the implementation of NISSAPs will **increase the capacity** to respond.



# 5. Cross cutting action and enablers

- The number of IAS and the magnitude of their impacts will outstrip the **resources** available for their management.
- Resources should **prioritise prevention** and preparedness as these are the most cost-effective options
- National, regional and international **networks of expertise** on IAS and their management can provide support and advice across all levels of IAS management.
- **Data sharing** (using standardised and harmonised datasets) on invasions improves the knowledge base to inform effective action.