

GEF / PNUD PROJECT
ENHANCING NATIONAL CAPACITIES TO MANAGE INVASIVE ALIEN
SPECIES (IAS) BY IMPLEMENTING THE NATIONAL STRATEGY ON IAS

MID-TERM REVIEW

FINAL REPORT



Invasion by natal grass (*Melinis repens*) in APFF Sierra de Álamos

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TABLE OF CONTENTS

Abbreviations and acronyms	iii
Acknowledgements.....	iv
Executive summary	1
Project Information form	1
Brief description of the project.....	1
MTR ratings.....	2
Summary of progress.....	5
Summary of MTR conclusions, recommendations and lessons.....	15
Conclusions	15
Lessons that may be useful to the project (best and worst practices).....	17
Recommendations	21
1 Introduction	25
1.1 Purpose of the Mid-Term Review (MTR)	25
1.2 Scope and methodology	25
1.3 Structure of the MTR report	26
2 Project design.....	27
2.1 Project start and duration.....	27
2.2 Problems the project sought to address.....	27
2.3 Immediate and development objectives of the project	27
2.4 Indicators	28
2.5 Stakeholders	29
2.6 Expected results.....	31
2.7 Rating for project design.....	32
3 Project implementation.....	34
3.1 Activities and results to date.....	34
3.2 Assessment of work plan implementation	55
3.3 Analysis of budget and implementation pace.....	57
3.4 Rating for coherence with project aims, GEF and UNDP objectives	58
3.5 Ratings for stakeholder participation.....	58
3.6 Evaluation of information and dissemination mechanisms.....	61
3.7 Participation context of co-implementation management partners.....	62
3.7.1 Monitoring and Evaluation.....	62
3.7.2 Financial planning.....	64
3.7.3 Implementation and execution arrangements	70
3.7.4 Rating of quantity, quality and opportunity of resources to and from the project that may have affected implementation.....	71
3.7.5 Coordination and guidance	72
4 Project results and sustainability	73
4.1 Ratings for project achievements to date.....	73
4.2 Context analysis to allow for measuring advances or challenges in implementation to date.....	74
4.3 Analysis of indicators of impact and GEF Tracking Tools	76
4.3.1 Indicators of impact in the Strategic Results Framework.....	76
4.3.2 GEF Tracking Tools	81

4.4 Advanced ratings for sustainability prospects of project results	85
Institutional framework and governance.....	85
Environmental.....	85
Financial resources.....	85
Socioeconomic	86
4.5 Ratings for project design, implementation and results	86
5 Conclusions	91
6 Lessons learned and best practices	93
Project design – Lessons learned	93
Project management – Lessons learned	93
Project management – Best practices.....	93
Project management – Worst practices.....	94
Component 1 – Lessons learned	94
Component 1 – Best practices	94
Component 1 – Worst practices.....	94
Component 2 – Lessons learned	95
Component 2 – Best practices	96
Component 2 – Worst practices.....	96
7 Recommendations.....	97
8 Annexes	101
Annex 1 - Terms of Reference for the MTR	
Annex 2 - List of documents reviewed in the MTR	
Annex 3 - Mission agenda and itinerary	
Annex 4 - List of persons interviewed	
Annex 5 - Summary of field visits	
Annex 6 - Interview matrices used and summary of results	
Annex 7 - Tracking Tools (Management Effectiveness and Institutional Capacity)	
Annex 8 - Technical recommendations for the control of invasive alien plants	
Annex 9 - Mission photographic register	
Annex 10 - Comments on draft MTR report and answers by MTR Team	

INDEX OF TABLES

Table 1 – Project stakeholders	29
Table 2 - Results matrix in the Strategic Results Framework (results in comparison with goals at end of project)	34
Table 3 - Matrix of progress towards the achievement of outcomes: indicators per output	41
Table 4 - Assessment of outputs per component and activity based on progress towards targets.	46
Table 5 - Budgets approved per year and pace of implementation.....	57
Table 6 - Evaluation and ratings for the participation of stakeholders in project implementation	58
Table 7 - Financial resources per partner institution, including co-financing.	67
Table 8 - Indicators of global impact in the Strategic Results Framework, ratings and MTR justification for ratings...77	
Table 9 - Management Effectiveness Tracking Tool scorecard (METT) in comparison with targets set for end of project.....	83
Table 10 - Institutional Capacity Tracking Tool scorecard.....	84
Table 11 - Ratings for project design, implementation and results	86
Table 12 – MTR conclusions	91
Table 13 – MTR recommendations	97

ABBREVIATIONS AND ACRONYMS

APFF	Flora and Fauna Protection Area
APR	Annual Progress Report
APRN	Area of Protection of Natural Resources
AWP	Annual Work Plan
RB	Biosphere Reserve
CBD	Convention on Biological Diversity
CCF	Country Cooperation Framework (UNDP)
CESAEM	Morelos State Committee for Aquaculture Health
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CO	(UNDP) Country Office
COFEMER	Federal Regulatory Improvement Commission
COLPOS	Postgraduates College (Colegio de Posgraduados)
CONABIO	National Commission for the Knowledge and Use of Biodiversity
CONAFOR	National Forestry Commission
CONAGUA	National Water Commission
CONANP	National Commission of Natural Protected Areas
CONAPESCA	National Commission of Aquaculture and Fisheries
DEPC	Office of Conservation of Priority Species (CONANP)
DGGFyS	General Directorate for Forest and Soil Management (SEMARNAT)
DGIAPAF	General Directorate for Environmental Inspection in Ports, Airports and Borders (PROFEPA)
DGIVF	General Directorate for Forest Research and Verification (PROFEPA)
DGIVVSRMEC	General Directorate for Inspection and Vigilance of Wildlife, Marine Resources and Coastal Ecosystems (PROFEPA)
DGVS	General Directorate for Wildlife (SEMARNAT)
EDRR	Early Detection and Rapid Response
FCEA	Communication and Environmental Education Fund
GECI	Island Conservation and Ecology Group (Grupo de Ecología y Conservación de Islas)
GEF	Global Environment Facility
GoM	Government of Mexico
IAS	Invasive Alien Species
IASIS	Invasive Alien Species Information System
IMTA	Mexican Institute of Water Technology
INAPESCA	National Institute for Fisheries and Aquaculture
INECC	National Institute for Ecology and Climate Change
IPPC	International Plant Protection Convention
ITAM	Self-Governing Technological Institute of Mexico
MADNU	United Nations Development Assistance Framework
M&E	Monitoring and Evaluation
METT	Management Effectiveness Tracking Tool
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MTR	Mid-Term Review
NAPPO	North American Plant Protection Organization
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-Governmental Organization
NIM	National Implementation Modality
NOM	Official Mexican Standard (legal regulations)
NSIS	National Strategy on Invasive Species

continued

NPA	Natural Protected Area(s)
PAPP	Country Program Action Plan
PIMV	Wildlife Management Installations
PIR	Project Implementation Report
PN	National Park
PROCODES	Conservation Program for Sustainable Development
PROFEPA	Federal Law Office for Environmental Protection
PMU	Project Management Unit
QPR	Quarterly Progress Report
RCU	(UNDP) Regional Coordinating Unit
RTA	(UNDP) Regional Technical Adviser
SAGARPA	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food
SCT	Ministry of Communications and Transport
SE	Ministry of Economy
SEMAR	Ministry of the Navy
SEMARNAT	Ministry of Environment and Natural Resources
SENASICA	National System for Agricultural, Cattle Production and Food Sanitation, Innocuousness and Quality Control
SENER	Ministry of Energy
SIEI	Invasive Alien Species Information System (Spanish version)
SINAP	National System of Natural Protected Areas
SMART	Indicators: Specific, Measurable, Achievable, Relevant and Time-bound
SNFA	Sub-Secretary for Environmental Regulation (SEMARNAT)
UAM	Self-Governing Metropolitan University (Xochimilco Branch)
UANL	Self-Governing University at Nuevo León
UMA	Conservation and Management of Wildlife Units
UNAM	Self-Governing National University of Mexico
UNDP	United Nations Development Programme
UNDAF	United Nations Development Assistance Framework UNDP

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We also thank all of those who reviewed the draft version of the MTR report for comments and suggestions for improvement, and hope this document is useful in making the project achieve the expected outcomes.

EXECUTIVE SUMMARY

PROJECT INFORMATION FORM

Project title: Enhancing national capacities to manage invasive alien species (IAS) by implementing the National Strategy on IAS.			
UNDP Project number (PIMS #)	4714	PIF approval date	17/02/2012
GEF Project number	4771	GEF endorsement date	15/02/2014
# Project (ATLAS) # Award (ATLAS)	00089333	Project Document (PRODOC) signature (project start)	16/10/2014
Country	Mexico	Date of project coordinator contract	15/02/2014
Region		Date of inception workshop	16-17/06/2014
Focal area	Biodiversity	End of Mid-Term Review	01/08/2018
GEF 5 Focal Area Strategic Objective	Obj. 2: Mainstream biodiversity conservation and sustainable use in terrestrial and marine productive sectors	Original date for project end	31/12/2018
Fiduciary fund (GEF, LDCF, SCCF, NIPF)	GEF	Date proposed for project extension	31/12/2019
Executing agency / Implementing agency	CONABIO / UNDP		
Other executing agencies	CONANP, GECI, SEMARNAT, SENASICA, PROFEPA, INAPESCA, CONAPESCA, CESAEM, CONAFOR, IMTA, INECC, UNAM, UAM, UANL, FCEA		
Project financing	CEO ratification (USD) 5,354,545	At MTR (USD)* 2,368,500.03	

* Provided by the Financial Coordinator based on 31 December, 2017.

BRIEF DESCRIPTION OF THE PROJECT

The project “Enhancing national capacities to manage invasive alien species (IAS) by implementing the National Strategy on IAS” supports the implementation of the National Strategy on Invasive Species and its objectives to strengthen IAS management by improving effectiveness and interinstitutional coordination at the national level. Outputs include the development of information systems, tools for informed decision-making, strengthened management capacity in key government agencies in IAS prevention and control, as well as policies, regulations and decision-making tools to reduce the impact or eliminate deleterious practices in key productive sectors (aquaculture, ornamental fish trade, forest and wildlife products) identified as the main pathways and vectors of IAS introduction and spread to natural areas.

Actions in prevention, early detection, eradication and control are planned for 15 pilot sites (priority areas for conservation which sustain relevant ecosystems at the global level) to prevent IAS impacts and develop rapid response protocols to avoid the costs of sustained control. These sites include 9 continental Natural Protected Areas and 6 islands for which biosecurity protocols must be developed and applied. Local communities and producers are engaged to reduce the potential impact of IAS from production and support effective measures for the IAS eradication and control.

The Government of Mexico and the GEF signed a collaboration agreement for a National Implementation (NIM) full size project. The National Commission for the Knowledge and Use of Biodiversity (CONABIO) and the National Commission for Natural Protected Areas (CONANP) collaborate as executing agencies and the United Nations Development Program (UNDP) acts as implementing agency. The project started officially on 16 October, 2014.

MTR RATINGS

Criteria	Comments	Rating
Monitoring and Evaluation: Highly satisfactory (HS), Satisfactory (S), Moderately satisfactory (MS), Moderately unsatisfactory (MU), Unsatisfactory (U), Highly unsatisfactory (HU)		
General quality of M&E	The Monitoring & Evaluation Plan is being implemented as planned and has an adequate budget. Periodical reports are generated according to established deadlines and based on reliable data sources.	S
Design of M&E at project start	The political context of support to the environmental sector changed significantly from the project design phase. This created difficulties for the development of activities especially dependent upon political support. The project design was shrewd to involve government agencies in complementary areas to the environment as well as productive sectors, NGOs and academia. Some outputs were overly optimistic, especially the expectation of changing national laws. The weakest point in project design is that the indicators do not cover all the outputs and most are not SMART, resulting in some difficulty in monitoring and measuring results.	S
Implementation of M&E plan	The M&E Plan has an adequate budget. Indicator matrices have been updated as well as the GEF Tracking Tools (by the PMU for the PIR 2017). Some outputs and expected results are not represented in these indicators.	S
Execution by Implementing Agency and Executing Agency: Highly satisfactory (HS), Satisfactory (S), Moderately satisfactory (MS), Moderately unsatisfactory (MU), Unsatisfactory (U), Highly unsatisfactory (HU)		
General quality of project implementation	Project management arrangements are adequate and functional. A significant portion of outputs and activities have been developed and are on target for completion by the end of the project. The high number of outputs designed and their development by many partner institutions in combination with decisions to change certain activities without adjusting the corresponding indicators have created some complexity for follow up. There has also been some difficulty in fulfilling consultancy contracts for the lack of specialized professionals on IAS in Mexico, which caused delays in the implementation of some activities.	S
Performance of Implementing Agency	The UNDP is widely acknowledged as the best alternative for Implementing Agency, and financial management has been impeccable. The relevance of ensuring that funds are available for implementation of work in the field was brought up on some occasions, especially when dependent on specific seasons. This might require more agility or proactivity of the UNDP in reviewing consultancy products, in balance with the need to maintain quality standards. The UNDP should have better prepared the PMU to receive the MTR on several aspects, from basic organization of information and materials on all the project outputs to updates of GEF Tracking Tools and co-financing values by partner institutions.	S
Performance of Executing Agency	CONABIO is widely acknowledged as the best option for leading the project both due to the level of engagement, technical and scientific capacity and availability to fulfill expectations and achieve project results.	HS
Outcomes: Highly satisfactory (HS), Satisfactory (S), Moderately satisfactory (MS), Moderately unsatisfactory (MU), Unsatisfactory (U), Highly unsatisfactory (HU)		
General quality of project outcomes	An information base and management tools and practices have been generated and are in process of consolidation and adjustment. Remaining implementation time must be dedicated to the practical application of models and guides developed to ensure positive results in the conservation of biodiversity.	S
Relevance: Relevant (R) or Not Relevant (NR)	The project is highly relevant for being in line with national and international frameworks on biodiversity, for reaching out to a diversity of types of public for the first time in Mexico, for providing equipment to government agencies in charge of border control and for the application of biosecurity protocols, tools, models, guides and information for IAS management.	R

Criteria	Comments	Rating
Effectiveness	A solid base of products and tools for IAS management was produced in three years of implementation, accompanied by a significant increase in institutional capacity. The engagement of productive sectors is strategic and a relevant achievement. At the moment of the MTR, implementation is considered effective, as the PMU managed difficult situations with dexterity (e.g. budget cuts to environmental agencies and scarcity of qualified consultants to fulfill project demands). The most important co-financing commitments have been met by stakeholders. The project financial management records are impeccable from project start.	S
Efficiency	Work plans have been generally executed as expected. Project administrative costs amount to only 8%, which shows that the funds are invested in the expected outcomes and objectives. The work carried out so far on invasive plant management has reduced the efficiency of the project, which can be justified by the lack of qualified professionals in IAS management in natural areas and opposition by NPA managers to certain control methods, and requires urgent improvement.	S
Sustainability: Likely (L), Moderately likely (ML), Moderately unlikely (MU), Unlikely (U)		
General probability of risks to sustainability		ML
Institutional framework and governance	Government support to environmental and related agencies has diminished since the last change in national government (elections in 2012). The maintenance of alliances currently established with government agencies with relevant roles in IAS management will depend on the political context in 2019, after the elections. The extension granted to the project is very favorable, as it allows the PMU and partners to pursue the renewal of agreements and interinstitutional coordination for the sustainability of project outcomes and actions. Careful planning should be made to present and mainstream the project concepts and actions into the agenda of the new government. If possible, capacity building and integration workshops should be organized for personnel who replaces those currently engaged in IAS issues at the moment.	ML
Financial resources	Despite budget cuts applied to environmental agencies and related sectors by the national government, co-financing commitments were fulfilled by the institutions that contributed the largest amounts of funds to the project. As a solid basis was developed by the project, with management tools and institutional capacity, many activities in development will be mainstreamed into institutional routines and sustained. Upcoming elections create uncertainty with regard to financial resources from the future government, and it might be important to look for complementary funding opportunities to ensure the sustainability of project actions.	ML
Socioeconomic	A relevant diversity of types of public and stakeholders has been reached by the project by several means of communication, from capacity building for management in NPA to education for nearby communities, journalists, legislators, ornamental plant lovers, teachers and children, complemented by a variety of dissemination materials. This legacy will be gradually multiplied, extending the benefits of the project to other areas and people.	L
Environmental	The achievement of eradication of terrestrial vertebrates on islands has a high likelihood of sustainability. The application of biosecurity protocols for islands, prevention measures, EDRR and control in continental NPA require consolidation and must be mainstreamed into the routine of CONANP. For the moment, these important measures await consolidation.	ML
Impact: Considerable (C), Minimal (M), Insignificant (I)		
The project objective was achieved	The project objective is to safeguard globally significant biodiversity in vulnerable ecosystems by building capacity to prevent, detect, control and manage IAS in Mexico. Terrestrial vertebrates have been eradicated from oceanic islands, where marine bird populations are recovering. A native fish species is being promoted as an alternative to breeding alien fishes. Invasive alien plants are being controlled. These are results achieved over 15 years of work that were given continuity with project funds, but in more time other changes will be measurable, especially in the restoration of natural areas. The increase in management capacity is significant, especially for the cooperation of environmental agencies with those in agriculture, aquaculture and forestry, as well as productive sectors, to develop and apply best practices for the conservation of biodiversity. The dialogue established with the general public through capacity building and environmental education workshops and events, as well as the publication of a National IAS List, are remarkable impacts and significant indications of ongoing change.	C

Criteria	Comments	Rating
RATINGS FOR PROJECT OUTCOMES		Qualification
Outcomes: Highly satisfactory (HS), Satisfactory (S), Moderately satisfactory (MS), Moderately unsatisfactory (MU), Unsatisfactory (U), Highly unsatisfactory (HU)		
1 National IAS Management framework		
1.1 Decision making tools aimed at informing cost effective management decisions to address IAS threats in key landscapes and key sectors (aquarium trade, aquaculture, trade of wildlife and forest products).	The most relevant outcome so far might be the publication of a National IAS List. Information tools are in development, as well as risk analysis protocols, mapping methods for invasive plants and IAS potential distribution models related to climate change. An economic study on financial incentives to fund IAS management was conducted, but cost-benefit evaluations and assessments of economic impacts of IAS have not been completed. Budgetary coordination between agencies is to be led by the High-Level Committee and supported by a study to be completed by the end of the project.	S
1.2 Sectorial guidance and regulations in place to strengthen the control of main pathways of IAS to vulnerable areas.	The engagement of the productive sector of ornamental fishes is generating important results with potential for replication in aquaculture of other fishes. Participation of other priority sectors is still incipient and needs to be strengthened. There have not been specific efforts to develop proposals of sectorial regulations, but the PMU has participated in discussions on the regulation of a few species.	MS
1.3 Multi-sectorial institutional framework in place to implement the National Strategy on Invasive Species (NSIS).	Significant improvement in interinstitutional coordination is widely acknowledged, but several outputs are not well developed so far.	MS
2 Integrated IAS management to protect vulnerable globally significant ecosystems.		
2.1 Strengthened prevention and control of key IAS populations in selected islands.	While results of vertebrate eradication on islands are highly satisfactory, the implementation of biosecurity protocols requires more ownership by CONANP for consolidation.	S
2.2 Enhanced IAS surveillance and control strategies reduce introduction rates from productive landscapes and contain populations below thresholds that endanger endemic species and their habitats at 9 mainland Protected Areas.	Relevant information was produced, including best practice guides and IAS management plans. The control of invasive plants has not been efficient to date. Prevention and EDRR systems, invasive plant control and best practices need to be consolidated for the expected outcomes to be achieved.	MS
General project results:		S

SUMMARY OF PROGRESS (TABLE 4 IN THE DOCUMENT)

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
Component 1 – National IAS management framework.				
1.1 Decision making tools aimed at informing cost effective management decisions to address IAS threats in key landscapes and key sectors (aquarium trade, aquaculture, trade of wildlife and forest products).				
1.1.1	Strengthening of the National Invasive Alien Species Information System (NIASIS).	HS	<p>The Invasive Alien Species Information System is in development and accessible through the Enciclovida website. There are 1,507 records for alien species in general; 1,302 for alien species in Mexico, and 460 records for IAS, 301 of which are present in Mexico. There is no reference to the system (SIEI in Spanish) on the CONABIO website or on Enciclovida. The database would benefit from some improvements, such as options for more complex searches (by type of use, pathways and vectors of introduction and spread, ecosystem or habitat type, municipalities and states, and other fields). The search available by states and municipalities is not accessible from the Database interface (only on a separate web page), and does not allow users to perform customized searches (e.g. <i>Casuarina equisetifolia</i> in Baja California); searches are available per taxonomic group. It is important to improve content specific to Mexico, such as places of occurrence with details of invasion on each site, usage, impacts when available, control methods, and prevention measures (including results of risk assessments); also, to include better options to export search results in Excel or other formats (not only the complete contents or factsheets in PDF format, which are not easy formats to process data). The Database is currently not flexible as one has to enter by taxonomic group. The data available is quite limited; for example, habitat types should include the Mexican classification of ecosystems and equivalent terms for marine and freshwater environments, as available: there is no data or fields on pathways and vectors, and it is not clear from the map of occurrences whether a species is cultivated, present, established or invasive; there is no data on species habit, habitat type in the native range and other characteristics that are useful as filters in searches. Users should be able to select more than one option at once in Group, Habitat type and other relevant fields, as well as cross data (for example, mammals in evergreen forest; plants used in horticulture for ornamental purposes; ornamental fishes; amphibians and reptiles in the state of Chiapas). The use of controlled vocabulary with key terms and classifications in use in Mexico is recommended to facilitate searches. Ideally, invasive alien species should be more easily separated and worked on as a separate group to avoid confusion and better support decision-making and research; at least users should not need to reselect the options Alien and Invasive every time a search is performed. All search options should be available from the same website. It is also relevant to include basic concepts in the website, such as alien species, invasive alien species, vectors and pathways.</p>	<p>There is no information on the project web page.</p> <p>There is information and a link to the system under “Especies Exóticas Invasoras”, but there is no reference to the term used in Spanish, “SNIEEI”. The database is not directly visible from the project page.</p>
1.1.2	Establishment and operation of Information System to measure implementation of the National Strategy on Invasive Species.	S	As the system is still in development, the MTR Team was not able to analyze it in detail (phase 1 is nearly completed and phase 2 on searches and reports is beginning).	There is no information on the project web page.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.1.3	Creation of Participatory Networks to support IAS management.	MS	A local network has been established with experts who support the development of the information system. Programming is required for the consolidation of the information tool to be used by the network. CONABIO participates in the development of a network of experts for information exchange in MesoAmerica and the Caribbean, as well as in other international networks such as NAISN, CCA, IAB, GIASIP, ISSG and CABI for information exchange.	There is no information on the project web page.
1.1.4	Establishment and operation of an IAS National Gateway.	S	In development. The Gateway in the CONABIO website is functional and includes information on IAS and on the project. It will be important, as the Gateway is further developed, to include resources and guidance for applied activities, from educational materials and guidance for practical management to legal regulations, laws at the national level and Decisions of the CBD. In the Tools section, there is information on risk assessment, but the actual tools have not been made available.	There is no information on the project web page.
1.1.5	Publication and outreach on the National List of Invasive Species (NLIS).	HS	The publication of a National IAS List is an important milestone to provide reference on IAS at the national level and for the development of sectorial regulations and policies. Dissemination of the list has been a part of workshops and capacity building events offered by the project, as well as of other materials and media.	The List is not directly available from the project web page (under Component 1). There is no direct link on the main page for those looking for the list; it should be easier to find.
1.1.6	Development and use of risk analysis methodologies for high risk species / pathways.	S	Several risk assessment protocols are in development for different groups of species. The rapid risk assessment protocol (MERI) requires adjustment, which means the assessments done to date need to be reviewed. A protocol for forest trees needs to be consolidated with CONAFOR. HACCP and fish risk analysis (FISK) are available in the Tools section on the CONABIO website, but the tools developed through the project are not available (MERI and plant RA). A risk assessment protocol for pathways is in development based on NAPPO. Pathways analyses have been developed for 291 species.	Risk assessments are available, but the individual protocols and tools developed are missing.
1.1.7	Development and application of Inspection Tools for IAS that threaten biodiversity.	S	No specific tools on methods for the identification of IAS nor on quarantine and disposal procedures have been developed so far, and no information is available on how these tools will be shared with inspection agencies. Several reference materials have been developed, from contributions by CONABIO to the CABI Invasive Species Compendium , in use by PROFEPA inspectors (although in English), rapid risk assessment factsheets (MERI), factsheets available from Enciclovida and presentations used in capacity building workshops for PROFEPA inspectors. Other materials are in development, such as factsheets on invasive aquatic plants by IMTA. The National Biodiversity Monitoring System is also mentioned for this output. Although developed separately, IAS were included as targets for monitoring by influence of the project. No complementary monitoring reports were available, so the MTR Team was not able to verify if active monitoring of IAS is in place.	There is no information on the project web page.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.1.8	Development and testing of a model for mapping of IAS flora.	HS	UNAM developed a mapping method for invasive plants and applied it to RB Sierra Gorda and PN El Cimatario, in Querétaro. The methodology is complemented by a plant identification guide (50 species). IMTA has mapped aquatic plants in 28 water bodies in 8 states in 2015 and in 12 water bodies in 4 states in 2016. Personnel from several government agencies participated in capacity building events aimed at invasive plant identification. Mechanical removal was carried out in some dams in Jalisco.	Reports for 2015 and 2016 only, including surveys and workshops. The 2017 report is missing.
1.1.9	Integrate information on IAS into the National Forest and Soils Inventory (INFyS).	S	At the project start a printed catalogue with 23 IAS (18 plants, 1 insect, 2 mammals, 1 bird) was developed for CONAFOR field brigades. Additionally, as planned in the PRODOC, five new factsheets should be produced per year. There are 21 additional factsheets (15 insects and 6 plants), also available from the CONAFOR website . An assessment of invasiveness of forest species used in monoculture plantations is expected.	There is no information in subcomponent 1.1 (5 factsheets are available from 1.2). There are no progress reports.
1.1.10	Develop niche models for IAS dispersion related to climate change.	HS	A model and studies on the potential distribution of 60 priority species under 4 climate change scenarios has been developed (two for 2050 and two for 2070).	Report on studies developed, but products (maps) are not available.
1.1.11	Establish cost coefficients for different IAS management strategies in Mexico.	U	The cost-benefit studies expected from the project will only be able to be completed once efficient methods for the control of invasive plants are defined, but there might not be enough time left. An independent study is being considered for this output to review field control work carried out so far by partner institutions and assess best cost-benefit methods to be replicated to other areas in the future. This output will be concluded in the last months of the project in order to encompass all management activities carried out through the project. Among activities in the PRODOC is the development of cost coefficients for different IAS management strategies (prevention, EDRR, control, eradication, etc.) under distinct conditions (for example, species habit; ecosystems; local pressure and others), focused on IAS that impact biodiversity. Cost coefficients will be developed based on the number of IAS management actions implemented during the project, including: i) IAS management in pilot sites on islands and continental areas (Products 2.1 and 2.2); ii) IAS management in key productive sectors (Products 1.2 and 2.2.); and iii) fire management and reforestation programs implemented by CONAFOR (Product 1.4).	Only reports of the two workshops are available. There is no information on the project web page (output to be developed in 2019).
1.1.12	Develop economic models to estimate the costs to the Mexican economy of high-impact IAS.	U	The studies on cost coefficients are a byproduct of the workshops led by Landcare Research (New Zealand). Participants made commitments to complete nine case studies (<i>Tilapia zilli</i> reduction in San Ignacio, BC; management of <i>Raoiella indica</i> in Quintana Roo; <i>Pterois volitans</i> lion fish in Cozumel; <i>Myiopsitta monachus</i> in Mexico City; cat eradication and control on Guadalupe Island; prevention of fish escapes in Morelos; goat management in El Vizcaino BR; <i>Pterygophlyctys</i> spp. in the Palizada River, Campeche; <i>Corbicula fluminea</i> control in the city of Villahermosa). Only one study has been delivered to date (fish escapes). The others are delayed (the second workshop was held in November, 2016). A follow up meeting might be considered with the same participants to conclude the studies that were initiated, as progress of output 1.3.6 depend on these results. A cost-benefit study was developed for water hyacinth (<i>Eichhornia crassipes</i>) in collaboration with ITAM Xochimilco, CDMX and the University of Wisconsin in Madison, USA.	There is no information on the project web page (output to be developed in 2019).

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.2 Sectorial guidance and regulations in place to strengthen the control of main pathways of IAS to vulnerable areas.				
1.2.1	Draft regulations for control of IAS in productive sector operations.	S	<p>The consultant who developed the legal study for the project did not provide solid recommendations that could be taken to government representatives or productive sectors as suggestions for amendments in existing legislation.</p> <p>The project approach to productive sectors has been to define and apply best practices rather than begin with regulations. In the case of ornamental fishes, producers took the lead in developing certification standards and voluntary regulations.</p> <p>The PMU contributed to four sectorial regulations in development for ornamental fishes (Morelos), Christmas trees (NOM-013-SEMARNAT-2010), forest species with CONAFOR and African oil palm (<i>Elaeis guineensis</i>).</p>	The study on legal issues and gaps is available and includes recommendations. There are no reports or drafts of legal regulations and no information on the regulations in development.
1.2.2	Provide information, resources and training for improved IAS management to private sector stakeholders and government agencies in the Wildlife and Forest sectors.	S	<p>Information, resources and training have been granted to CONAFOR and PROFEPA DGIVF and DGIAPAF on forest inspection and surveillance, as well as environmental surveillance in ports, airports and borders. A manual on reforestation and restoration using native species was developed, a risk assessment protocol for forest trees is underway and fire management trials were carried out with CONAFOR to control forest pests. The agency has also monitored invasive alien insects that are forest pests in five points of entry to Mexico (ports/airports). 95% of PROFEPA inspectors in the General Directorate for Environmental Inspection in Ports, Airports and Borders have participated in capacity building events on IAS associated with international trade.</p> <p>Participation of the PROFEPA General Directorate for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems is highly desirable due to their responsibilities on wildlife, and should be pursued.</p>	Restoration manual using native species; maps of risk for forest pests; studies on fire management for forest pests; reports on monitoring of forest insects in five points of entry.
1.2.3	Provide information, resources and training for improved IAS management to private sector stakeholders and government agencies in the Aquarium Trade and Aquaculture Sectors.	S	Information materials such as guides and other references, an inventory of aquaculture structures, and training courses on detection and identification of IAS in aquatic ecosystems and Incident Command System have been carried out for the sector. A prototype of a production structure for ornamental fishes in a closed cycle is in development and expected to be completed before the end of 2018. A certification process is also being developed for ornamental fishes. A workshop was held in Feb. 2017 with government agencies to develop a rapid response protocol for the detection of aquatic IAS (no follow up information is available).	Several materials: ornamental fish guides, fish producer awareness program, certification work plan and a report on the workshop held for rapid response on aquatic species, with recommendations.
1.2.4	Implement IAS biosecurity pilot activities with the Aquaculture Sector in the State of Morelos.	S	<p>Biosecurity standards for the production of ornamental fishes have been drafted with CESAEM and a certification system is in development. A capacity building workshop was held in Zacatepec, Morelos, in 2017. This output is in development, with one protocol defined so far for aquatic species.</p> <p>CESAEM carried out an inventory of production structures in aquaculture to verify the potential of escape of invasive fishes. A technical proposal to minimize the risk of escape is in development between CESAEM and UANL, and a workshop to promote best practices will be held for fish producers.</p>	Several materials on the development of biosecurity standards, including maps, a report on the development of a sustainable production certificate and biosecurity plan.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.2.5	Outreach to State-level authorities and productive sector stakeholders on IAS threats, new IAS controls and regulations, and incorporating IAS management into institutional planning.	S	<p>This output is related to state strategies on biodiversity. Ten strategies have been published so far that include activities on IAS: Aguascalientes (2010), Campeche (2016), Michoacán (2007), Morelos (2003), Puebla (2013), Veracruz (2013), Chiapas (2013), Chihuahua (2015), Guanajuato (2015), and Jalisco (2017). Other four are underway and include actions for IAS: CDMX, Oaxaca, Quintana Roo and Yucatán. The Querétaro Strategy, in the planning phase, will also include actions for IAS. The PMU has participated in meetings of the Secretary of Environment in the state of Morelos to update the State Study (Estudio de Estado) and in a workshop on the National Strategy on Biodiversity (2016). Another department of CONABIO is involved in complementary issues.</p> <p>Activities for this output were included in an AOP for the first time in 2017: Public policy documents on impacts of IAS on human health and the economy: develop information materials with data and suggestions to change institutional directives and regulations for IAS management.</p>	<p>There is no information on the project web page.</p> <p>There is information on state strategies on biodiversity in another CONABIO web page, but there is no specific reference to IAS.</p>
1.3 Multi-sectorial institutional framework in place to implement National Strategy on Invasive Species (NSIS).				
1.3.1	Draft revised and harmonized existing laws / regulations related to IAS management.	U	<p>A legal study was contracted on national laws as well as sectorial regulations (output 1.2.1). The development of sectorial regulations for African oil palm has been mentioned for this output, but the MTR Team considers it related to output 1.2.1, and it should not be mentioned in duplicate.</p> <p>The consultant who developed the legal study for the project did not provide solid recommendations that could be presented to government representatives. The development of legal regulations was discussed in the Committees that support project implementation, but no proposals have actually been written. The project contributed suggestions for the revision of the National Law on Biodiversity, but the new version was rejected by the government in April, 2018.</p>	There is no information on the project web page.
1.3.2	Institutional structures strengthened / established to facilitate inter-institutional coordination for overall IAS management.	S	The Committees (Executive, Technical and Scientific) that support project implementation are expected to continue working after project closure to support the implementation of the National Strategy on Invasive Species. Meetings are held on a regular basis. Participants complained that certain Executive Committee members send representatives who are not entitled to make decisions, so the meetings are not productive. The Scientific Committee has not been effective in contributing with knowledge to the control of invasive plants, for several reasons. The Committees require consolidation for better effectiveness.	There is no information on the project web page.
1.3.3	Institutional Coordination to prevent the entry and spread of IAS in Mexico.	MS	A proposal for concerted action between SEMARNAT and SAGARPA on IAS imports is being discussed. Recommendations have been developed for the improvement of protocols regarding introduction permits for IAS (import conditions) to the country.	There is no information on the project web page.
1.3.4	Strengthen capacity for Early Detection and Rapid Response (EDRR) systems for IAS at national level.	MS	Capacity building on monitoring was provided to CONAFOR in five ports and airports with support from PROFEPA. A contract is in process for a rapid response protocol and an economic study for the zebra mussel (<i>Dreissena polymorpha</i>). EDRR and risk assessment are going to be developed for the starfishes <i>Luidia magnifica</i> , <i>Acanthaster planci</i> , <i>Astropecten polyacanthus</i> and the coral <i>Carijoa riisei</i> . There is not a concise report on this activity, which has not been much developed so far.	There is no information on the project web page.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.3.5	Development and application of financial mechanisms to support IAS management.	MS	A study on the viability of development and implementation of economic instruments to reduce the risk of intentional IAS introductions was developed. It has been presented to several agencies, but there is no follow up information available at this point of the MTR apart from minutes of meetings in which the issue was discussed.	Economic study in the complete version and executive summary.
1.3.6	Budgetary coordination between sectors to ensure coherent investments and actions to address threats cost efficiently.	U	There is no information on this output except that it will be led by the Executive Committee. This product depends on the completion of studies committed (outputs 1.1.11 and 1.1.12), which are delayed, as well as on a study of expenses on IAS management in Mexico, planned for 2019. This output has a problem of project design because it seems to have counted on results from control actions in place at the time, while these efforts have not been able to provide a basis for profitability studies.	There is no information on the project web page.
1.3.7	Establish harmonized standards and training programs for IAS management across key institutions.	MS	An online course has been articulated and offered (CONANP, INECC, UNAM, UABC and UMAR), but there is no information on harmonized standards for future initiatives.	There is no information on the project web page.
1.3.8	Implement education and awareness campaigns on IAS for policymakers, private land owners, NGOs, volunteer groups and the general public.	HS	Education and capacity building workshops have been conducted, including supporting materials. Botanic Gardens are getting involved due to the invasive nature of many ornamental plants and information on IAS was presented by the PMU at an event on tourism in Cancun. Although this output may be considered completed, more campaigns reaching out to more people as well as more complex content to people who have had basic training are always welcome and should continue as feasible and as long as it does not affect other outputs that are not as developed.	Reports on activities led by FCEA and workshops held for legislators and journalists.
Component 2 - Integrated IAS management to protect vulnerable globally significant ecosystems.				
2.1 Strengthened prevention and control of key IAS populations in selected islands.				
2.1.1	Establish and maintain Island Biosecurity Programs.	MU	The six subcommittees to support IAS management require consolidation. Biosecurity protocols have been developed for six islands, and are being implemented, but CONANP has to take the lead (and allow GECI to provide support rather than lead implementation) and ensure that these protocols are applied as part of the routine for the islands. EDRR programs also require consolidation.	No products available except for information in reports delivered by GECI (2015, 2016 and 2017). Island biosecurity protocols are not available.
2.1.2	Implement education and training to support IAS management.	HS	Education and capacity building on IAS has been provided to communities on the islands, such as the Abalone National Fishermen Cooperative on Cedros and San Benito Islands, the Campo Oeste community on Guadalupe Island and in schools in Baja California. SEMAR has been supporting GECI on their work on islands. A meeting for exchange of experiences was held for CONANP personnel working in island NPA (2016). Information materials on biosecurity measures and on IAS that impact islands were produced. Although this activity may be considered completed, more education and awareness activities are always required to increase support to control and eradication, especially with the community on Cedros Island in 2018 for the control of feral dogs. It is important to share information on project activities to communities for inclusion and to foster cooperation.	Reports on activities on islands (2015, 2016 and 2017).

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
2.1.3	Implement targeted high priority IAS control & eradication programs.	HS	Control and eradication programs are in place and very successful. These actions are well represented by indicators developed for the project (Tables 2 and 3).	Reports on activities on islands (2015, 2016 and 2017).
2.1.4	Establish and maintain monitoring programs to ensure effectiveness of biosecurity and IAS control and eradication efforts.	HS	GECI maintains monitoring programs to confirm that eradications are successful and to register the recovery of marine bird populations as well as vegetation.	Reports on activities on islands (2015, 2016 and 2017).
2.2 Enhanced IAS surveillance and control strategies reduce introduction rates from productive landscapes and contain populations below thresholds that endanger endemic species and their habitats at 9 mainland Protected Areas.				Information is better organized in this component (per subcomponent 2.1, 2.2, etc.)
2.2.1	Develop baseline information necessary for effective IAS management planning.	S	Baseline studies were carried out for some IAS at APFF Sierra de Álamos Río Cuchujaqui, APFF Tutuaca, Cañón del Sumidero NP, Cumbres de Monterrey NP, El Vizcaíno BR and Los Tuxtlas BR. Some of the plant species being managed are not included in baseline studies. There is information on IAS mixed with non-native species in baseline reports for these PA, but there are no details on the occurrence points or other information to guide control actions.	Reports for 3 NPA: 3 IAS in El Vizcaíno BR; 5 IAS in Cumbres de Monterrey NP; and 1 IAS for APFF Sierra de Álamos Río Cuchujaqui.
2.2.2	Strengthen IAS management capacities and processes for landscapes within and surrounding mainland Protected Areas.	S	The 9 subcommittees to support IAS management were expected by the end of year 1 of the project. Although this deadline was not realistically set in the project design, to date only 6 subcommittees have been established in NPA, while 3 are in progress, but there will not be much time left for consolidation to ensure they will continue functioning after project closure. Establishment of these subcommittees is therefore urgent, as well as the organization of meetings (even if on skype or other means to avoid travel and costs) for the definition of work priorities and plans to ensure their functioning and support to NPA needs. Communities have been engaged in management activities, but capacity is lacking for better efficiency. Capacity building workshops on IAS were held in Los Tuxtlas BR and in Cumbres de Monterrey NP (in rural and in urban areas) for several types of public (see output 2.2.4).	Information missing: 6 subcommittees have been structured to date, but there are only 3 reports. The report on workshops held at Tuxtlas BR is duplicated under different names.
2.2.3	Introduce best practices in IAS management in targeted production sectors to reduce IAS spread.	S	Concepts and best practice manuals were developed for cattle ranching (Marismas Nacionales Nayarit BR, APRN Valle de Bravo), goat tending (El Vizcaíno BR), trout aquaculture (APRN Valle de Bravo) and for breeding native tenguayaca (<i>Petenia splendida</i>) (Sian Ka'an BR). Capacity building workshops were organized for producers. Remaining implementation time must be dedicated to the practical application of best practices.	Several reports, including workplans, for 4 NPA.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
2.2.4	Increase community awareness and participation in IAS management in and around mainland PA sites.	HS	The workshops reported as part of output 2.2.2 would be more adequate for this output, as they are directed to communities and not specifically for IAS management. Complementary materials were produced for NPA (APRN Valle de Bravo, PN Cañón del Sumidero, NP Cumbres de Monterrey, APFF Sierra de Álamos Río Cuchujaqui). Some participants interviewed requested project and National Strategy on Invasive Species results and advances to be shared with communities in the surroundings of NPA and involved in management. For this output to be completed, the subcommittees have to carry out actions for public awareness on IAS and support IAS management, as well as other practical actions.	Dissemination materials on IAS present in APFF Sierra de Álamos Río Cuchujaqui, Cumbres de Monterrey NP and APRN Valle de Bravo (materials for Cañón del Sumidero NP are missing).
2.2.5	Develop and implement Biosecurity Programs (Prevention; Early Detection and Rapid Response) at selected mainland PA sites.	U	<p>A report on the EDRR system for Cañón del Sumidero NP was developed for five species/groups (red eared slider <i>Trachemys scripta elegans</i>, armored catfish <i>Pterygoplichthys</i> spp., aquatic plants (<i>Eichhornia crassipes</i> and <i>Pistia stratiotes</i>) and African grasses <i>Cynodon nlemfuensis</i>, <i>Melinis repens</i> and <i>Hyparrhenia rufa</i>). The roles of parties in the study were defined based on institutional responsibilities. No negotiations have taken place so far to consolidate the system. During the field visit, it was clear that the park staff understands the relevance of EDRR, but also that the system is not consolidated, for example to focus on the immediate removal of isolated invasive plants. A study on pathways of introduction into several communities was conducted for princess vine (<i>Cissus verticillata</i>), giant reed (<i>Arundo donax</i>) and buffel grass (<i>Cenchrus ciliaris</i>) at RB Marismas Nacionales Nayarit. The study does not include recommendations on the management of identified pathways.</p> <p>There are no results so far for the other 3 NPA (see indicator table). There is no evidence of ongoing work for EDRR systems in at least two NPA.</p> <p>Other NPA are developing EDRR, but these are not the 4 NPA originally considered in the indicators. At APFF Sierra de Álamos Río Cuchujaqui an EDRR system has been conceived specifically for the armored catfish (<i>Pterygoplichthys</i> sp.), although a broader vision is disseminated so that any non-native species found are reported to the PA manager.</p>	Reports on the development of the EDRR system for Cañón del Sumidero NP and study on pathways of introduction in Marismas Nacionales Nayarit NP for three species.
2.2.6	Implement targeted IAS control, eradication and monitoring at selected mainland PA sites.	MU	<p>Invasive plant control results so far at APFF Sierra de Álamos Río Cuchujaqui (<i>Melinis repens</i>), Cañón del Sumidero NP (<i>Hyparrhenia rufa</i>) and Cumbres de Monterrey NP (<i>Ligustrum lucidum</i>, <i>Koeleria paniculata</i>, <i>Arundo donax</i>) are unsatisfactory. The control methods applied have not been effective and lack scientific background. The Scientific Committee should provide guidance for these activities and capacity building is clearly needed. Mechanical control of salt cedar (<i>Tamarix ramosissima</i>) in Arroyo del Mentidero, in APFF Sierra de Álamos Río Cuchujaqui, was successful especially because it was an initial invasion, therefore a good example of rapid response to early detection, but monitoring is required to avoid reinvasion in case more propagules reach the area. In this case, the identification of vectors and pathways of introduction is important to prevent the arrival of new propagules.</p> <p>In RB Los Tuxtlas, 5 monitoring and control plans for IAS were developed: (a) In the plan for African grasses, only mechanical control is considered as an alternative, while no other methods with better chances of success were adequately assessed. The authors do not present solid arguments to discard</p>	<p>APFF Sierra de Álamos: reports on the control of pink grass (<i>Melinis repens</i>). There is no report on results of control after monitoring.</p> <p>Cañón del Sumidero NP: reports on the control of jaragua grass (<i>Hyparrhenia rufa</i>) and other activities. There is no report on</p>

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
			<p>other control options. (b) In the plan for wild ginger (<i>Hedygium coronarium</i>), the authors very superficially discard alternatives for chemical and biological control in four brief paragraphs, then recommend mechanical control as the only viable option. (c) In the plan for the African orchid (<i>Oeceoclades maculata</i>), control options are treated just as superficially and discarded in one paragraph, which leads to the recommendation of mechanical control as the only option. (d) In the plan for muérdago (<i>Stathanthus</i> sp. and <i>Psittacanthus calyculatus</i>), the authors follow the same logic of presenting superficial arguments against any control option but mechanical control. (e) In the plan for the armored catfish (<i>Pterygoplychthys</i> sp.) potential uses for the meat are presented in item 8 (control measures), but no control method is suggested except for mechanical control without any details about procedures and available techniques and tools. It is important to note that the authors were not able to provide science-based substantial information as a basis for control, not even using existing references. Besides, they seem biased against any form of control that is not mechanical. This approach is unfortunate and inadequate for this project, which is expected to produce models for replication and consider the cost-benefit ratio of control actions comparing different methods. The combination of methods is not even considered (such as pulling out small populations of wild ginger and using herbicides on large infestations), neither differences in technologies and techniques available and referenced in scientific literature or long-term control programs in other countries. These plans almost dedicate more text to environmental education than to discussing realistic control measures in accordance with needs of the NPA and the project. The report on the workshop for integration of the monitoring and control brigades in RB Los Tuxtlas does not include information on contents and, having been written by the same authors who developed the management plans, it seems that no control options were discussed, which seriously hinders the possibility of achieving effective results in controlling the target species. A work plan was developed for APFF Tutuaca in 2015 including a survey on four IAS (rainbow trout <i>Oncorhynchus mykiss</i>, mozambique tilapia <i>Oreochromis mossambicus</i>, pink grass <i>Melinis repens</i> and buffel grass <i>Cenchrus ciliaris</i>) by August, 2017, and management plans due in November, 2017. There is a report on the survey on four IAS in the APFF, but the management plans are delayed because there have not been applications to calls for proposals due to the presence of organized crime in the area, which generates insecurity, and difficult access to sites. There is a work plan, dated Nov., 2017, for El Vizcaíno BR for the control of three IAS (iceplant <i>Mesembryanthemum crystallinum</i>, bullfrog <i>Lithobates catesbeianus</i> and red-bellied tilapia <i>Tilapia zillii</i>) and a report on the selection of sites for control, but no report on control actions.</p>	<p>the results of control after monitoring.</p> <p>APFF Tutuaca: workplan and report on a survey of 4 IAS (the link incorrectly refers to a study on public policies).</p> <p>Marismas Nacionales Nayarit BR: report on manual control of princess vine (<i>Cissus verticillata</i>). There is no report on the results of control after monitoring.</p> <p>El Vizcaíno BR: workplan and report on the selection of sites for iceplant control (<i>Mesembryanthemum crystallinum</i>), red-bellied tilapia (<i>Tilapia zillii</i>) and bullfrog (<i>Lithobates catesbeianus</i>).</p>

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
2.2.7	Undertake ecosystem restoration in areas negatively impacted by IAS.	MU	<p>As the results of invasive plant control in the PN Cañón del Sumidero are not effective, there might not be enough time left in the project to undertake complementary restoration measures. There is a nursery in the park, but plantations will only be viable once the African grasses are under effective control.</p> <p>At RB El Vizcaíno, where iceplant (<i>Mesembryanthemum crystallinum</i>) is being controlled, a nursery was established with native germplasm, but restoration measures have not been implemented so far because control actions are still in development.</p> <p>Restoration of natural habitats takes time, and will not be viable to measure before the project end. These actions can be complemented by other programs such as ENbioMex and the 2030 Action Plan.</p>	There is no information on the project web page.

SUMMARY OF MTR CONCLUSIONS, RECOMMENDATIONS AND LESSONS

The most important conclusions, lessons learned and recommendations of the MTR are summarized below. Additional technical recommendations to support the control of invasive alien plants are presented in Annex 8.

Conclusions

General conclusion	The level of development at mid-term is Satisfactory. Baselines have been developed, a national IAS list was published, an integrated information system is under construction as well as risk assessment protocols; relevant productive sectors are involved in project implementation, best practice manuals are available, many types of public have participated in events and workshops, prevention measures and EDRR systems have been developed, some invasive plants are being controlled, terrestrial vertebrates have been eradicated or are under control on islands and biosecurity protocols are ready for application. The time left for project implementation must be dedicated to the practical application of all the information produced, from protocols to best management practices, in order to test their efficiency and mainstream these practices in the routine of government agencies in charge of IAS management.
	Outcome 1
C1	The development of the IASIS and of a national gateway on IAS are highly relevant to Mexico for providing information on IAS as a base for public policies, sectorial regulations, risk assessments, management of IAS in priority areas for biodiversity conservation and for reference to productive sectors in applying best practices. It will be important to gradually improve contents that are more specific to Mexico, as well as increase flexibility for data filters and searches.
C2	The publication of a National IAS List is a relevant outcome of the project for clearly identifying existing IAS and providing an information base for prevention, EDRR, eradication and control. A consequence of the national list tends to be the development of sectorial regulations for the conservation of biodiversity. It is desirable to complement the current list with fish and forest species. Acknowledgement of IAS used in production systems should be seen as an opportunity for qualifying the respective sectors with sustainable management and for new market products based on the sustainable production of indigenous species.
C3	The approach of engaging the most relevant productive sectors in the project is an indicator of judicious environmental management. The materials developed for these sectors (best practice manuals, certification for ornamental fishes, assessment of invasive forest species that should not be planted) need to be applied in practice by producers for actual benefits to be generated.
C4	Interinstitutional coordination is acknowledged by project stakeholders as essential for the development of IAS management because there are complex issues involved that require follow up in the mid and long terms. Improvement in cooperation between environmental and agricultural, aquaculture and border inspection agencies is widely acknowledged. It is highly desirable to engage the PROFEPA General Directorate for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems and the SEMARNAT General Directorate for Wildlife so that IAS issues can permeate the respective legal attributions. Representatives of institutions which have participated in the project believe that institutional and intersectorial coordination will be key for the success of IAS management in Mexico.
C5	Outputs 1.17, 1.1.11, 1.1.12, 1.3.1 and 1.3.6 are less developed and require special attention of project managers and supporting committees for the expected results to be produced before the project ends. It will be unlikely to produce changes in national laws as expected from output 1.2.1. This issue has not been prioritized from the beginning of the project, there is not much time left, and upcoming elections will interfere in political support. Even if actual changes are not feasible, it is possible to develop objective proposals, for future reference, to include IAS in relevant national laws mentioned in the project.
	Outcome 2
C6	CONANP is a key partner to the project due to its responsibility for Natural Protected Areas , and expected to continue the activities and expand them to other NPA after project closure. In spite of the dedication of the Coordination for IAS at Central CONANP, its level of influence on actions developed in NPA is hindered by lack of personnel, too diverse responsibilities, and institutional arrangements. NPA Directors are hierarchically higher than the Coordinator for IAS at Central CONANP. This has affected the possibility of coherence for all actions in place in continental NPA that are supervised from Central CONANP as a link to the project. Experimental methods with a poor technical base have been tried out in different NPA without yielding satisfactory results. Even if the Central Coordination for IAS were in charge of providing management guidance, it would not be able to do so for lack of technical expertise. This Coordination needs to be solely dedicated to IAS to be able to implement the actions in the project, extend them to other NPA in the future and guide implementation. It is highly desirable that the Director of the Department for the Conservation of Priority Species, who is hierarchically at the same level of NPA Directors, gets more involved in IAS management, especially on key issues that require assistance for implementation and which are to be continued and extended to other NPA.

C7	<p>While the control of invasive alien vertebrates on islands is a global reference of success, the control of invasive alien plants has not yet defined viable, cost-effective methods. The country seems to lack the expertise of invasive plant management in natural areas, as the work carried out so far lacks technical reference and a scientific base, not building on work carried out in other countries, often on the same invasive species. Restrictions of authorization by CONANP for certain control methods hinder advances for cost-effective control. The best available technologies have not been used, which reflects lack of technical capacity to conduct invasive plant management and the need for specific capacity building for CONANP and SEMARNAT staff in charge of control and permits, as well as for workers in the field.</p>
C8	<p>Although no specific control action for aquatic plants is part of the project, some NPA Directors have not authorized the use of biological control for invasive aquatic plants. This implies lost opportunities to control these threats and restore aquatic ecosystems and their ecological functions. IMTA has identified and isolated biological control agents and has the expertise to implement biocontrol in Mexico. The control of invasive aquatic plants is generally more complicated because of limited possibilities of herbicide use (which have to be specifically registered for use in aquatic habitats) and because of the inherent difficulties and costs of working in aquatic environments. In many countries, biological control is often only dedicated to agricultural pests, while there is no interest or expertise in using biocontrol for environmental management. This opportunity is available in Mexico and must not be discarded for lack of understanding or fear of negative impacts, as it is feasible to work at low levels of risk. The impacts of not doing anything must be compared to potential negative impacts of management. It is very important that NPA Directors of areas where aquatic plants are invasive improve their capacity for IAS management and especially receive information on biological control so that the level of opposition to its application is reduced.</p>
C9	<p>Project implementation is advanced and capacity building for IAS management has been ongoing at various levels (awareness, increased knowledge, institutional capacities) and types of public. The project must now clearly focus on the practical application of all the products developed so far, especially in prevention, EDRR and invasive plant management. As the lack of personnel that can dedicate time to IAS in some protected areas hinders the pace of implementation, it is desirable to assign more personnel for work on IAS. Capacity building efforts should focus on ensuring that these actions are carried out as expected.</p>
Project management and M&E	
C10	<p>The indicators developed when the project was designed have affected the monitoring of the 36 outputs to be implemented. The complexity of the project, given the number of outputs and stakeholders involved, combined with problems in project design, especially the lack of measurable indicators that represent expected outcomes and changes in planned activities, have created monitoring difficulties and risk of failure in achieving what was initially planned. For example, in some NPA, species and areas planned for control were altered, but the corresponding indicators were not adjusted; the control of five invasive plant species in Arrecife Alacranes NP was replaced by a survey of native plants. These are diversions from the original plan that have not been properly explained and adjusted. The development of baseline studies was also not properly considered in project design, and have taken much longer than expected.</p> <p>The MTR Team found it very difficult, in some cases, to find organized information on some of the project outputs and activities. Reports are often not available, or do not inform progress clearly. There are no reports on some of the outputs, and some products are referred to more than one output in different components. Many products available from the project page on the CONABIO website are not organized with a clear relation to their corresponding outputs and there are outputs for which no information is available. Only subcomponent 2.2 is well organized in this sense, although reports on consultancies paid with complementary funds such as PROCER are not available. Among the files sent to the MTR Team for the evaluation, (reports, products and project documents) there is no information on several outputs in Component 1.</p> <p>The MTR Team evaluated the indicator matrices based on available material (Strategic Results Framework and Indicators per Output), but considered it necessary to compile a third table to evaluate all the outputs (Table 4), as many are not covered by the indicators.</p> <p>During the MTR, it was often mentioned that during the design phase the guidance received from the UNDP was to avoid an excessive number of indicators, and to focus on global results rather than on each output. Indicators can be set for any part of a results chain, but should always be related to expected outcomes. As it is difficult to measure change, few SMART indicators are desirable. Still, there must be a sufficient set of indicators to measure progress and the scope of change achieved.</p> <p>The possibility of adjusting indicators was discussed in meetings during the MTR mission in order to improve the measurability of progress in project implementation. In the process of writing the MTR report, and assessing each set of indicators, it is clear that most of the indicators would require adjustment, which would demand a large amount of work by the PMU. At this point of advanced implementation, the MTR Team does not recommend adjusting the indicators to avoid deviation from the main activities that need to be consolidated. The M&E tables should be updated periodically to facilitate follow up, but remaining implementation time must be dedicated to the practical application of all information produced on prevention measures, EDRR systems, control and best practices applied by productive sectors. These activities are now more important than educational workshops, as these are the outcomes that can make a difference for the conservation of biodiversity of global importance, the overall objective of the project.</p>

Lessons that may be useful to the project (best practices and practices that require improvement)

Project design – Lessons learned

Had the project initially developed better **indicators** in the Strategic Results Framework, the advances and achievements of the project could be better measured, with a clear understanding of outputs, products, impacts and tangible results. An improved assessment of performance of the project and participants would bring out the need to redirect or adapt activities in order to achieve the expected results.

To design a project with 36 outputs to be managed by a small PMU of 3-4 persons without **SMART indicators of progress and results** has created difficulties in follow up and in providing a clear, concerted view of the entire project. Difficulties in locating consultants with expertise and capacity on IAS to carry out project demands do not seem to have been accounted for in the design phase. To advertise calls for consultancies on websites of other partner organizations, not only the UNDP, might increase the chances of reaching professionals who are interested in working for the project.

Project management – Lessons learned

Projects with multiple outputs and stakeholders that require many consultancies should develop **detailed hiring processes and M&E tools for easy follow up**. It is important to define criteria and specific contents for reports beforehand in order to increase compliance with UNDP and GEF standards in reports delivered by consultants. The implementation of activities has suffered delays in some cases because reports were repeatedly reviewed until the expected standards were reached. These processes are related to the scarcity of professionals with experience or expertise on IAS management in natural areas.

Limiting the management of **funds to each fiscal year** (administrative arrangements) causes delays in project activities, as noted in work by CONAFOR and in NPA. Multiannual contracts would be more effective to avoid interrupting ongoing work and to enable planning and requesting permits for execution at ideal times of the year in areas where control is dependent on climatic conditions.

Capacity building on IAS is essential for the project to achieve the expected results and have support from those involved. Contents should include basic concepts, impacts, species persistence and control methods. This is a new issue for many people who require capacity building and information at different levels, from technical capacity for management in relevant government agencies to legislators, academics and workers applying prevention, EDRR, eradication and control measures in the field and environmental education for the general public. The focus of the project on strengthening national capacity on IAS could not have been better designated, as several limitations and implementation delays have been registered in this report for lack of capacity and of specialized professionals on IAS in Mexico.

Project management – Best practices

Establishment of a **Scientific Committee** for support to project implementation, in addition to the Technical and High-Level Committees, with the prospect that all committees will continue working after the project ends to support the implementation of the National Strategy on Invasive Species. This structure is recommended for other GEF projects, especially when dealing with issues that are considered new by many of the stakeholders involved, such as IAS and climate change.

Project management – Practices that require improvement

This project includes important examples of indicators that have not been functional for M&E. This is a common issue in large projects, and often a result of not having quantified information in the design phase for all aspects that require monitoring. As actions are implemented and more information becomes available, project managers often find it necessary to adjust outputs and make use of adaptive management. Two situations emerged in this project: (a) outputs were altered without corresponding adjustments in indicators, which impaired the measurement of results and project performance; and (b) outputs that no longer made sense were maintained because they are represented in indicators. These situations arose due to the **inflexibility in adjusting the indicators**, leading to investments that could have been better directed and irrelevant results. It would be important that the rules set for project implementation allowed some flexibility for adjustments in outputs and indicators based on solid needs of adaptive management, especially during the first year of implementation, when most of the planned activities are validated.

Component 1 – Lessons learned

Some **outputs were not well designed** in terms of the time estimated for their achievement. A viability study should have been carried out before expectations of **changes in national laws** were included in project design. Five relevant national laws are mentioned in the project plan, creating expectations for changes to include IAS issues. At this point, this is not viable, both because the time left for implementation is too short, and because of national elections in 2018. It is more realistic for four-year projects to develop proposals for changes at that level, but not to commit to such results, as the chances of unsatisfactory results are rather high.

Component 1 – Best practices

To invest in improving **national coordination** on IAS by engaging government agencies with several responsibilities, direct and indirect, related to IAS. To engage key productive sectors is a strategic approach for the management of IAS pathways and vectors, as well as to produce cultural changes on the use of alien species, as is the case of promoting a native species of fish (tenguayaca *Petenia splendida*) for production.

The decision by SEMARNAT to support the **UMA** (Management units for the conservation of wildlife) that use native species rather than alien species. CONABIO prepared a database for SEMARNAT on production practices in UMA for support in selecting the units to receive incentives (the tool requires updating in order for the quality of the policy to be maintained).

The initiative by SENASICA of verifying the possibility to **unify sanitary and environmental certification** in single permits.

The initiative by **ornamental fish producers** of developing certification standards considering environmental risks posed by IAS and their impacts to natural areas and to biodiversity.

Component 1 – Practices that require improvement

Not separate invasive alien species from other species that are alien or native in reports and in the information system under construction (IASIS). This is a new and complex issue for most people, including those who have technical qualifications in environmental work and related areas. It is very important to provide clear, objective information without confusing lists of species. The IASIS web page must include the concepts of native, alien and invasive alien species used in Mexico, as well as the criteria used to include species in the database. This is especially relevant because the concepts

used in Mexico differ from those adopted by the Convention on Biological Diversity and most countries (where alien species are those outside their native ranges, whether in the same country or not).

Component 2 – Lessons learned

The time initially estimated for the development of some **outputs was not realistic in the project design**. Actions that involve many stakeholders, such as the establishment of subcommittees to support IAS management, take long because it is necessary to begin with basic explanations of concepts and impacts, then allow time for some maturation before it can be discussed in a larger, more diverse group. All NPA subcommittees were planned to be established during the first year, which was rather unrealistic. Three of them are still in process of development after more than three years of project implementation.

When approaching stakeholders to form **subcommittees to support IAS management** in continental NPA it is better to begin by holding meetings with communities to explain the proposal and the basic concepts. This increases their understanding of problems and possible solutions. To perform a previous assessment of stakeholders is also useful before for presenting proposals, as the local context must be considered. Approaching communities first has proved useful to avoid conflicts that often come up in meetings with government agencies due to land ownership and other problems which undermine collaboration. Although invited, representatives of **government agencies often do not attend meetings** in some areas, indicating the need for former contact. For these reasons, the establishment of committees is not straight forward and may take much longer than planned.

Vertebrate eradication and control programs need to be complemented by the **application of island biosecurity measures** to reduce the possibilities of new introductions and loss of investments in eradication. Once the application of biosecurity protocols is consolidated for the six islands contemplated by this project, it should be extended to other islands with appropriate adjustments to particular realities.

IAS eradication and control programs must be temporal and spatially sustained over time to be effective. Complementarily, financial resources and well-trained workers must be available. Mechanical control carried out by community workers who live in the surroundings of NPA has been frustrating, especially in the case of African grasses, as the areas subjected to control recovered fast and smothered seedlings of native trees that had been planted. Some workers mentioned being afraid that people would see the reinvasion and think that the control work had not been properly done. In some project reports the “eradication” of African grasses is mentioned when only one control effort was carried out and no follow up action was executed. The term “eradication” must be used cautiously, as eradication is difficult to achieve, while control is more realistic. Eradication requires sustained control and is often not viable, at least in the short term. Biological invasions are complex problems that require sustained actions over time, using adequate techniques with a diversity of available tools and products, complemented by technical capacity for management in natural areas to define the techniques and methods appropriate for each situation.

The **cost of invasive plant control** has been very high due to resistance in using more effective control methods. Experimentation without technical background has taken long and not generated good results. Integrated management should be adopted by the NPA in the future rather than mechanical methods, making use of the best methods and tools available for each species.

Component 2 – Best practices

Eradication of vertebrates on islands, including feral cats on Socorro Island, where only sustained control was expected, based on solid scientific and technical knowledge and the use of best available technology for excellent results.

The adoption of **trained dogs in biosecurity inspections** for islands and control of vertebrates.

The **production of native plants** for environmental restoration on Guadalupe Island by GECl. Relevant scientific knowledge was developed to reach an outstanding rate of seedling survival in the field based on physiological and environmental characteristics. It is very important to systematize and share this information so other restoration projects can use the technical principles developed. An estimate of seedling production costs should also be made for future reference.

A group of collaborators was formed at **RB Sian Ka'an** for implementing practical IAS control measures, such as phytosanitary brigades of the state government, groups of fishermen in the Punta Herrero community and personnel in the Biological Reserve. Once problems are identified, the groups carry out control actions as needed.

The EDRR system designed for **PN Cañón del Sumidero** includes an open form for any alien or unknown species to be reported to the park management for verification and rapid response when necessary. At **APFF Sierra de Álamos Río Cuchujaqui** any sightings of alien or unknown species are also requested to be reported.

The establishment of **subcommittees** to support IAS management because they enable communities to feel included and participate in decision-making that affects the areas where they live.

Component 2 – Practices that require improvement

Limit invasive alien plant control to mechanical options in several NPA and limit recommendations in consultancy reports to mechanical control when there is a wealth of information available on the control of invasive plants from many countries, including the leaders on IAS management at the global level. These recommendations have ignored the existence of the Scientific Committee, which can advise better methods for best cost-effectiveness.

Some NPA Directors have not allowed the use of **biological control**, especially for aquatic invasive plants that cause relevant damage and economic losses to Mexico, while IMTA has the expertise required for careful application with support from other countries where the same methods and agents have been used with significant benefits. Biological control agents are defined for giant cane (*Arundo donax*), an aggressive species of difficult and costly control, and water hyacinth (*Eichhornia crassipes*), but have not been released for lack of authorization (although not related to project activities, but to other cases of invasion by aquatic plants in NPA), again reflecting lack of capacity for objective decision-making., again reflecting lack of capacity for objective decision-making.

Not provide **personal protection equipment** for workers carrying out mechanical or chemical control of invasive plants, and not using adequate tools to facilitate and qualify human work, such as weeding machines that can spare people the hardest work and increase productivity and the cost-benefit ratio of control.

Recommendations

Color code: orange: maximum priority; light yellow: priority 2; light blue: priority 3; gray: beyond project implementation.

Rec. #	PROJECT: Enhancing national capacities to manage invasive alien species (IAS) by implementing the National Strategy on IAS.	Organization in charge
P	<p>Concentrate efforts in the time left for implementation on the practical application of the knowledge base generated by the project and finalize pending studies, increase the flexibility and scope of IASIS, correct the rapid risk assessment protocol (MERI) and consolidate the other risk assessment protocols, consolidate studies on cost-benefit of control and economic impact of IAS in Mexico, recommend regulations for IAS or groups of IAS in the National List, pursue the engagement of the SEMARNAT Wildlife Directory and the involvement of PROFEPA General Directorate for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems, establish multi-sectorial agreements or coordination models for ongoing IAS management and the implementation of the Nacional IAS Strategy; consolidate the application of best practices by productive sectors and of prevention measures, EDRR at points of entry and in NPA, consolidate the leadership of CONANP in the application of island biosecurity protocols, finalize the eradication of vertebrates as planned (goats on Espiritu Santo island) and restart the control of invasive plants with a technical and scientific base with support from the Scientific and Technical Committees.</p>	PMU and partners
Outcome 1		
R1	Develop and disseminate information on complementary lists of groups of species that were not included in the National List or update the National List in coordination with government agencies in charge of the missing species.	CONABIO, SEMARNAT, CONAFOR, CONAPESCA
R2	Consolidate risk assessment protocols in user-friendly systems (e.g. Excel) and adjust the rapid assessment protocol (MERI), providing validation tests to ensure there is no bias. Pursue options to formalize the use of risk assessment by agencies in charge of authorizing species imports for different uses in order to establish an impartial and consistent risk assessment process that includes biodiversity concerns. Pursue the inclusion of biodiversity criteria in risk assessment protocols used by SENASICA.	PMU, CONABIO, SENASICA, SEMARNAT
R3	<p>Strengthen the sectors within SEMARNAT in charge of IAS in order to: a) improve IAS management, b) optimize authorization processes for eradication and control actions and to establish an expedited process for rapid response actions in EDRR systems in coordination with CONANP and c) ensure resources are available for the implementation of the National Strategy on Invasive Species. SEMARNAT personnel responsible for IAS management might require specific training to allow for proactive institutional coordination with CONABIO, CONANP and other government agencies in complementary sectors in charge of species introductions or sectors that function as pathways and vectors of IAS introduction and spread. This increase in capacity is highly relevant to support the implementation of the National Strategy on Invasive Species, especially after project closure. In the meantime, the project provides an important opportunity for advancement in the process of institutional coordination.</p>	SEMARNAT
R4	<p>Replicate biosecurity protocols developed for ornamental fishes to other species in aquaculture, pursuing a public policy to support producers in the implementation of biosecurity measures. Considering that aquaculture represents an expanding market, many new introductions of fishes, biological invasions and impacts due to the escape of alien fishes from breeding stations can be avoided.</p>	CONAPESCA, INAPESCA

	Outcome 2	
R5	Strengthen the Central CONANP Coordination for Invasive Alien Species by assigning more personnel or allowing the Coordination to be exclusively dedicated to IAS management. This will improve management efficiency and increase support to NPA in order to ensure that all pending actions in the project are implemented in due time, as well as for future replication to other NPA. A higher level of involvement by the Director for the Conservation of Priority Species is desirable, as this position is levelled with NPA Directors. This is especially relevant for decision-making in key moments to ensure implementation of prevention measures, EDRR and control of IAS.	CONANP
R6	Control five invasive plant species in PN Arrecife Alacranes (planned for year 1) with support and permits issued by CONANP for mechanical and chemical control as needed and based on technical reference for each species and/or experts in invasive plant control. Conclude goat eradication on Espiritu Santo Island using the most viable methods and considering the cost-benefit ratio. Eradication must proceed based on hunting and complementary methods to ensure success. CONANP must support the work and provide the necessary permits for eradication to be achieved in a few months, as planned, to prevent the goat population from increasing, as well as the costs involved.	GECI, CONANP
R7	Systematize vertebrate eradication processes and verification methods for early detection alerts on islands for reference to other areas and projects. These references are especially important for CONANP in the application of EDRR systems, as it is not viable for GECI to travel to each island upon early detection alerts. CONANP must consolidate the capacity to verify the presence of IAS upon early detection alerts and carry out at least basic control and contention work as indicated in rapid response protocols.	GECI, CONANP
R8	Take the lead in applying biosecurity protocols for insular NPA, supported by the CONANP Department for Priority Species for Conservation (DEPC), General Directorate for Regional Operation (DGOR) and Regional Departments for NPA so that GECI takes a supporting role, inverting current roles. As GECI is an NGO, it can provide technical support, but does not have the legal mandate to enforce the necessary actions except for voluntary cooperation by the public. In this case, a government institution must take the lead in ensuring that the biosecurity protocols are effective. Besides, the presence of GECI on islands depends on projects, being occasional, while the presence of CONANP is sustained.	CONANP
R9	To promote simulations of EDRR systems developed for NPA (response chains) in order to test their efficacy and as a way to build capacity for NPA personnel. Once the effectiveness has been evaluated, the protocols should be disseminated for replication in other NPA.	PMU, CONANP
R10	Not perform experiments in the control of invasive plants without a technical basis. It is desirable to nominate one person to be in charge of IAS control in NPA, as well as one focal point in the Coordination for IAS in Central CONANP, who receive specific training to provide qualified technical support to ongoing control work. The best methods available must be applied, making use of existing experience and technical and scientific knowledge, in order to increase the chances of consolidating efficient control methods before project closure. Urgently implement new invasive plant control measures to consolidate replicable methods. Use chemical control for alien invasive grasses and estimate costs and efficacy in comparison with mechanical control. Make use of the expertise available in the Scientific Committee to support these actions and pursue capacity building alternatives outside Mexico if necessary, as there seems not to be much experience on integrated management of invasive plants in natural areas in the country.	CONANP

R11	<p>Organize a capacity building workshop for NPA Directors and personnel in the Central CONANP Coordination for IAS on threats posed by IAS to biodiversity, impacts, prevention measures, EDRR, eradication and control, available tools and methods, including biological control and chemical control, including content on control techniques and chemical products that are viable for use in natural areas for managing animal and plant IAS.</p> <p>Provide capacity building for CONANP staff on insular NPA to: (a) apply biosecurity protocols on islands, with clear roles for each part of the process; (b) post-eradication monitoring of IAS, installation and verification of early detection devices (baiting stations for rats, cat traps, etc.); (c) rapid response actions in case of early detection alerts, with command of different techniques and methods as necessary; (d) pursue support from communities that live and use the islands to prevent the introduction of pets and implement EDRR, with balance in female participation.</p> <p>Provide capacity building for CONANP staff in continental NPA on: (a) concepts, impacts, vectors and pathways of IAS introduction and spread; (b) prevention and EDRR applied to each NPA, with participation in the design of measures customized to the specific context of each NPA; (c) practical training for the application of prevention measures and EDRR with focus on early detection and immediate action on individuals or small populations of IAS, including practical simulations; (d) management of invasive alien plants, including content on different techniques and chemical products viable for use in natural areas and practical application in the field, in order to enable NPA staff to support and continue control actions initiated by workers and maintain monitoring of areas under control as well as intervene with repeated control actions at least in the case of small populations or initial invasions, or when there are no funds to hire external work.</p>	PMU, CONANP, CONABIO
Project management and M&E		
R12	<p>Ensure the extension of the project deadline to the end of 2019 in order to allow enough time for practical implementation of all the information produced through the project as well as for mainstreaming IAS management commitments in the new government.</p>	UNDP
R13	<p>Support the PMU in project management on the constant changes in administrative processes that may cause implementation delays. Carry out an assessment of processes that cause delays in project implementation, especially the approval of consultancy reports and other products. Seek ways to improve the initial quality of reports by providing consultants with a proposed structure and minimum contents to facilitate approval. This is important to optimize product reviews and, especially, to make sure that payments are completed in due time to allow for field activities to be carried out as necessary.</p>	UNDP / PMU
R14	<p>Strengthen the PMU with more personnel in this final implementation phase to ensure that all outcomes are achieved, especially due to the current changes in administrative processes of the UNDP.</p>	CONABIO
R15	<p>Systematize information on progress, achievements and limitations of the project for use in project management and especially for the Terminal Evaluation. Use the indicator and output tables updated for the MTR (Tables 2 and 8 – Strategic Results Framework, Table 3 – Indicators per output, Table 4 - progress per output and the Management Effectiveness / Institutional Capacity Tracking Tools), to monitor project implementation. The MTR Team does not recommend reviewing the indicators at this point in implementation because many would require revision, diverting efforts that must now be focused on the consolidation of activities and best practices. The set of tables is comprehensive and covers all the expected results and includes justifications for changes to activities initially planned. In the Outcomes section per component in the project web page (CONABIO website), link each file with the respective output and include brief summaries for those outputs that have not advanced or for which there are no products so far, so that anyone can find organized information and understand advances made by the project. Include reports and products from complementary sources, such as PROCER reports on plant control in NPA, on the web page, organized by topic and by NPA.</p>	PMU, CONANP, GECI

R16	Look for co-financing sources in complementary sectors, such as multilateral and bilateral cooperation agencies, development agencies, private sectors and foundations, NGOs and beneficiaries. This search for external alliances should be supported by the project Committees and Central CONANP.	High-Level / Technical Committees, Central CONANP
Recommendation for the mid-term – Regulatory Framework		
R17	<p>Mainstream IAS prevention and control into sectorial regulations of productive systems (aquaculture, forage grasses, forest products and others) and develop regulations for unregulated sectors (pets, ornamental plants and others) in order to reduce IAS escape and impacts of these sectors on biodiversity and ecosystem services.</p> <p>Develop regulations to legally formalize the use of risk analysis to evaluate species introductions to Mexico.</p> <p>Publish a legally binding National IAS List for reference inclusive of all biological groups, i.e. joint regulations between SEMARNAT, SAGARPA and CONAPESCA.</p> <p>Include obligations to enforce biosecurity protocols for islands (NPA) in the CONANP institutional framework.</p> <p>Improve the inclusion of IAS management issues in relevant national laws on biodiversity and economic production.</p>	SEMARNAT, SAGARPA, CONANP, CONAPESCA

1 INTRODUCTION

1.1 PURPOSE OF THE MID-TERM REVIEW (MTR)

The main objective of the MTR is to verify progress in project implementation, to assess the efficacy of the M&E plan and to register adaptive management used to improve results and identify factors that might jeopardize expected results and project sustainability. As a result, the MTR must provide constructive recommendations for attainment of project outcomes by project closure, as well as contribute to produce experiences and products that may be replicated to other areas and projects.

The MTR is an independent process based on GEF and UNDP guides and monitoring procedures. It includes an assessment of project design and of the implementation of activities to the moment of the evaluation.

1.2 SCOPE AND METHODOLOGY

The MTR team was formed by an international evaluator (Dr. Silvia R. Ziller, from Brazil), Team Leader, and a national evaluator (M.Sc. Margarita García Martínez). The review was conducted between March 15 and June 25, 2018. The methods used followed the criteria and standards in "Guidance for conducting Mid-Term Reviews of UNDP supported, GEF-financed projects". The highest ethical standards were maintained during the review process.

Before the mission in Mexico, and in agreement with the Terms of Reference (Annex 1), the MTR Team reviewed the main project documents (Annex 2) and prepared an Inception Report, which was submitted on March 29 and approved on April 9, 2018. The most relevant documents at this early stage were the PRODOC, Management Effectiveness Tracking Tool (METT), annual and quarterly reports 2015, 2016 and 2017, Project Implementation Report – PIR 2017, financial reports, including data on co-financing and operational plans, and documents produced as results of the project. A detailed analysis of the products is part of this assessment in section 3.1. The MTR was conducted taking into account the basic criteria of Relevance, Effectiveness, Efficiency, Sustainability and Impact, as defined by the UNDP.

The mission in Mexico (agenda and itinerary in Annex 3) was carried out between April 9 and 27, 2018, for interviews with the project management team, the implementing agency, the executing agency and project partners (complete list of persons interviewed in Annex 4), as well as for visits to project sites (Annex 5). Interviews were conducted based on the evaluation matrix prepared in advance (Annex 6), and were essential to complement the information obtained from documents and products and to compare planned activities with actual implementation and the perceptions of interviewees about the project.

A participatory method was used in order to ensure that the perceptions and comments of people in government agencies, academia, NGOs, communities and others were collected and considered. UNDP staff in Mexico City and the Regional Technical Adviser in Panama, Lyes Ferroukhi, the Project Management Unit and CONABIO were consulted on their vision about the project and its sustainability, progress to date, and recommendations for the MTR.

Presentations on activities developed locally were made during the field visits to project sites selected by the PMU and MTR Team. After the presentations, the MTR Team followed up by interviewing each group or persons in separate to ensure representation of different institutions. The evaluation matrix was useful in these interviews to maintain focus and consistency. Questions varied in accordance with the public, their knowledge of project activities, and their role in the project.

The mission was well planned and very productive. Some of the visits to project sites were very important for the MTR Team to understand the scope and context of project implementation on the ground, as well as the level of commitment by government institutions, NGOs and community members. NPA Directors and personnel were particularly good indicators of the level of commitment attained in project sites, as well as of existing difficulties. Travel hours between sites were useful for interaction with the PMU and CONANP Central – Coordinator for IAS. The number of days planned for the MTR mission was sufficient for gathering information, although it was unfortunately not possible to reach the island of San Benito due to unfavorable conditions for navigation. Complementary exchanges by email, telephone and skype after the mission also helped clarify some issues and request materials that had not been made available at first.

At the end of the mission, on April 27, 2018, in Mexico City, the MTR Team made a presentation on initial findings for the UNDP, CONABIO, CONANP and the PMU. Findings were organized according to the five main criteria of the review, followed by achievements, limitations, lessons learned and potential recommendations. Comments received in this meeting were important for the MTR report. The draft version of the MTR report was submitted by email on May 18, 2018. Comments were received on June 1st, analyzed and considered for the final version of the MTR report, delivered on June 8, 2018, in Spanish and in English, strictly following the deadlines defined in the Terms of Reference. The EMT Final Report was delivered in the established timeframe and format.

However, once the final report was delivered, UNDP Mexico decided to extend the deadline for comments from project partners until June 15. A second version of the final report was generated to include three new comments (most of the partners did not respond). UNDP Mexico then decided to extend the deadline again to allow for comments from the UNPD Regional Technical Advisor in Panama and the GEF Focal Point (this was not expected, according to the ToR). At this time, CONANP requested a teleconference that took place on June 20 in order to go over a few issues in the report. These issues were clarified and the report was adjusted again. On June 25, the third version was delivered including these changes. No comments were received from UNDP Mexico.

On July 4, the PMU sent a few comments on details of writing (while waiting for UNDP Mexico to conclude the EMT process) and the fourth version of the report was delivered on July 13 (always in Spanish and in English). On July 30, the PMU informed the MTR Team that the report could be closed, although no comments were received from UNDP Mexico on the report or on the expected feedback from the UNDP RTA or GEF Focal Point. Therefore, on August 1st, 2018, the final (5th) version of the final report was delivered in Spanish and English to include the details of the process of revision.

1.3 STRUCTURE OF THE MTR REPORT

This document is organized in three parts. The first part includes the introduction, the purpose of the MTR, its scope and methodology. The second part covers sections 2, 3 and 4, which include the MTR results for each phase of the project in terms of:

- a) project design: duration, issues covered by the project, objectives, indicators, participation of stakeholders, expected results and design ratings;
- b) project implementation: activities and results to date, work plans, financial planning and implementation pace, focus, stakeholder ratings, mechanisms of project information and dissemination of results and information;
- c) results and sustainability: project ratings to date, context analysis, assessment of indicators of impact and perspectives of sustainability.

The third and last part covers conclusions, recommendations and lessons learned.

2 PROJECT DESIGN

2.1 PROJECT START AND DURATION

The project was initially planned to begin in June, 2014, with four years for implementation. The inception workshop took place in Mexico City on June 16 and 17, 2014, but, due to legal issues, project start was delayed until November 13, 2014. To make up for this delay, on March 3rd, 2015, the CONABIO Director General for Analyses and Priorities made a formal request to the UNDP for the closure date to be postponed from December 31, 2017, to December 31, 2018. In November, 2017, another request was sent to the UNDP representative in Mexico, Antonio Molpeceres, for an extension until December 31, 2019. The extension request was based on personnel and financial cuts to government agencies involved in the project, as well as the change in national government at the end of 2018 due to presidential elections. As these factors affect the pace of project implementation, the extension is coherent and will allow the PMU to renegotiate commitments with the new government. The project was designed based on a different national government and financial reality, so the extension is very important to increase the perspectives of sustainability once the project ends.

2.2 PROBLEMS THE PROJECT SOUGHT TO ADDRESS

Existing capacity in Mexico to effectively manage and/or prevent the introduction, spread and impact of invasive alien species into and within the country depends on overcoming critical barriers. These is the source of the problems this project sought to address. Barriers can be grouped in two categories:

- 1 – incomplete national management framework to support the implementation of the National Strategy on Invasive Species with coherence and efficiency;
- 2 – lack of effective strategies and tools for the management of pathways and vectors of introduction and spread in key productive sectors and for the management of IAS in priority areas for the conservation of biodiversity.

The project aims to strengthen national capacity for the IAS management and to establish prevention, early detection and rapid response (EDRR) models. A smaller part of the project budget is aimed at developing eradication and control models for replication to other areas and projects.

This approach is somewhat new to Mexico. Some government institutions, mainly CONABIO, as well as universities, have been developing activities especially for IAS management at the national level (National Strategy, IAS list) and generating technical and scientific information, as has been GEI on the eradication of vertebrates on oceanic islands. But IAS is a new topic for most of the stakeholders, which requires expanding their vision and knowledge. Openness is essential for the establishment of prevention, EDRR, eradication and control programs, and monitoring, among other activities in IAS management. Project design was coherent in terms of scope by covering the need to increase national capacities for the implementation of the National Strategy on Invasive Species.

2.3 IMMEDIATE AND DEVELOPMENT OBJECTIVES OF THE PROJECT

The project objective is to safeguard globally significant biodiversity in vulnerable ecosystems by building capacity to prevent, detect, control and manage IAS in Mexico. The expected outcome is the conservation of biodiversity of global importance by providing protection of IAS impacts.

The immediate objectives are organized in two components. The first component (1.1) aims to strengthen national capacity by generating decision-making tools and cost-effective management decisions to address IAS threats in key landscapes and key sectors; (1.2) is focused on sectorial guidance and regulations to strengthen the control of main IAS pathways; and (1.3) aims at establishing a multi-sectoral institutional framework to implement the National Strategy on Invasive Species.

The second component is focused on preventing the introduction, establishment and spread of IAS in 15 Natural Protected Areas [six islands (2.1) and nine continental areas (2.2)] by implementing biosecurity measures and working with key productive sectors on the adoption of best practices and on prevention, eradication and control of IAS in NPA with sustained management and the development of EDRR systems.

The immediate objectives are well designed for covering key issues in the implementation of the National Strategy on Invasive Species and for making way for M&E. The most sensitive topic is the need to strengthen the political and legal frameworks, because any goal in this realm is ambitious due to the time it takes for proposals of change to major laws to be negotiated, considered, evaluated, and finally implemented. This process is most often beyond project capacity because it can take much longer than four years to complete, especially with national elections on the way.

2.4 INDICATORS

Project indicators are presented in Section II of the Project Document (PRODOC), in the Strategic Results Framework. These indicators were aimed at measuring change at the national level as well as progress and impact during implementation. They are the base of the project Monitoring and Evaluation (M&E) system.

These indicators did not encompass all the activities neither measured advances clearly. A complementary table with indicators was conceived for the M&E plan in order to measure progress towards the general objective as well as outputs. A baseline and end of project goal were included in this second set of indicators.

A third set of indicators at the portfolio level (GEF *Tracking Tools* - TTs) was included in the M&E plan. These measure progress towards global goals in GEF projects established in the Strategic Results Framework. All three sets of indicators are included in the PRODOC (SRF, Output and TT).

Four categories of progress are taken into account in the MTR. The first one refers to the project strategy, which includes project design and expected results. Therefore, a detailed assessment of indicators and SRF is carried out to verify if the "SMART" criteria were adequately applied (Specific, Measurable, Achievable, Relevant and Time-bound indicators) and to suggest changes or adjustments if necessary.

As a result of this analysis, considering project design and the M&E plan, some relevant conclusions were derived (see 3.1 for details on indicators):

- i) to measure progress with two sets of indicators creates difficulties, especially when not all activities are encompassed;
- ii) goals are only time-bound in a few cases, referring to year 1, 2 or 3 of implementation;
- iii) not all indicators are SMART, as **in some cases indicators:**

- a. are not Specific (the objective or baseline is ambiguous); indicators must use clear language to describe a specific future condition;
- b. are not Measurable, for lack of objective or quantitative parameters;
- c. are not Achievable, as indicators must consider stakeholder capacity. This issue was discussed and considered in the risk assessment developed during project design and presented in the PRODOC;
- d. are Relevant, as project activities contribute to the national development framework, but not clear in terms of what impact to measure;
- e. are not time-bound, with a few exceptions, so it is assumed that most indicators refer to the end of project. This makes it difficult to measure progress during implementation, and increases the risk of activities not being developed at a proper pace to allow achieving expected results at the end.

2.5 STAKEHOLDERS

A significant number of government agencies and organizations were involved in the project, which is coherent with its objectives and expected outcomes of mainstreaming IAS management at the national level. CONANP is an essential partner for management in protected areas, as well as SEMARNAT for legal and regulatory issues, while the involvement of SENASICA, PROFEPA and CONAFOR is key to develop prevention and EDRR programs, given their complementary roles in border security. Other institutions linked to SAGARPA are key for the work with productive sectors, especially INAPESCA and CONAPESCA, as well as CESAEM for practical application of best practices in aquaculture. The expertise of IMTA on aquatic plants and biological control is important for assessments of regional hydrology associated to changes that favor the spread of invasive aquatic plants. Besides government agencies, the engagement of universities to increase the level of knowledge on IAS, develop methods and models, as well as of NGOs and communities to apply practical measures, is key for the project to have balance and reach out to a larger public. Although the list of stakeholders may seem long, the prospection of roles and responsibilities was adequately done during project design to ensure that outputs would be undertaken by the right organizations.

Table 1 – Project stakeholders.

Organization	Activities in project framework
Government	
National Commission for the Knowledge and Use of Biodiversity (CONABIO)	Project Executing Agency in charge of management and follow up. In charge of developing information systems, participatory IAS management networks and the National Gateway on IAS for public - open access information. Coordinates and collaborates with other projects, including rapid risk analysis; detailed risk assessments; production of information for the official IAS list and in the development and implementation of education and awareness programs, among other project outputs.
National Commission for Natural Protected Areas (CONANP)	Participation in project design. Project co-management agency (overview of activities in continental NPA and support to programs in insular NPA). Implementation of prevention, EDRR, eradication, control and monitoring and information programs, including capacity building and interaction with productive sectors.

Organization	Activities in project framework
<i>continued</i>	
National Forest Commission (CONAFOR) - General Directorate for Forest Management and Soils (DGGFyS) (SEMARNAT)	In charge of developing indicators on IAS for forest health and mainstreaming them into the National Forest and Soils Inventory, risk analysis for forest pests and preventative monitoring. Design and test of fire management to control forest pests and invasive alien plants. Development of soil restoration techniques and reforestation using native species.
Secretary of Environment and Natural Resources (SEMARNAT), especially the Sub-Secretary for Environmental Incentives and Regulations (SFNA)	Consolidation of the National IAS List, including an assessment of regulatory impact. Lead on new legislation and legal revision, as well as on regulations on IAS management including wildlife and forest products.
Federal Law Office for Environmental Protection (PROFEPA)	Key institution for prevention, inspection, quarantine and control of forest pests and IAS in wildlife and in movement across borders, ports, airports and borders, centers of distribution, production and storage of forest products. Capacity building to operational personnel on inspection and surveillance.
Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA)/ National System for Agricultural, Cattle Production and Food Sanitation, Innocuousness and Quality Control (SENASICA)	Support in disseminating the National IAS List, implementation of EDRR systems for high priority IAS at the national level. Adoption of harmonized standards and capacity building programs on IAS to key agencies. Collaboration with CONABIO and SEMARNAT on the definition of information standards for IAS.
National Institute for Fisheries (INAPESCA)	Lead for improving the management of ornamental fishes and of the aquaculture sector. Capacity building and technical support in the production and trade of freshwater ornamental fishes, including improved biosecurity systems for production sites (closed cycle systems). Capacity building on rapid response to early detection alerts on IAS.
National Commission for Aquaculture and Fisheries (CONAPESCA)	Design and implementation of public policies on fisheries and aquaculture, especially for management, regulations and promotion of fisheries and aquaculture. Conapesca also enforces existing legislation.
Mexican Institute for Water Technology (IMTA)	Surveys on aquatic invasive plants in the main water bodies of Mexico; development of information contents on invasive aquatic plants; hydrological studies. Expertise on biological control techniques for invasive aquatic plants.
National Institute for Ecology and Climate Change (INECC)	Development of climate change scenarios and validation of models of actual and potential species distribution for high risk IAS in Mexico. Scientific and technological research and studies. In charge of other projects that contribute to the implementation of the National Strategy on Invasive Species.
Morelos State Water Sanitation Committee (CESAEM)	Participation in the implementation of the state pilot program for IAS management in aquaculture, including an update of the inventory on production sites, development of a species catalogue, biosecurity plans and capacity building and dissemination of IAS risks associated with aquaculture. Participation in the certification process for ornamental fishes.
NGOs	
Island Ecology and Conservation Group (GECI)	Organization in charge of the project on six islands. Development and implementation of biosecurity programs and establishment of IAS Committees on each island. Dissemination and education on IAS issues. Implementation of IAS eradication, control and monitoring activities on islands, including native species in recovery after IAS eradication.

Organization	Activities in project framework
Communication and Environmental Education Fund (FCEA)	Several education and dissemination activities. Implementation of a pilot program on IAS in schools, workshops on IAS for journalists; development and dissemination of materials on IAS for legislators and other employees of government agencies involved in the development of public policies.
Private sector / Local stakeholders / Stakeholder groups	
Representatives / Associations of key productive sectors	Participation in the development of codes of conduct for the industry and/or certification systems to reduce IAS introduction and spread. Selection of pilot practices to reduce the threat of IAS in production operations. Productive sector representatives collaborate in activities in continental and insular NPA.
Local communities (Islands and NPA)	Participation in IAS management. In NPA, participation in surveillance actions and EDRR (after training), and in IAS alerts inside and near NPA. Participation in IAS control and monitoring activities.
Academia	
Self-Governing Metropolitan University (UAM) - Xochimilco Branch	Implementation of a pilot project for mapping invasive plants in the state of Querétaro to develop a mapping model for similar application throughout the country. Development of risk analysis protocol for alien plants and of risk assessments for high priority invasive plants.
Self-Governing University at Nuevo León (UANL)	Development of risk assessments for alien fishes. Capacity building workshops on measures to reduce the risk of IAS introduction and spread. Workshops to develop best practices manuals for IAS management.
Self-Governing National University of Mexico (UNAM)	In coordination with UAM, development and implementation of risk assessment for alien plants and pilot project on mapping invasive plants in the state of Querétaro.
Financial management	
United Nations Development Program (UNDP Mexico)	Project implementing agency. Provide guidance, technical support, management tools and theoretical and applied knowledge for project stakeholders. Management of project financial resources according to work plans.

2.6 EXPECTED RESULTS

Expected results are organized in two components: 1) National IAS management framework and 2) Integrated IAS management to protect vulnerable globally significant ecosystems.

Among the results expected from Component 1 are decision-making tools, including cost-benefit analyses for IAS in productive sectors and key landscapes, as well as sectorial guidelines and regulations to manage the main pathways of IAS introduction and spread to vulnerable areas, and to develop a multisectorial framework for the implementation of the National Strategy on Invasive Species.

In the second component, expected results are strengthened prevention and control of key IAS populations on selected islands and biosecurity measures to reduce the rate of species introductions and maintain IAS populations in low numbers to avoid impact on endemic and threatened species in nine continental protected areas.

As one of the main aims of this project is to increase IAS management capacity at the national level, a diversity of types of public needs to be involved to ensure mainstreaming into government agencies and the participation of key stakeholders such as universities, NGOs and priority productive sectors that play an important role in species introductions and spread. Complementarily, 15 Natural Protected Areas were selected as project sites for practical management of different species in

several ecosystems. Despite the increase in complexity to the project, this design is coherent with the project global objectives and with the expectation of making a difference in the application of IAS management at the national level.

2.7 RATING FOR PROJECT DESIGN

SATISFACTORY

Project design is consistent with national priorities and plans, and meant to make advances in national and international commitments for the conservation of biodiversity and IAS management. The project is aligned with the three objectives and 15 goals for 2020 of the National Strategy on Invasive Species. It also contributes to national priorities established for GEF 5 projects and is coherent with the National Portfolio 2010, which identifies IAS as one of eight priority issues in the focal area of biodiversity. It is important to note that gender balance was not included in the project design because it was not part of the GEF 5 requirements, beginning with the advent of GEF 6.

Stakeholders participated in project design, contributing to a list of 36 activities organized in two components and five subcomponents. Government agencies in charge of specific issues were involved from the beginning. The outputs are directed at the achievement of expected outcomes, aligned with national needs, and oriented according to the theory of change, in which methods used for planning and participation (rather than indicators/assessments) lead to the expected results.

Other projects were considered in the design, such as *“Enhancing prevention, control and management of invasive alien species in vulnerable ecosystems in Cuba (2009)”*; *“Removing barriers to invasive species management in production and protection forests in Southeast Asia (2009)”*; *“Strengthening capacity to control the introduction and spread of alien invasive species in Sri Lanka (2004)”*; the REDD+ initiative *“Measure, Report and verify (MRV) to reduce emissions of greenhouse gases from deforestation and forest degradation”*; and the Marine Birds Restoration Program on Pacific Islands in Baja California, implemented by GEI, CONABIO and partners, which includes activities on 11 Pacific Ocean islands on the coast of Baja California on the control of invasive plants, scientific research, habitat restoration, local capacity building and environmental education. The biological control program for water hyacinth in the Santiago river led by IMTA and collaboration with a program for ongoing monitoring of aquatic species in Mexican rivers along the country border were also considered.

Lessons learned from projects involving marine IAS also contributed to project design, especially on lion fish (*Pterois volitans*) control, as in the book entitled *“Invasive lion fish: management and control guide”* (Morris Jr. J.A. Ed., 2013), and the project *“Integrated assessment and management of the Gulf of Mexico Large Marine Ecosystem”*, supported by UNIDO and GEF. The project *“Strengthening the management of the Protected Area System to improve the conservation of threatened species and their habitats”*, currently implemented by CONANP with support from UNDP and GEF, aims to improve the conservation status of two species (the deer *Odocoileus hemionus* and the pronghorn *Antilocapra americana peninsularis*) impacted by feral invasive species. These projects were used as guidance for planning. Apart from learning from these projects, experiences were exchanged with a UNDP - GEF project implemented in Cuba to strengthen national governance on invasive alien species.

The potential replication and increase of scale of the outputs and products generated by this project have been a concern since project design. Models of effective tools, methods and manuals are part of the expected outputs, meant to facilitate replication (for example, indicators of forest health, fire management and risk analysis as IAS management tools, IAS mapping protocols, models for IAS

eradication and control as well as EDRR systems, among others). The selection of NPA was based on scientific criteria. A multiple criteria assessment was used to define priority islands for intervention, including spatial information, conservation priorities and a combination of data and preferences based on decision rules selected by experts on island restoration. The main criterion for the selection of IAS that pose threats to biodiversity in continental NPA was their presence in many other areas in the National Protected Area System, given the replication potential.

The mechanisms defined to increase management capacity were well designed, covering several strategies and reaching many of the stakeholders. A mechanism to disseminate information on the project as well as to facilitate the replication of results was included considering the need to reach out to different types of public.

Prospects of sustainability were also considered in project design to maximize their potential on IAS management in the long term. Emphasis on policies and a broad regulatory framework are included in the expected outcomes as changes to major national laws on wildlife, forests and freshwater. This expectation was not realistic, especially as a legal assessment of existing laws and gaps was required, and because the life span of the project would most likely not be sufficient to grant political support for relevant changes in major laws. The impact of national elections leading to major changes in the national government don't seem to have been well considered for such a task. Improvements in the regulatory framework also included the development and application of financial mechanisms to support IAS management (permits, registers and inspection fees such as quarantine and contention fees for IAS of risk in border control; fees for the appropriate destination of hazardous materials that may function as vectors of IAS, such as contaminated soils or packaging materials, and fees for risk assessments). The revenues from such fees and fines related to IAS, charged by PROFEPA and other agencies, would revert to a fund dedicated to IAS prevention and control.

Institutional sustainability was well considered in project design by the development of management and information tools such the Invasive Alien Species Information System (IASIS), an application to measure implementation of the National Strategy on Invasive Species, citizen science to report on IAS and a national gateway for IAS. These systems provide support to all institutions involved in IAS management at different levels, at the same time promoting guidance and involvement of stakeholders as well as feedback.

The indicators initially defined for M&E were not effective, which is corroborated by the fact that a complementary matrix of indicators per output was developed. In spite of this second set of indicators, M&E is still not comprehensive enough, as some indicators are not adequate and most of them are not measurable. While some outputs are not represented in any set of indicators, others correspond to more than one indicator. This gives the impression that some activities are not articulated or are not part of a concerted effort to which indicators provide clear measures of progress and achievement. As implementation evolves, it becomes more difficult to keep up with progress and results without clear indicators, especially with 36 activities in development and many expected outcomes.

3 PROJECT IMPLEMENTATION

3.1 ACTIVITIES AND RESULTS TO DATE

Table 2 – Results matrix in the **Strategic Results Framework** (results in comparison with goals at end of project). Rating of results: HS – highly satisfactory; S – satisfactory; MS – moderately satisfactory; MI – moderately unsatisfactory; U – unsatisfactory; HU – highly unsatisfactory. Colors: green: achieved; yellow: on target to be achieved; red – not on target to be achieved.

Component 1. National IAS management framework						
Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
% of species being imported into Mexico for the first time that have a risk analyses (for potential impacts on biodiversity).	0%	Rapid risk assessments are available for the 350 species in the first official IAS list in Mexico, published by SEMARNAT in Dec. 2016. Importation of 21 fish species of high risk in the Pangasiidae family is prohibited since Nov. 1 st 2016 by SAGARPA-SENASICA based on results of complete risk assessments.	100% of species are subject to risk analyses or at least rapid assessments for potential impacts on biodiversity.	S	Substantial advances have been made on the number of species with rapid risk assessment. This has led to the perception that the system (MERI) requires adjustments, as it is biased to indicate high risk. Results of complete risk assessments led to the prohibition of IAS imports. Rapid assessments have been developed for all species listed (but the risk levels of the MERI protocol still require adjustment, which implies reviewing the results for these species), and there is no proposal for a regulation that imposes risk assessment as a decision-making tool for species imports.	1.1.6
Effective biosecurity systems at productive sector facilities, including: nurseries, breeding ponds / farms, distribution centers, 6 UMAs and PIMVS.	Productive sector companies and associations lack knowledge, experience and capacities for applying biosecurity protocols or technologies for IAS that impact biodiversity.	2016: A biodiversity index was defined for 50 production areas; a biosecurity plan was in development. 2017: Preliminary studies in Morelos will be finalized in June, 2018, and a workshop for ornamental fish producers is planned for July. Achievement of the indicator is planned for the end of the project.	10 productive sector facilities that deal in IAS with potential impacts on biodiversity applying Hazard Analysis and Critical Control Points (HACCP) systems and/or implementing improved IAS management technologies by the end of the project.	MS	Dr. Roberto Mendoza (UANL) conducted a study for CESAEM which generated biosecurity proposals for all types of production grounds in Morelos. These results were presented to producers. ToR are being drafted with CESAEM for training on the application of biosecurity measures in some production areas and to some fish traders. A closed cycle system for fish breeding is in development, but depends on importing technology from Israel, and may be affected by the upcoming change in the national government because the people in charge will most likely be dismissed from their current roles in INAPESCA. No activities with nurseries have been developed so far.	1.2

Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
<p>Regulations under existing legislation to strengthen management authority over IAS that impact biodiversity (laws / regulations that might need to be revised / strengthened include):</p> <ul style="list-style-type: none"> • Ley General de Vida Silvestre (General Law on Wildlife) • Sistema Nacional de Sanidad, Inocuidad y Calidad Agropecuaria y Alimentaria (SENASICA) (the National System for Agricultural, Cattle Production and Food Sanitation, Innocuousness and Quality Control - SENASICA) • Ley Federal de Derechos (LFD) (Federal Law of Rights) • Leyes y reglamentos sobre vida silvestre, forestal y acuícola (Laws and regulations on wildlife, forests and aquaculture) • Ley Orgánica de la Administración Pública Federal (LOAPF) (Organic Law on Federal Public Administration). 	<p>Laws and regulations for wildlife, forestry and fisheries are insufficient for prevention, early detection, rapid response, and control and eradication of IAS that impact biodiversity.</p>	<ul style="list-style-type: none"> - The official IAS list was approved in December 2016. - The import of 21 IAS of high risk in the Pangasiidae family was prohibited since Nov. 1st 2016 by SAGARPA-SENASICA. - The results of the legal review for the identification of gaps in the legal framework and proposals for improvement was discussed by the Executive Committee. - A workshop for representatives of the Senate including the Commission on the Environment and Natural Resources, Climate Change and Fisheries and Aquaculture was held in January 2017 and a follow up meeting is planned. - A book has been published including project results and information on the National Strategy on Invasive Species (Centro de Estudios Sociales - CESOP). - A technical statement on how to improve the section on IAS in the National Law on Biodiversity was submitted. - No changes in national laws have been achieved to date. 	<p>Regulations for management of IAS that impact biodiversity in wildlife, forestry and fisheries are drafted by the end of the project.</p>	<p>I Proposals for changes in national laws</p> <p>S Sectorial regulations</p>	<p>This indicator is not efficient, and a problem derived from project design. The level of difficulty in changing national laws in the life span of the project is very high, especially as it includes two major changes in national government due to elections. The only contribution made so far to a national law were suggestions for the Law on Biodiversity, which was refuted by National Congress in April, 2018. More relevant is the publication of the National List of IAS in 2016 as a SEMARNAT Agreement, although not legally binding. As a second change in the national government is coming up in 2018, these expected changes in national laws are not realistic.</p> <p>Some sectorial regulations for the management of IAS are in development for African oil palm (<i>Elaeis guineensis</i>) and especially for ornamental fishes, pending approval by institutions in charge. The prohibition of <i>Pangasiidae</i> fishes and of the alfalfa leafcutter bee (<i>Megachile rotundata</i>) based on risk assessment is a positive outcome. Other productive sectors are involved and should improve their capacity with the application of best practices (cattle, goats, aquaculture, forestry).</p> <p><i>This indicator was measured in two parts. The first half refers to national laws, and the second half to sectorial regulations, which are more coherent with the reality of the project.</i></p>	<p>1.2.1, 1.3.1</p>

Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
<p>% of inspectors at points of entry or other inspection sites within Mexico are trained in use of the National List of Invasive Species or in protocols to prevent the introduction/spread of IAS that impact BD.</p>	<p>0%</p>	<p>95% of PROFEPA inspectors in points of entry received training on IAS and forest pests, as well as on risk assessment, the National IAS List and the application of protocols for inspections to prevent the introduction of IAS. Capacity building will continue to the end of the project on a yearly basis. PROFEPA has been equipped with modern tools to facilitate the detection of IAS.</p>	<p>> 90 %</p>	<p>HS</p>	<p>95% of PROFEPA inspectors in the DGIPIAF (General Directory for Environmental Inspection in Ports, Airports and Borders) have been trained. If this indicator is considered within output 1.2.2, involvement of DGIVSRMEC (PROFEPA General Directory for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems) is lacking, as it is in charge of biodiversity issues, but has not participated in project implementation.</p>	<p>1.2.2</p>
<p>Early Detection and Rapid Response (EDRR) systems for IAS that impact biodiversity.</p>	<p>No EDRR systems exist in Mexico for IAS that impact biodiversity.</p>	<p>No progress so far. A change regarding the species <i>Cactoblastis cactorum</i> for another species will be discussed in the Technical Committee of the project. First workshop on Incident Command System (ICS) carried out.</p>	<p>EDRR systems have been developed and implemented nationally for at least 2 invasive species (e.g. <i>Cactoblastics cactorum</i> and <i>Dreissena polymorpha</i>) by the end of the project.</p>	<p>MS</p>	<p>The contract with the only expert considered capable of developing an EDRR for <i>Dreissena polymorpha</i> (zebra mussel) is being processed. An invitation was recently sent to the expert on <i>Luidia magnifica</i>, M.Sc. Christian Galván, to develop an EDRR system and a complete risk assessment for the species as well as for <i>Acanthaster planci</i>, <i>Astropecten polyacanthus</i> and the coral <i>Carijoa riisei</i>.</p>	<p>1.3.4</p>

Component 2. Integrated IAS management to protect vulnerable globally significant ecosystems						
Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
Financing for control and prevention activities.	USD 0.8 million per year for activities related to IAS management at 6 selected island sites.	GECI signed an MOU with the National Fish and Wildlife Foundation over 1.2 Mio Dollar for feral cat eradication in Guadalupe island for 4-5 years in 2017. GECI is in the process of signing an MOU with the Alianza WWF-Fundación Carlos Slim over 1 Million Dollar for the same project.	Average 25% increase of budget for IAS control and prevention in selected island sites by the end of the project.	HS	Additional co-financing resources were secured from national and international agencies. GECI had committed USD 1,100,859 in co-financing and managed to secure USD 2.2 million, equivalent to 83% extra funding. The total amount of funds is USD 3.4 million, or 0.85 million/year considering four years of project implementation. This amount could still be increased in the time remaining until 2019.	2.1
Sustained control of feral cats (Guadalupe and Socorro Islands).	Feral cat populations on two islands having severe negative impact on native species through predation.	Feral cat eradication on Isla Socorro is almost completed (95% reduction). In Guadalupe island, eradication is in progress with 549 cats captured.	Sustained control of feral cats (Guadalupe and Socorro Islands) by end of project.	HS	Cat eradication will be achieved on Socorro Island, outperforming expectations. Eradication of cats on Guadalupe Island will be concluded in 2020, but the project target of sustained management has been achieved. Co-financing to achieve eradication has been secured.	2.1.3
Removal of IAS from selected island sites.	A total of 15 populations of invasive mammals (i.e. rodents, cats and ungulates) have already been removed from the selected island sites between 1998-2012.	Eradication of feral cats completed on Espíritu Santo and Banco Chinchorro Islands. Feral cat eradication on Isla Socorro is almost completed (95% of reduction). In Guadalupe island eradication is in progress with 549 cats captured. Eradication of mice completed in San Benito Oeste island. On Espíritu Santo, 187 feral goats have been captured and given to universities and ranchers 187 in the mainland. Eradication of rats was completed in Banco Chinchorro.	<ul style="list-style-type: none"> • End of year 1: Eradication of feral cats (Espiritu Santo); mice (San Benito Oeste); and 5 species of alien vascular plants (Arrecife Alacranes) • End of year 2: Eradication of black rats and feral cats on Banco Chinchorro (Cayo Centro) • End of year 3: Eradication of feral goats on Isla Espiritu Santo • End of project: Post-eradication monitoring completed for 9 IAS (eradicated in years 1-2). 	S	The main limitations in achieving the expected results lie in the refusal of authorization by CONANP for chemical control of invasive plants and for the elimination of goats using hunting techniques. Plant control needs to be more efficient and use scientific methods to avoid side impacts; goats have been removed to the continent as feasible. Authorizations are urgent to allow time for post-eradication monitoring of goats and for the consolidation of plant control methods in 2019 (GECI in Arrecife Alacranes NP, for which capacity building is required).	2.1.3

Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
Early Detection and Rapid Response (EDDR) systems to prevent the establishment and spread of specific high priority IAS applied at selected mainland PA sites:	0 mainland PAs have systems for EDRR (baseline populations to be determined during year 1 of project).		4 mainland PAs with operating participatory EDRR systems sites by end of the project, with the following results:		Besides the 4 NPA indicated, EDRR is in place at APFF Sierra de Álamos Río Cuchujaqui for the armored catfish (<i>Pterygoplichthys</i> sp.) and an open early detection system has been established by the Park Management to verify any non-native species observed and reported. This system is informal and does not include specific protocols. EDRR at PN Marismas Nacionales Nayarit focuses on princess vine (<i>Cissus verticillata</i>), a climber that invades mangroves. The NPA need to consolidate their EDRR systems and networks of collaborators with urgency.	2.2.5
Monk parakeet (<i>Myiopsitta monachus</i>) in Vizcaíno BR.	Outcompetes native bird species for food sources.	El Vizcaíno BR: No progress made so far regarding EDRR for monk parakeet. A management plan is in progress with some measures in this direction.	80% reduction in successful escapes of monk parakeet.	MU	A study was carried out to investigate the situation of invasion. The monk parakeet is not invasive in the NPA, as it is present only in urban areas. An outreach campaign will be initiated to warn the public of the invasive character of this species, as people in general are not supportive of a control program. No progress has been made on EDRR.	2.2.5
Tilapia Mozambique (<i>Oreochromis mossambicus</i>) in Tutuaca.	Outcompetes native fish species.	Tutuaca: No progress on EDRR.	No increase in # of water bodies with presence of tilapia.	U	The baseline studies showed that Mozambique tilapia is not a problem in the NPA, and that is present at low densities in the buffer zone. No progress has been made on EDRR to avoid its introduction in the NPA. Actions are planned for 2018.	2.2.5

Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
Feral cat, feral dogs, and the armored catfish (Loricaridae fam.) at Cañón del Sumidero.	Feral cats and dogs prey on native species and transmit diseases; armored catfish competes with native fish species and transmits diseases.	Cañón del Sumidero NP: EDRR protocol and HACCP established in a collaborative effort for alien invasive grasses, aquatic plants, red ear slider (<i>Trachemys scripta</i>) and armored catfish, to be implemented in 2017.	Reduced rate of spread of feral cats and dogs into PA; no increase in # of water bodies with armored catfish.	S	The management at PN Cañón del Sumidero has established an EDRR program for the armored catfish (<i>Pterygoplichthys</i> sp.), red eared slider (<i>Trachemys scripta</i>), aquatic plants (<i>Eichhornia crassipes</i> and <i>Pistia stratiotes</i>) and african grasses (<i>Cynodon nlemfuensis</i> , <i>Melinis repens</i> , <i>Hyparrhenia rufa</i>). Control of feral cats and dogs has been sustained and results show a reduction in their numbers.	2.2.5
Giant cane (<i>Arundo donax</i>), love vine (<i>Cassytha filiformis</i>) and palm weevil (<i>Rhynchophorus palmarum</i>) at Sian Ka'an.	Giant cane disrupts aquatic systems; vine kills native vegetation; weevil kills palms.	No progress on EDRR.	No increase in area impacted by giant cane or vine; no increase in # of palms impacted by weevil.	U	The development of management plans, EDRR protocols for giant cane (<i>Arundo donax</i>), love vine (<i>Cassytha filiformis</i>) and black weevil (<i>Rhynchophorus palmarum</i>), as well as the consolidation of tenguayaca (<i>Petenia splendida</i>) production techniques are planned in the 2018 AOP. There might not be enough time left to finish these outputs before project closure, or at least not for satisfactory implementation. In the case of Sian Ka'an BR, one negative factor affecting these products is the lack of CONANP personnel in the PA.	2.2.5
<i>Best practices for IAS management among productive sector partners at 6 mainland PA sites reduce IAS populations as follows:</i>	<i>Current production sector practices result in the following IAS impacts:</i>		<i>Best practices instituted at 6 mainland PA sites by the end of project, with the following results:</i>			2.2.5
Planting of buffel grass (<i>Cenchrus ciliaris</i>) and pinkgrass (<i>Melinis repens</i>) at Tutaca and pink grass (<i>Melinis repens</i>) at Sierra de Álamos.	Exotic grasses displace native grassland species and increase the incidence and severity of fires within the PA.	Experiments for the control of pink grass started in 2017. No progress has been made on buffel grass control.	No more planting of buffel grass and pink grass.	MS	A baseline was developed and control trials have started. Cattle producers in Sierra de Álamos no longer sow pink grass (<i>Melinis repens</i>) and agree to control, but cattle herds still roam freely and spread the grass. Mechanical control of the grass has not yielded good results and requires adaptations and methodological changes to become more efficient. In Tutuaca, cattle producers still carry the grass from lower to higher areas.	2.2.5

Strategic Results Framework Indicators	Baseline	Self-reported level in PIR 2017	Target at end of project	Level and review at mid-term and rating of results	Justification for ratings	Related outputs
Planting of exotic tree species such as cedro blanco (<i>Cupressus lindleyi</i>), gum (<i>Eucalyptus camaldulensis</i>) and casuarina (<i>Casuarina equisetifolia</i>) in Valle de Bravo.	Exotic tree species reduce habitat for native species and change hydrological conditions.	No progress – actions planned for the second semester 2017.	Planting of exotic tree species ended, and replaced with native tree species.	U	Only best management practice guides are available. No progress reports are available.	2.2.5
Extensive cattle ranching within PA boundaries at Marismas Nacionales and Sian Ka'an.	Destruction of mangrove seedlings by foraging cattle; pollution caused by livestock waste; negative impacts on re-vegetation.	Marismas Nacionales: Workshop with cattle ranchers took place in 2016, they learned how to produce silage to be able to feed their cattle during the dry season, mangroves are fenced to prevent cattle from grazing white mangroves.	Cattle ranching restricted in scope (e.g. no access to priority conservation areas such as mangroves).	HS - NP Marismas Nacionales Nayarit	HS refers to RB Marismas Nacionales Nayarit where control action was carried out and a Best Practice manual was developed including a reconversion plan, use of fences and best practice agreements with cattle producers. No information available for RB Sian Ka'an, where work has been slow and management strategies have not been defined because the cattle is present in the central area of the Reserve, which is very difficult to access.	2.2.5
				U - RB Sian Ka'an		
Aquaculture utilizing exotic trout (<i>Oncorhynchus mykiss</i>) at Tutuaca; exotic carp and trout at Valle de Bravo; various exotic species at Cañón del Sumidero; and Mozambique Tilapia (<i>Oreochromis mossambicus</i>) at Sian Ka'an.	Exotic fish species outcompete native fish species and produce changes in the aquatic environment.	Aquaculture: No progress yet in Tutuaca. First study evaluating the impacts of trout farming and generating best practice in Valle de Bravo are being completed in June 2017. No progress so far in Cañón de Sumidero. Project to farm the native species tenguyaca instead of Mozambique Tilapia started in May 2017.	Replacement of exotic aquaculture species with native species; enhanced biosecurity systems for remaining exotic aquaculture operations.	MS	Baseline studies indicate that trout is not a problem in APFF Tutuaca; the introduction of this species was part of a food alternative program that has been discontinued. The final version of the study is expected for late May, 2018, and includes a management proposal. Sian Ka'an reports better advances with the publication of a reconversion manual for producers to change from tilapia to tenguyaca. In Valle de Bravo, a best practice manual for rainbow trout aquaculture was developed, but there is no mention of carp. At Cañón del Sumidero NP only the armored catfish (<i>Pterygoplichthys</i> sp.) has been of concern for EDRR, and no work has been carried out for best practices in aquaculture.	2.2.5
Evaluation color codes:	Achieved	On target to be achieved	Not on target to be achieved			

Table 3 – Matrix of progress towards the achievement of outcomes: **indicators per output**. Achievements in comparison with end of project targets. Assessment of these indicators was not included in the 2017 PIR. Rating of results: HS – highly satisfactory; S – satisfactory; MS – moderately satisfactory; MU – moderately unsatisfactory; U – unsatisfactory; HI – highly unsatisfactory. Colors: green: achieved; yellow: on target to be achieved; red – not on target to be achieved.

Indicators per outcome						
Output 1.1: Decision making tools aimed at informing cost-effective management decisions to address IAS threats in key landscapes and key sectors (aquarium trade, aquaculture, trade of wildlife and forest products)						
Indicators and activities per output	Baseline	Target at mid-term	Target at end of project	Level and evaluation at mid-term and rating of results	Justification for ratings	Related outputs
Management plans for invasive species that have been identified as high priority for impacts on BD.	A National List of Invasive Species (NLIS) is in draft form.		At least 15 management plans for high priority species identified in the approved NLIS developed and in operation, by the end of the Project.	U	The national IAS list was published in 2016. Management plans for species have not been developed yet. General guidelines are planned for development in 2018 with attachments for species groups to be included in a NOM (Mexican National Regulation). The definition of management measures is included in the PRODOC, in the description of activity 1.1.5 (there is no specific output for the development of management plans).	1.1.5
Agreed upon common protocols for priority species adopted by IAS management institutions.	There are no harmonized protocols among IAS management institutions for carrying out risk analyses to identify highest risk species / pathways, or collecting and exchanging information.		At least 3 institutions adopting the different protocols for risk analysis of priority species, taxonomic groups, pathways, or geographic areas.	S	Capacity building on IAS and forest pests has been provided to PROFEPA personnel for inspection at points of entry, risk assessment and the National IAS List. The import of 21 fish species in the Pangasiidae family was banned in Nov., 2016, by SAGARPA-SENASICA, as well as the introduction of the alfalfa leafcutter bee (<i>Megachile rotundata</i>) in May, 2018, based on complete risk assessments. CONAFOR is also inspecting forest products for pests at points of entry, especially Christmas trees. A risk assessment protocol is being designed for forest species (CONABIO – CONAFOR).	1.1.6
Extent of data in the Invasive Alien Species Information System (IASIS).	The IASIS includes 50,000 records (covering 381 species), 415 rapid assessments, and 157 information sheets on IAS occurrence in Mexico.		By the end of the project, a 40% increase in the contents of data base (records, species, rapid assessments, and information sheets).	HS	The number of records of IAS and non-native species in the IASIS amounts to 196,008 at the end of 2017; the system includes 2002 alien species with invasive potential in Mexico. 492 rapid risk assessments (MERI) and 19 complete risk assessments have been completed. Between July 2015 and December, 2017, 48 water bodies were mapped, generating more data. Pathways have been assessed for 291 species to facilitate the establishment of biosecurity efforts.	1.1.1

Indicators and activities per output	Baseline	Target at mid-term	Target at end of project	Level and evaluation at mid-term and rating of results	Justification for ratings	Related outputs
Capacity to plan for IAS impacts in the fact of potential climate change.	Lack of information on possible impacts of climate change on dispersion of IAS prevents effective long-term planning and priority setting for IAS management.	Niche models developed on dispersion of 60 high risk IAS under climate change scenarios by end of year 2.		HS	Potential distribution maps in four climate change scenarios (two for 2050 and two for 2070) were produced for 60 priority IAS.	1.1.10
Output 1.2: Sectorial guidance and regulations in place to strengthen the control of main pathways of IAS to vulnerable areas.						
Improved management of IAS in productive sectors by state authorities in one Mexican state (pilot).	Existing IAS management framework has no incentives for productive sectors to prevent IAS escapes or to choose low risk species.		Authorities in Morelos State have developed and implemented strengthened IAS management controls for the ornamental fish, aquaculture and nursery plant sectors by the end of the Project.	S	A biosecurity plan for ornamental fishes in Morelos state has been completed. Capacity building on biosecurity was provided to producers. A workshop on the use of barcoding as an identification tool for EDRR was carried out in April, 2018. A pilot closed cycle production system for ornamental fishes is expected before the end of 2018.	1.2.4
Productive sector industry standards / codes for management of IAS that may impact biodiversity.	Productive sector associations / businesses do not have or use standards, codes of conduct or certification systems to govern their treatment of IAS that may impact biodiversity.		Standards, codes of conduct and certification systems are developed for productive sectors and under implementation by the end of the project.	S	A draft manual on the certification of ornamental fishes is available. The development of certification is in process.	1.2.4
Include IAS in biodiversity strategies at state level	Only a few states have published their Strategy yet, and none so far have included actions / programs for IAS management.		All State-level Biodiversity Strategies include the subject of IAS and have at least one objective referring to the issue	MS	The states of Chihuahua (2015), Guanajuato (2015), Jalisco (2017), CDMX, Oaxaca, Quintana Roo and Yucatán have included actions on IAS in the State Strategies on Biodiversity. The viability of including IAS issues in all state strategies seems overestimated in the project design. Ten strategies have been published so far that include activities on IAS: Aguascalientes (2010), Campeche (2016), Michoacán (2007), Morelos (2003), Puebla (2013), Veracruz (2013), Chiapas (2013), Chihuahua (2015), Guanajuato (2015), and Jalisco (2017). Other four are underway and include actions for IAS: CDMX, Oaxaca, Quintana Roo and Yucatán. The Querétaro Strategy, in the planning phase, will also include actions for IAS. State Biodiversity Committees established: Aguascalientes, Morelos, Tamaulipas and Veracruz.	1.2.5

Indicators and activities per output	Baseline	Target at mid-term	Target at end of project	Level and evaluation at mid-term and rating of results	Justification for ratings	Related outputs
Output 1.3: Multi-sectorial institutional framework in place to implement National Strategy on Invasive Species (NSIS).						
Oversight and coordination structures for implementation of the NSIS.	The Experts Committee that created the NSIS is still functional, but does not have any official authority related to the implementation of the NSIS.	3 committees (High-Level; Scientific; Technical) are officially established to guide implementation of the NSIS, with operating guidelines and authority, by the end of year 1.		S	The level of commitment of the members of the High-Level Committee (decision-makers) needs to be improved. The upcoming change of national government creates risk for the sustainability of this committee. Representatives need to formalize their engagement to remain active after project closure.	1.3.2
Institutional protocols for the principle pathways for introduction and spread of IAS that impact biodiversity.	Systems to identify and control pathways for IAS introduction and spread are focused only on IAS with potential impacts on economic activities (agriculture, forest products, wildlife).		By the end of the project, 5 protocols for taxonomic groups or pathways at strategic entry points have been developed and adopted by the environmental sector (CONAFOR, CONANP, SEMARNAT).	MS	A document with recommendations to improve species introductions protocols (criteria for imports) to Mexico was developed by a working group created in meetings of the project Technical Committee. Meetings between Jordan Golubov – UNAM and SENASICA were useful in the development of risk assessment protocols for alien plants. Four protocols are still to be developed.	1.3.3
Output 2.1. Strengthened prevention and control of key IAS populations in selected islands.						
Capacity for coordinated management and planning for IAS management.	Selected islands have no mechanisms for the coordinated management of IAS.	6 Island IAS Management Committees operating by the end of year 1.		MU	Progress has been slow in forming the committees. Some have been established, but lack formalization; others require more political will from authorities and partners involved. The committee for RBIPBC (Isla Cedros and San Benito) is in development.	2.1.1
Number of Island Biosecurity Plans (IBPs) supervised by island IAS management committees.	Selected islands do not undertake planning to address biosecurity problems.	6 Island Biosecurity Plans (IBPs) developed and implemented by end of year 1.		S	Island biosecurity programs are ready, but implementation has been slow. CONANP needs to lead the process and apply routine biosecurity measures. This output was unrealistically expected for year 1.	2.1.1

Indicators and activities per output	Baseline	Target at mid-term	Target at end of project	Level and evaluation at mid-term and rating of results	Justification for ratings	Related outputs
EDDR systems developed by the project applied at pilot level.	Selected islands have no mechanisms or capacities to respond to the discovery of newly introduced IAS.	Early Detection and Rapid Response (EDRR) systems operational and preventing introduction / spread of IAS on 6 islands by end of year 2.		MU	An EDRR component is part of the biosecurity plans, but depends on their implementation to be operational. SEMAR and communities provide support to biosecurity work on several islands, (fishing or tourism cooperatives and residents) implement prevention measures and issue warnings in case of emergency. The system is still not functional. The participation of CONANP and PROFEPA is essential. The deadline established for year 2 of the project was not realistic for this output.	2.1.1
Output 2.2. Enhanced IAS surveillance and control strategies reduce introduction rates and contain populations.						
Capacity for coordinated management and planning for IAS management.	0 mainland PAs have management structures to facilitate cooperation on IAS management with residents and businesses within and outside of PAs.	9 mainland PAs with participatory IAS management committees by the end of year 1.		S	Committees have been established for 6 NPA, and the remaining 3 are in process. The committees have generally been well received, as they are considered useful for participatory decision-making on IAS management. The deadline set by the indicator for year 1 of the project was not realistic.	2.2.2 y 2.2.4
IAS management plans for specific PA units.	5 PA units have IAS management plans, but none of these plans is being implemented in an integrated manner.	By end of year 2, 5 mainland PAs are implementing IAS management plans (including risk analyses, priority setting, and capacity building strategies).	By end of project, remaining 4 PA sites are also implementing plans.	MS	Baselines were defined for most NPA and supported the definition of management priorities and control plans for priority IAS. Management plans are available for 5 PAs. EDRR or best practices are also developed according to each NPA. Most NPA personnel participated in capacity building events on IAS, prevention, EDRR, control and best practices. Given the insufficient results of invasive plant control, delays in control work and changes of personnel, more efficient work is required. The management plans available need to be implemented and plans have to be developed and implemented in other 4 NPA.	2.2.1

Indicators and activities per output	Baseline	Target at mid-term	Target at end of project	Level and evaluation at mid-term and rating of results	Justification for ratings	Related outputs
Capacity to identify and address IAS (and their pathways) with the most negative impacts on biodiversity.	0 mainland PA sites have lists of priority IAS for their location.	Lists of local high priority IAS (for PAs and surrounding landscapes) created for 9 sites by end of year 2.	Lists being used by management agencies (e.g. CONANP, PROFEPA) to restrict use of IAS within and surrounding 9 sites by end of year 3.	MS	Baselines were developed for most NPA and used to establish management plans for priority IAS. Species lists are used by CONANP personnel and subcommittees to define priorities; capacity building has been provided to some brigades for identification and control of IAS, although management is still not efficient. The participation of other government bodies is required before regulations can be passed. Best practice guides are ready for use, but practical application is only beginning. This is first approach chosen to work with producers before developing legal regulations.	2.2.2 Y 2.2.3
EDDR systems developed by the project applied at pilot level.	0 mainland PAs have systems for Early Detection and Rapid Response (EDRR) to prevent the establishment and spread of IAS.		5 mainland PAs with operating participatory EDRR systems preventing introduction / spread of IAS at PA sites by end of the project.	U	PN Cañón del Sumidero developed an EDRR program, but it still has to be implemented. No results are available for the other three NPA. There is no evidence to date of EDRR systems for at least other two NPA. Other NPA are working on EDRR, but these are not the 4 NPA originally planned in the indicators. This is why implementation is so far unsatisfactory, and there may not be enough time to achieve the expected results. EDRR for the armored catfish is in process at APFF Sierra de Álamos Río Cuchujaqui, although a broader approach is applied for reports on any non-native species to the PA manager. EDRR at RB Marismas Nacionales Nayarit focuses on princess vine (<i>Cissus verticillata</i>), giant cane (<i>Arundo donax</i>) and buffel grass (<i>Cenchrus ciliaris</i>). Consolidation of prevention, EDRR and control is required for these results to be considered achieved.	2.2.5

Table 4 – Assessment of outputs per component and activity based on progress towards targets. This assessment was made to cover those activities not contemplated by indicators, as well as indicate the level of information available for each activity on the project web page and include technical suggestions. Rating of results: HS – highly satisfactory; S – satisfactory; MS – moderately satisfactory; MU – moderately unsatisfactory; U – unsatisfactory; HI – highly unsatisfactory. Colors: green: achieved; yellow: on target to be achieved; red – not on target to be achieved.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
Component 1 – National IAS management framework.				
1.1 Decision making tools aimed at informing cost effective management decisions to address IAS threats in key landscapes and key sectors (aquarium trade, aquaculture, trade of wildlife and forest products).				
1.1.1	Strengthening of the National Invasive Alien Species Information System (NIASIS).	HS	<p>The Invasive Alien Species Information System is in development and accessible through the Enciclovida website. There are 1,507 records for alien species in general; 1,302 for alien species in Mexico, and 460 records for IAS, 301 of which are present in Mexico. There is no reference to the system (SIEI in Spanish) on the CONABIO website or on Enciclovida. The database would benefit from some improvements, such as options for more complex searches (by type of use, pathways and vectors of introduction and spread, ecosystem or habitat type, municipalities and states, and other fields). The search available by states and municipalities is not accessible from the Database interface (only on a separate web page), and does not allow users to perform customized searches (e.g. <i>Casuarina equisetifolia</i> in Baja California); searches are available per taxonomic group. It is important to improve content specific to Mexico, such as places of occurrence with details of invasion on each site, usage, impacts when available, control methods, and prevention measures (including results of risk assessments); also, to include better options to export search results in Excel or other formats (not only the complete contents or factsheets in PDF format, which are not easy formats to process data). The Database is currently not flexible as one has to enter by taxonomic group. The data available is quite limited; for example, habitat types should include the Mexican classification of ecosystems and equivalent terms for marine and freshwater environments, as available: there is no data or fields on pathways and vectors, and it is not clear from the map of occurrences whether a species is cultivated, present, established or invasive; there is no data on species habit, habitat type in the native range and other characteristics that are useful as filters in searches. Users should be able to select more than one option at once in Group, Habitat type and other relevant fields, as well as cross data (for example, mammals in evergreen forest; plants used in horticulture for ornamental purposes; ornamental fishes; amphibians and reptiles in the state of Chiapas). The use of controlled vocabulary with key terms and classifications in use in Mexico is recommended to facilitate searches. Ideally, invasive alien species should be more easily separated and worked on as a separate group to avoid confusion and better support decision-making and research; at least users should not need to reselect the options Alien and Invasive every time a search is performed. All search options should be available from the same website. It is also relevant to include basic concepts in the website, such as alien species, invasive alien species, vectors and pathways.</p>	<p>There is no information on the project web page.</p> <p>There is information and a link to the system under “Especies Exóticas Invasoras”, but there is no reference to the term used in Spanish, “SNIEEI”. The database is not directly visible from the project page.</p>

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.1.2	Establishment and operation of Information System to measure implementation of the National Strategy on Invasive Species.	S	As the system is still in development, the MTR Team was not able to analyze it in detail (phase 1 is nearly completed and phase 2 on searches and reports is beginning).	There is no information on the project web page.
1.1.3	Creation of Participatory Networks to support IAS management.	MS	A local network has been established with experts who support the development of the information system. Programming is required for the consolidation of the information tool to be used by the network. CONABIO participates in the development of a network of experts for information exchange in MesoAmerica and the Caribbean, as well as in other international networks such as NAISN, CCA, IAB, GIASIP, ISSG and CABI for information exchange.	There is no information on the project web page.
1.1.4	Establishment and operation of an IAS National Gateway.	S	In development. The Gateway in the CONABIO website is functional and includes information on IAS and on the project. It will be important, as the Gateway is further developed, to include resources and guidance for applied activities, from educational materials and guidance for practical management to legal regulations, laws at the national level and Decisions of the CBD. In the Tools section, there is information on risk assessment, but the actual tools have not been made available.	There is no information on the project web page.
1.1.5	Publication and outreach on the National List of Invasive Species (NLIS).	HS	The publication of a National IAS List is an important milestone to provide reference on IAS at the national level and for the development of sectorial regulations and policies. Dissemination of the list has been a part of workshops and capacity building events offered by the project, as well as of other materials and media.	The List is not directly available from the project web page (under Component 1). There is no direct link on the main page for those looking for the list; it should be easier to find.
1.1.6	Development and use of risk analysis methodologies for high risk species / pathways.	S	Several risk assessment protocols are in development for different groups of species. The rapid risk assessment protocol (MERI) requires adjustment, which means the assessments done to date need to be reviewed. A protocol for forest trees needs to be consolidated with CONAFOR. HACCP and fish risk analysis (FISK) are available in the Tools section on the CONABIO website, but the tools developed through the project are not available (MERI and plant RA). A risk assessment protocol for pathways is in development based on NAPPO. Pathways analyses have been developed for 291 species.	Risk assessments are available, but the individual protocols and tools developed are missing.
1.1.7	Development and application of Inspection Tools for IAS that threaten biodiversity.	S	No specific tools on methods for the identification of IAS nor on quarantine and disposal procedures have been developed so far, and no information is available on how these tools will be shared with inspection agencies. Several reference materials have been developed, from contributions by CONABIO to the CABI Invasive Species Compendium , in use by PROFEPA inspectors (although in English), rapid risk assessment factsheets (MERI), factsheets available from Enciclovida and presentations used in capacity building workshops for PROFEPA inspectors. Other materials are in development, such as factsheets on invasive aquatic plants by IMTA. The National Biodiversity Monitoring System is also mentioned for this output. Although developed separately, IAS were included as targets for monitoring by influence of the project. No complementary monitoring reports were available, so the MTR Team was not able to verify if active monitoring of IAS is in place.	There is no information on the project web page.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.1.8	Development and testing of a model for mapping of IAS flora.	HS	UNAM developed a mapping method for invasive plants and applied it to RB Sierra Gorda and PN El Cimatario, in Querétaro. The methodology is complemented by a plant identification guide (50 species). IMTA has mapped aquatic plants in 28 water bodies in 8 states in 2015 and in 12 water bodies in 4 states in 2016. Personnel from several government agencies participated in capacity building events aimed at invasive plant identification. Mechanical removal was carried out in some dams in Jalisco.	Reports for 2015 and 2016 only, including surveys and workshops. The 2017 report is missing.
1.1.9	Integrate information on IAS into the National Forest and Soils Inventory (INFyS).	S	At the project start a printed catalogue with 23 IAS (18 plants, 1 insect, 2 mammals, 1 bird) was developed for CONAFOR field brigades. Additionally, as planned in the PRODOC, five new factsheets should be produced per year. There are 21 additional factsheets (15 insects and 6 plants), also available from the CONAFOR website . An assessment of invasiveness of forest species used in monoculture plantations is expected.	There is no information in subcomponent 1.1 (5 factsheets are available from 1.2). There are no progress reports.
1.1.10	Develop niche models for IAS dispersion related to climate change.	HS	A model and studies on the potential distribution of 60 priority species under 4 climate change scenarios has been developed (two for 2050 and two for 2070).	Report on studies developed, but products (maps) are not available.
1.1.11	Establish cost coefficients for different IAS management strategies in Mexico.	U	The cost-benefit studies expected from the project will only be able to be completed once efficient methods for the control of invasive plants are defined, but there might not be enough time left. An independent study is being considered for this output to review field control work carried out so far by partner institutions and assess best cost-benefit methods to be replicated to other areas in the future. This output will be concluded in the last months of the project in order to encompass all management activities carried out through the project. Among activities in the PRODOC is the development of cost coefficients for different IAS management strategies (prevention, EDRR, control, eradication, etc.) under distinct conditions (for example, species habit; ecosystems; local pressure and others), focused on IAS that impact biodiversity. Cost coefficients will be developed based on the number of IAS management actions implemented during the project, including: i) IAS management in pilot sites on islands and continental areas (Products 2.1 and 2.2); ii) IAS management in key productive sectors (Products 1.2 and 2.2.); and iii) fire management and reforestation programs implemented by CONAFOR (Product 1.4).	Only reports of the two workshops are available. There is no information on the project web page (output to be developed in 2019).
1.1.12	Develop economic models to estimate the costs to the Mexican economy of high-impact IAS.	U	The studies on cost coefficients are a byproduct of the workshops led by Landcare Research (New Zealand). Participants made commitments to complete nine case studies (<i>Tilapia zilli</i> reduction in San Ignacio, BC; management of <i>Raoiella indica</i> in Quintana Roo; <i>Pterois volitans</i> lion fish in Cozumel; <i>Myiopsitta monachus</i> in Mexico City; cat eradication and control on Guadalupe Island; prevention of fish escapes in Morelos; goat management in El Vizcaino BR; <i>Pterygophlychtyis</i> spp. in the Palizada River, Campeche; <i>Corbicula fluminea</i> control in the city of Villahermosa). Only one study has been delivered to date (fish escapes). The others are delayed (the second workshop was held in November, 2016). A follow up meeting might be considered with the same participants to conclude the studies that were initiated, as progress of output 1.3.6 depend on these results. A cost-benefit study was developed for water hyacinth (<i>Eichhornia crassipes</i>) in collaboration with ITAM Xochimilco, CDMX and the University of Wisconsin in Madison, USA.	There is no information on the project web page (output to be developed in 2019).

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.2 Sectorial guidance and regulations in place to strengthen the control of main pathways of IAS to vulnerable areas.				
1.2.1	Draft regulations for control of IAS in productive sector operations.	S	<p>The consultant who developed the legal study for the project did not provide solid recommendations that could be taken to government representatives or productive sectors as suggestions for amendments in existing legislation.</p> <p>The project approach to productive sectors has been to define and apply best practices rather than begin with regulations. In the case of ornamental fishes, producers took the lead in developing certification standards and voluntary regulations.</p> <p>The PMU contributed to four sectorial regulations in development for ornamental fishes (Morelos), Christmas trees (NOM-013-SEMARNAT-2010), forest species with CONAFOR and African oil palm (<i>Elaeis guineensis</i>).</p>	The study on legal issues and gaps is available and includes recommendations. There are no reports or drafts of legal regulations and no information on the regulations in development.
1.2.2	Provide information, resources and training for improved IAS management to private sector stakeholders and government agencies in the Wildlife and Forest sectors.	S	<p>Information, resources and training have been granted to CONAFOR and PROFEPA DGIVF and DGIAPAF on forest inspection and surveillance, as well as environmental surveillance in ports, airports and borders. A manual on reforestation and restoration using native species was developed, a risk assessment protocol for forest trees is underway and fire management trials were carried out with CONAFOR to control forest pests. The agency has also monitored invasive alien insects that are forest pests in five points of entry to Mexico (ports/airports). 95% of PROFEPA inspectors in the General Directorate for Environmental Inspection in Ports, Airports and Borders have participated in capacity building events on IAS associated with international trade.</p> <p>Participation of the PROFEPA General Directorate for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems is highly desirable due to their responsibilities on wildlife, and should be pursued.</p>	Restoration manual using native species; maps of risk for forest pests; studies on fire management for forest pests; reports on monitoring of forest insects in five points of entry.
1.2.3	Provide information, resources and training for improved IAS management to private sector stakeholders and government agencies in the Aquarium Trade and Aquaculture Sectors.	S	Information materials such as guides and other references, an inventory of aquaculture structures, and training courses on detection and identification of IAS in aquatic ecosystems and Incident Command System have been carried out for the sector. A prototype of a production structure for ornamental fishes in a closed cycle is in development and expected to be completed before the end of 2018. A certification process is also being developed for ornamental fishes. A workshop was held in Feb. 2017 with government agencies to develop a rapid response protocol for the detection of aquatic IAS (no follow up information is available).	Several materials: ornamental fish guides, fish producer awareness program, certification work plan and a report on the workshop held for rapid response on aquatic species, with recommendations.
1.2.4	Implement IAS biosecurity pilot activities with the Aquaculture Sector in the State of Morelos.	S	<p>Biosecurity standards for the production of ornamental fishes have been drafted with CESAEM and a certification system is in development. A capacity building workshop was held in Zacatepec, Morelos, in 2017. This output is in development, with one protocol defined so far for aquatic species.</p> <p>CESAEM carried out an inventory of production structures in aquaculture to verify the potential of escape of invasive fishes. A technical proposal to minimize the risk of escape is in development between CESAEM and UANL, and a workshop to promote best practices will be held for fish producers.</p>	Several materials on the development of biosecurity standards, including maps, a report on the development of a sustainable production certificate and biosecurity plan.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.2.5	Outreach to State-level authorities and productive sector stakeholders on IAS threats, new IAS controls and regulations, and incorporating IAS management into institutional planning.	S	<p>This output is related to state strategies on biodiversity. Ten strategies have been published so far that include activities on IAS: Aguascalientes (2010), Campeche (2016), Michoacán (2007), Morelos (2003), Puebla (2013), Veracruz (2013), Chiapas (2013), Chihuahua (2015), Guanajuato (2015), and Jalisco (2017). Other four are underway and include actions for IAS: CDMX, Oaxaca, Quintana Roo and Yucatán. The Querétaro Strategy, in the planning phase, will also include actions for IAS. The PMU has participated in meetings of the Secretary of Environment in the state of Morelos to update the State Study (Estudio de Estado) and in a workshop on the National Strategy on Biodiversity (2016). Another department of CONABIO is involved in complementary issues.</p> <p>Activities for this output were included in an AOP for the first time in 2017: Public policy documents on impacts of IAS on human health and the economy: develop information materials with data and suggestions to change institutional directives and regulations for IAS management.</p>	<p>There is no information on the project web page.</p> <p>There is information on state strategies on biodiversity in another CONABIO web page, but there is no specific reference to IAS.</p>
1.3 Multi-sectorial institutional framework in place to implement National Strategy on Invasive Species (NSIS).				
1.3.1	Draft revised and harmonized existing laws / regulations related to IAS management.	U	<p>A legal study was contracted on national laws as well as sectorial regulations (output 1.2.1). The development of sectorial regulations for African oil palm has been mentioned for this output, but the MTR Team considers it related to output 1.2.1, and it should not be mentioned in duplicate.</p> <p>The consultant who developed the legal study for the project did not provide solid recommendations that could be presented to government representatives. The development of legal regulations was discussed in the Committees that support project implementation, but no proposals have actually been written. The project contributed suggestions for the revision of the National Law on Biodiversity, but the new version was rejected by the government in April, 2018.</p>	There is no information on the project web page.
1.3.2	Institutional structures strengthened / established to facilitate inter-institutional coordination for overall IAS management.	S	The Committees (Executive, Technical and Scientific) that support project implementation are expected to continue working after project closure to support the implementation of the National Strategy on Invasive Species. Meetings are held on a regular basis. Participants complained that certain Executive Committee members send representatives who are not entitled to make decisions, so the meetings are not productive. The Scientific Committee has not been effective in contributing with knowledge to the control of invasive plants, for several reasons. The Committees require consolidation for better effectiveness.	There is no information on the project web page.
1.3.3	Institutional Coordination to prevent the entry and spread of IAS in Mexico.	MS	A proposal for concerted action between SEMARNAT and SAGARPA on IAS imports is being discussed. Recommendations have been developed for the improvement of protocols regarding introduction permits for IAS (import conditions) to the country.	There is no information on the project web page.
1.3.4	Strengthen capacity for Early Detection and Rapid Response (EDRR) systems for IAS at national level.	MS	Capacity building on monitoring was provided to CONAFOR in five ports and airports with support from PROFEPA. A contract is in process for a rapid response protocol and an economic study for the zebra mussel (<i>Dreissena polymorpha</i>). EDRR and risk assessment are going to be developed for the starfishes <i>Luidia magnifica</i> , <i>Acanthaster planci</i> , <i>Astropecten polyacanthus</i> and the coral <i>Carijoa riisei</i> . There is not a concise report on this activity, which has not been much developed so far.	There is no information on the project web page.

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
1.3.5	Development and application of financial mechanisms to support IAS management.	MS	A study on the viability of development and implementation of economic instruments to reduce the risk of intentional IAS introductions was developed. It has been presented to several agencies, but there is no follow up information available at this point of the MTR apart from minutes of meetings in which the issue was discussed.	Economic study in the complete version and executive summary.
1.3.6	Budgetary coordination between sectors to ensure coherent investments and actions to address threats cost efficiently.	U	There is no information on this output except that it will be led by the Executive Committee. This product depends on the completion of studies committed (outputs 1.1.11 and 1.1.12), which are delayed, as well as on a study of expenses on IAS management in Mexico, planned for 2019. This output has a problem of project design because it seems to have counted on results from control actions in place at the time, while these efforts have not been able to provide a basis for profitability studies.	There is no information on the project web page.
1.3.7	Establish harmonized standards and training programs for IAS management across key institutions.	MS	An online course has been articulated and offered (CONANP, INECC, UNAM, UABC and UMAR), but there is no information on harmonized standards for future initiatives.	There is no information on the project web page.
1.3.8	Implement education and awareness campaigns on IAS for policymakers, private land owners, NGOs, volunteer groups and the general public.	HS	Education and capacity building workshops have been conducted, including supporting materials. Botanic Gardens are getting involved due to the invasive nature of many ornamental plants and information on IAS was presented by the PMU at an event on tourism in Cancun. Although this output may be considered completed, more campaigns reaching out to more people as well as more complex content to people who have had basic training are always welcome and should continue as feasible and as long as it does not affect other outputs that are not as developed.	Reports on activities led by FCEA and workshops held for legislators and journalists.
Component 2 - Integrated IAS management to protect vulnerable globally significant ecosystems.				
2.1 Strengthened prevention and control of key IAS populations in selected islands.				
2.1.1	Establish and maintain Island Biosecurity Programs.	MU	The six subcommittees to support IAS management require consolidation. Biosecurity protocols have been developed for six islands, and are being implemented, but CONANP has to take the lead (and allow GECI to provide support rather than lead implementation) and ensure that these protocols are applied as part of the routine for the islands. EDRR programs also require consolidation.	No products available except for information in reports delivered by GECI (2015, 2016 and 2017). Island biosecurity protocols are not available.
2.1.2	Implement education and training to support IAS management.	HS	Education and capacity building on IAS has been provided to communities on the islands, such as the Abalone National Fishermen Cooperative on Cedros and San Benito Islands, the Campo Oeste community on Guadalupe Island and in schools in Baja California. SEMAR has been supporting GECI on their work on islands. A meeting for exchange of experiences was held for CONANP personnel working in island NPA (2016). Information materials on biosecurity measures and on IAS that impact islands were produced. Although this activity may be considered completed, more education and awareness activities are always required to increase support to control and eradication, especially with the community on Cedros Island in 2018 for the control of feral dogs. It is important to share information on project activities to communities for inclusion and to foster cooperation.	Reports on activities on islands (2015, 2016 and 2017).

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
2.1.3	Implement targeted high priority IAS control & eradication programs.	HS	Control and eradication programs are in place and very successful. These actions are well represented by indicators developed for the project (Tables 2 and 3).	Reports on activities on islands (2015, 2016 and 2017).
2.1.4	Establish and maintain monitoring programs to ensure effectiveness of biosecurity and IAS control and eradication efforts.	HS	GECI maintains monitoring programs to confirm that eradications are successful and to register the recovery of marine bird populations as well as vegetation.	Reports on activities on islands (2015, 2016 and 2017).
2.2 Enhanced IAS surveillance and control strategies reduce introduction rates from productive landscapes and contain populations below thresholds that endanger endemic species and their habitats at 9 mainland Protected Areas.				Information is better organized in this component (per subcomponent 2.1, 2.2, etc.)
2.2.1	Develop baseline information necessary for effective IAS management planning.	S	Baseline studies were carried out for some IAS at APFF Sierra de Álamos Río Cuchujaqui, APFF Tutuaca, Cañón del Sumidero NP, Cumbres de Monterrey NP, El Vizcaíno BR and Los Tuxtlas BR. Some of the plant species being managed are not included in baseline studies. There is information on IAS mixed with non-native species in baseline reports for these PA, but there are no details on the occurrence points or other information to guide control actions.	Reports for 3 NPA: 3 IAS in El Vizcaíno BR; 5 IAS in Cumbres de Monterrey NP; and 1 IAS for APFF Sierra de Álamos Río Cuchujaqui.
2.2.2	Strengthen IAS management capacities and processes for landscapes within and surrounding mainland Protected Areas.	S	The 9 subcommittees to support IAS management were expected by the end of year 1 of the project. Although this deadline was not realistically set in the project design, to date only 6 subcommittees have been established in NPA, while 3 are in progress, but there will not be much time left for consolidation to ensure they will continue functioning after project closure. Establishment of these subcommittees is therefore urgent, as well as the organization of meetings (even if on skype or other means to avoid travel and costs) for the definition of work priorities and plans to ensure their functioning and support to NPA needs. Communities have been engaged in management activities, but capacity is lacking for better efficiency. Capacity building workshops on IAS were held in Los Tuxtlas BR and in Cumbres de Monterrey NP (in rural and in urban areas) for several types of public (see output 2.2.4).	Information missing: 6 subcommittees have been structured to date, but there are only 3 reports. The report on workshops held at Tuxtla BR is duplicated under different names.
2.2.3	Introduce best practices in IAS management in targeted production sectors to reduce IAS spread.	S	Concepts and best practice manuals were developed for cattle ranching (Marismas Nacionales Nayarit BR, APRN Valle de Bravo), goat tending (El Vizcaíno BR), trout aquaculture (APRN Valle de Bravo) and for breeding native tenguayaca (<i>Petenia splendida</i>) (Sian Ka'an BR). Capacity building workshops were organized for producers. Remaining implementation time must be dedicated to the practical application of best practices.	Several reports, including workplans, for 4 NPA.
2.2.4	Increase community awareness and participation in IAS management in and around mainland PA sites.	HS	The workshops reported as part of output 2.2.2 would be more adequate for this output, as they are directed to communities and not specifically for IAS management. Complementary materials were produced for NPA (APRN Valle de Bravo, PN Cañón del Sumidero, NP Cumbres de Monterrey, APFF Sierra de Álamos Río Cuchujaqui). Some participants interviewed requested project and National Strategy on Invasive Species results and advances to be shared with communities in the surroundings of NPA and involved in management. For this output to be completed, the subcommittees have to carry out actions for public awareness on IAS and support IAS management, as well as other practical actions.	Dissemination materials on IAS present in APFF Sierra de Álamos Río Cuchujaqui, Cumbres de Monterrey NP and APRN Valle de Bravo (materials for Cañón del Sumidero NP are missing).

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
2.2.5	Develop and implement Biosecurity Programs (Prevention; Early Detection and Rapid Response) at selected mainland PA sites.	U	<p>A report on the EDRR system for Cañón del Sumidero NP was developed for five species/groups (red eared slider <i>Trachemys scripta elegans</i>, armored catfish <i>Pterygoplichthys</i> spp., aquatic plants (<i>Eichhornia crassipes</i> and <i>Pistia stratiotes</i>) and African grasses <i>Cynodon nlemfuensis</i>, <i>Melinis repens</i> and <i>Hyparrhenia rufa</i>). The roles of parties in the study were defined based on institutional responsibilities. No negotiations have taken place so far to consolidate the system. During the field visit, it was clear that the park staff understands the relevance of EDRR, but also that the system is not consolidated, for example to focus on the immediate removal of isolated invasive plants. A study on pathways of introduction into several communities was conducted for princess vine (<i>Cissus verticillata</i>), giant reed (<i>Arundo donax</i>) and buffel grass (<i>Cenchrus ciliaris</i>) at RB Marismas Nacionales Nayarit. The study does not include recommendations on the management of identified pathways.</p> <p>There are no results so far for the other 3 NPA (see indicator table). There is no evidence of ongoing work for EDRR systems in at least two NPA.</p> <p>Other NPA are developing EDRR, but these are not the 4 NPA originally considered in the indicators. At APFF Sierra de Álamos Río Cuchujaqui an EDRR system has been conceived specifically for the armored catfish (<i>Pterygoplichthys</i> sp.), although a broader vision is disseminated so that any non-native species found are reported to the PA manager.</p>	Reports on the development of the EDRR system for Cañón del Sumidero NP and study on pathways of introduction in Marismas Nacionales Nayarit NP for three species.
2.2.6	Implement targeted IAS control, eradication and monitoring at selected mainland PA sites.	MU	<p>Invasive plant control results so far at APFF Sierra de Álamos Río Cuchujaqui (<i>Melinis repens</i>), Cañón del Sumidero NP (<i>Hyparrhenia rufa</i>) and Cumbres de Monterrey NP (<i>Ligustrum lucidum</i>, <i>Koeleria paniculata</i>, <i>Arundo donax</i>) are unsatisfactory. The control methods applied have not been effective and lack scientific background. The Scientific Committee should provide guidance for these activities and capacity building is clearly needed. Mechanical control of salt cedar (<i>Tamarix ramosissima</i>) in Arroyo del Mentidero, in APFF Sierra de Álamos Río Cuchujaqui, was successful especially because it was an initial invasion, therefore a good example of rapid response to early detection, but monitoring is required to avoid reinvasion in case more propagules reach the area. In this case, the identification of vectors and pathways of introduction is important to prevent the arrival of new propagules.</p> <p>In RB Los Tuxtlas, 5 monitoring and control plans for IAS were developed: (a) In the plan for African grasses, only mechanical control is considered as an alternative, while no other methods with better chances of success were adequately assessed. The authors do not present solid arguments to discard other control options. (b) In the plan for wild ginger (<i>Hedychium coronarium</i>), the authors very superficially discard alternatives for chemical and biological control in four brief paragraphs, then recommend mechanical control as the only viable option. (c) In the plan for the African orchid (<i>Oeceoclades maculata</i>), control options are treated just as superficially and discarded in one paragraph, which leads to the recommendation of mechanical control as the only option. (d) In the plan for muérdago (<i>Stathanthus</i> sp. and <i>Psittacanthus calyculatus</i>), the authors follow the same logic of presenting superficial arguments against any control option but mechanical control. (e) In the plan for the armored catfish (<i>Pterygoplichthys</i> sp.) potential uses for the meat are presented in item 8 (control</p>	<p>APFF Sierra de Álamos: reports on the control of pink grass (<i>Melinis repens</i>). There is no report on results of control after monitoring.</p> <p>Cañón del Sumidero NP: reports on the control of jaragua grass (<i>Hyparrhenia rufa</i>) and other activities. There is no report on the results of control after monitoring.</p> <p>APFF Tutuaca: workplan and report on a survey of 4 IAS (the link incorrectly refers to a study on public policies).</p>

Number	Outputs	Level and evaluation at mid-term and rating of results	Justification for ratings	Evidence in project web page
		MU	<p>measures), but no control method is suggested except for mechanical control without any details about procedures and available techniques and tools. It is important to note that the authors were not able to provide science-based substantial information as a basis for control, not even using existing references. Besides, they seem biased against any form of control that is not mechanical. This approach is unfortunate and inadequate for this project, which is expected to produce models for replication and consider the cost-benefit ratio of control actions comparing different methods. The combination of methods is not even considered (such as pulling out small populations of wild ginger and using herbicides on large infestations), neither differences in technologies and techniques available and referenced in scientific literature or long-term control programs in other countries. These plans almost dedicate more text to environmental education than to discussing realistic control measures in accordance with needs of the NPA and the project. The report on the workshop for integration of the monitoring and control brigades in RB Los Tuxtlas does not include information on contents and, having been written by the same authors who developed the management plans, it seems that no control options were discussed, which seriously hinders the possibility of achieving effective results in controlling the target species. A work plan was developed for APFF Tutuaca in 2015 including a survey on four IAS (rainbow trout <i>Oncorhynchus mykiss</i>, mozambique tilapia <i>Oreochromis mossambicus</i>, pink grass <i>Melinis repens</i> and buffel grass <i>Cenchrus ciliaris</i>) by August, 2017, and management plans due in November, 2017. There is a report on the survey on four IAS in the APFF, but the management plans are delayed because there have not been applications to calls for proposals due to the presence of organized crime in the area, which generates insecurity, and difficult access to sites. There is a work plan, dated Nov., 2017, for El Vizcaíno BR for the control of three IAS (iceplant <i>Mesembryanthemum crystallinum</i>, bullfrog <i>Lithobates catesbeianus</i> and red-bellied tilapia <i>Tilapia zillii</i>) and a report on the selection of sites for control, but no report on control actions.</p>	<p>Marismas Nacionales Nayarit BR: report on manual control of princess vine (<i>Cissus verticillata</i>). There is no report on the results of control after monitoring.</p> <p>El Vizcaíno BR: workplan and report on the selection of sites for iceplant control (<i>Mesembryanthemum crystallinum</i>), red-bellied tilapia (<i>Tilapia zillii</i>) and bullfrog (<i>Lithobates catesbeianus</i>).</p>
2.2.7	Undertake ecosystem restoration in areas negatively impacted by IAS.	MU	<p>As the results of invasive plant control in the PN Cañón del Sumidero are not effective, there might not be enough time left in the project to undertake complementary restoration measures. There is a nursery in the park, but plantations will only be viable once the African grasses are under effective control. At RB El Vizcaíno, where iceplant (<i>Mesembryanthemum crystallinum</i>) is being controlled, a nursery was established with native germplasm, but restoration measures have not been implemented so far because control actions are still in development. Restoration of natural habitats takes time, and will not be viable to measure before the project end. These actions can be complemented by other programs such as ENbioMex and the 2030 Action Plan.</p>	There is no information on the project web page.

3.2 ASSESSMENT OF WORK PLAN IMPLEMENTATION

Work plans are developed annually based on the 36 outputs of the project, as well as on resources assigned for the year. In 2015, funds were directed to 25 of the 36 outputs. In 2016, the same 25 outputs were contemplated, continuing from the former year; in 2017, 27 outputs were developed, and for 2018, 29 of the 36 outputs will be developed.

Some outputs have not been included in any of the AOPs so far, including 2018. Despite the omission, incipient advances were made, or changes in focus were applied. These outputs are part of **Component 1:**

1.1.7 Development and application of Inspection Tools for IAS that threaten biodiversity – It is reported in the PIR that *“a contract is being prepared for services on the development and implementation of the PROFEPA Institutional System for Registry of Verification (SIREV)”*. Then it is reported that *“a catalogue of species and database is in development with CABI. A workshop on biosecurity was held and communication materials were developed. This output will be developed in 2018 with funds from CESAEM; there are plans to work on nurseries with botanical gardens in Morelos”*. These actions are not planned in the 2018 AOP.

1.2.1 Draft regulations for control of IAS in operations of productive sectors. A 2016 report informs that *“a study is available to guide the legal improvements necessary to strengthen IAS management in Mexico, including several proposals for laws and regulations”*. The 2017 report only mentions *“participation in a working group to develop a national interpretation of principles and criteria for international certification standards for the production of African oil palm in Mexico (IN-RSPO)”*.

1.3.6 Budgetary coordination between sectors to ensure coherent investments and actions to address threats cost efficiently – No progress, no results. This output depends on outputs 1.1.11 and 1.1.12, which have not been completed, and requires intervention of the High-Level Committee once the necessary information is available.

In other cases, there are budgeted activities in the AOPs; but at the end of the year no results are reported. For example:

1.3.4 Strengthen capacity for Early Detection and Rapid Response (EDRR) systems for IAS at the national level. The 2015 AOP included funds to carry out EDRR actions, but no results were reported at the end of the year. An adaptation of EDRR maps from the USA to pilot areas was included in the 2016 AOP; the annual report mentions that it will be implemented in 2017. The US group is now reviewing criteria for information exchange, so this activity will be continued when this is completed. Activities were planned in 2017 to strengthen capacity for EDRR in the country (meetings to establish EDRR for selected species), and in the annual report a meeting to define the scope of this action is mentioned along with the decision to focus on zebra mussel (*Dreissena polymorpha*) and include a species of starfish (*Luidia magnifica*) due to high risk to Mexico. There is no information on progress for this output, but work is planned for 2018.

In other cases, more than one activity is planned for the same output. For example, output 1.2.2 *“Provide information, resources and training for improved IAS management to private sector stakeholders and government agencies in the Wildlife and Forest sectors”* was included in the 2017 AOP with the following actions:

- provide information, resources and training to improve IAS management in the private sector and government agencies in charge of wildlife and forests;
- carry out *“risk assessment for *Agrilus planipennis* and *Phytophthora ramorum*”*;
- implementation of phase 2 monitoring in four commercial national ports to prevent the introduction of alien forest pests;
- implementation of phase 2 of the *“specialized study on best reforestation practices in priority zones using native species”*;
- *“specialized study on practices of fire management focused on the control of invasive plants”*;
- inspection of transborder movement of wildlife and forest species in ports, airports, and borders;

- identification of forest pests: acquisition of equipment for the detection of potentially invasive species;
- capacity building and participation in expert meetings on IAS;
- capacity building (workshops) for PROFEPA inspectors (in ports, airports and borders) on the identification and management of IAS that impact biodiversity, especially pests of forests and wildlife;
- development of field guides;
- development of an application for mobile phones for the Institutional Verification Registry System (SIREV);
- among others.

This is an example of the complexity of this project, having 36 outputs as well as many activities associated to each one. This context can make it difficult to follow up on each activity and ensure that deadlines are met. The MTR Team developed the impression that some of the outputs have more weight than others, for which reason it will be important to try to balance the outputs until the end of the project to achieve the expected results. To make information available on gaps, delays and justifications for changes or adaptive management is as relevant as to provide information on advances and results (especially in annual reports and PIR) and to post reports and products in the project web page in the CONABIO website.

Component 2 is dedicated to practical actions, and might have been curbed because the same basic activities were planned for nearly all the NPA involved (15). This once again generates a large number of contracts, outputs and products to follow up on, without necessarily having enough personnel or expertise to do the work. Output 2.2.1 “Develop baseline information necessary for effective IAS management planning” is certainly useful and benefits the NPA, but it has taken long to find consultants able to perform the task, which delayed implementation. This output has therefore acquired more weight than others which directly produce future reference and models for replication. As a result, other outputs have been delayed and there might not be enough time to measure effectiveness before project closure.

Baseline studies do not generate direct impact on the conservation of biodiversity, can be carried out at any time and are not necessarily essential for implementation of activities of higher impact. The activities originally designed were meant to generate models for replication throughout the NPA rather than a large volume of information for each NPA. Models for replication are expected for EDRR, control of invasive plants and application of best practices. In the last case, manuals have been developed, but the adoption of practices by producers needs to be implemented in 2018.

Some species were included in the sets of indicators, then later considered of low risk. For this reason, and based on results of consultancies and baselines, it was decided that they should not be controlled. These changes are not well documented and justified in the annual reports, while EDRR protocols would apply to at least some of the species, fulfilling expectations set in the indicators and GEF objectives. A baseline study found that the monk parakeet (*Myiopsitta monachus*) is only present in urban areas in RB El Vizcaíno, which should have led to the definition of an EDRR protocol to help prevent its spread to natural areas. This action would have achieved the expected result set by the indicator and provided effective prevention measures for the Reserve.

As mentioned before, baseline studies and IAS management plans ended up taking much longer than expected, delaying implementation of more relevant activities such as EDRR systems, eradication and control (which are expected to generate replicable experiences, a priority for GEF). Although the investment in many baselines is a result of a management decision, the delay in completing them also reflects the lack of well-prepared professionals on issues of IAS, the lack of participation in

consultancies, and even problems of access to certain areas for insecurity issues due to organized crime. These factors have also affected the delivery of outputs in Component 1.

Although the responsibility of supervising all activities lies with the PMU, Component 2.1 is carried out by GECI (Island Ecology and Conservation Group) and Component 2.2 is supervised by Central CONANP – Coordination for Invasive Alien Species, which functions as link between the project and NPA. While the eradication of terrestrial vertebrates on islands has been very effective, the control of invasive plants has not yielded good results. This is mainly due to lack of capacity on IAS management in natural areas throughout Mexico; some NPA managers have not allowed the use of chemical control, and in other cases the methods used were not appropriate. It is therefore urgent to improve communication with NPA Directors and capacity to ensure that the best methods available are used in control work, especially as not much time is left for monitoring and consolidation. The investment made so far in plant control has not been worthwhile in terms of results, and will not serve as base for cost-benefit studies or for further replication. Besides, workers from communities who have been involved in mechanical control are frustrated with the results of their efforts as invasive plants are reinvading the same areas.

In other cases, planned activities have not been carried out as expected because targets set initially were too ambitious, as in (a) changing national laws and establishing regulations in a complex political context; (b) depending on many stakeholders, as in the case of subcommittees, which had been scheduled for establishment during year 1 of the project; (c) or lack the right leadership, as in the implementation of biosecurity protocols so far led by GECI, an NGO, instead of CONANP.

3.3 ANALYSIS OF BUDGET AND IMPLEMENTATION PACE

The project was supposed to start in June, 2014. Annual Operational Plans (AOP) and Combined Delivery Reports (CDR) register the reception of initial funding in November, 2014, delayed due to legal issues. The efficacy of financial management is evident from the second year of implementation (2015), as 98.33% of funds were disbursed. In the third year (2016), 99.33% of funds were used; and by the end of year 4 (2017), 96.52%. At the end of 2017, 44% of GEF funds had been used (accumulated). There are no findings in financial audits, indicating that the PMU is highly qualified in financial management.

A change of approach was implemented in 2018 in order to make spending more effective and lower the workload for the PMU. This is especially important because the budget for the year is significantly higher (34.26% of GEF funds). In the beginning of implementation, due to uncertainties about the quality of consultancies, the PMU issued separate calls for small value proposals, which implied more work to prepare ToR, supervise execution and review reports. As the PMU and consultants improved their performance, contracts are now of higher value and request the delivery of combined products, optimizing management time. Although the 2018 budget is more than twice the former, 23.44% of the funds were already committed to contracts between January and March. The pace of implementation is adequate to the needs of the project, and all evidence points to a very positive outcome in financial management in the two remaining years.

Table 5 – Budgets approved per year and pace of implementation.

Year	Approved	Spent	% Spending	% Total budget
2014	-	6,604.23	-	-
2015	670,000	658,983.30	98.33	12.51
2016	800,000	785,972.35	99.33	14.94
2017	950,000	916,940.15	96.52	17.74
2018	1,834,508.06	(until Mar 31 st) 430,000	(Mar 31 st) 23.44	34.26

3.4 RATING FOR COHERENCE WITH PROJECT AIMS, GEF AND UNDP OBJECTIVES

HIGHLY SATISFACTORY

The project is aligned with GEF Strategic Objective 2: “Mainstream biodiversity conservation and sustainable use into production landscapes, seascapes and sectors”, more specifically with Outcome 2.3: “Improved management frameworks to prevent, control and manage invasive alien species” and Indicator 2.3: “Eighty-percent (80%) of projects meet or exceed their target for a fully operational and effective IAS management framework”. Advances are verified with the GEF Tracking Tool.

At the national level, the project is aligned with five agreements in the Mexico Pact, which aims to develop a country that is peaceful, inclusive, with quality education, prosperous, and a stakeholder with global responsibilities. Other documents, such as the National Development Plan 2013-2018, are also relevant. The UNDP Country Program 2014-2018 gives priority to collaboration in: a) equality, inclusion, integrity; b) productive economic development, competitiveness and respectable work; c) environmental sustainability and green economy; d) citizen safety, social cohesion and justice; e) democratic governance; and f) alliance for development. In the strategic results and resources framework for Mexico, the project is related to the UN Development Assistance Framework #6: Three levels of government, private sector, academia and civil society with strengthened capacity to revert environmental degradation and implement the sustainable and equitable use of natural resources by mainstreaming environmental sustainability, development with low emissions and green economy in legislative, programming and decision-making processes, creating “low risk of disaster and low emissions, resilient and environmentally sustainable strategies, with gender and multicultural focus in order to reduce poverty and increase equality”.

The project outputs contribute to the implementation of the National Strategy on Invasive Species. The major goal is to increase capacity for the management of IAS in Mexico. The National Strategy on Invasive Species, in combination with capacity building aims, connect the many activities of the project despite the many types of public and the 15 protected areas involved.

3.5 RATINGS FOR STAKEHOLDER PARTICIPATION

Table 6 – Evaluation and ratings for the participation of stakeholders in project implementation.

INSTITUTION	RATING	JUSTIFICATION FOR RATINGS
Government		
SEMARNAT – CONABIO – National Commission for the Knowledge and Use of Biodiversity	HIGHLY SATISFACTORY	None of the stakeholders interviewed during the MTR hesitated in acknowledging CONABIO as the most appropriate institution to lead the project, for the level of commitment, availability and will to generate the best results, as well as management capacity.
SEMARNAT – CONANP Central - National Commission for Protected Areas	SATISFACTORY	Stakeholders acknowledge the availability, dedication and support of the Coordinator for IAS at Central CONANP to project activities in NPA. Because the Coordination for IAS is lower in CONANP hierarchy than NPA Directors, the group is very small and stretched over too many issues, their potential to influence action is limited. It would be appropriate for the Central IAS Coordination unit to include an expert on IAS management to support the work carried out in NPA. The hierarchy also hinders M&E of ongoing work, as it depends on collaboration from NPA Directors. There have been changes in project activities but these are not properly registered or justified in the project documentation, which creates difficulties with M&E. Outputs need to be better documented and use the project indicator tables.

INSTITUTION	RATING	JUSTIFICATION FOR RATINGS
SEMARNAT – CONANP - Natural Protected Areas	SATISFACTORY	It is difficult to rate all protected areas together, as several employees at different levels are involved. Generally speaking, participation of the NPA is satisfactory. Improvement can be attained as not all directors and staff involved in charge of IAS have ownership of the project, as some have only recently been assigned and are not yet as informed as need be. In other cases, access to financial resources has been a limiting factor, as well as limited capacity of consultants in IAS management in natural areas. On the other hand, the work on islands is impeccably implemented by GECI, to some extent giving the impression that NPA staff does not need to get involved; this is not the case, especially for enforcing the application of biosecurity measures, a role of CONANP, as well as for maintaining basic EDRR measures in place on many islands.
SEMARNAT - CONAFOR - (DGGFyS) National Forest Commission – General Directorate for the Management of Forest and Soils	SATISFACTORY	Considering the relevance of the role of CONAFOR in the project, and despite budget cuts applied by the national government to environmental sanitary measures and IAS monitoring, as well as limitations of personnel, CONAFOR has ownership of IAS issues and carries out activities as planned. A risk assessment protocol for forest species is in development with CONABIO, as well as regulations on reforestation using native species. CONAFOR has cooperated with other agencies such as CONANP and SENASICA on IAS management. The involvement of other departments within CONAFOR is desirable, as the main challenge includes cultural changes to stop the use of invasive alien trees which have always been prioritized in forestry initiatives.
SEMARNAT - Secretary of Environment and Natural Resources - particularly the Sub-Secretary of Environmental Incentives and Regulations	MODERATELY SATISFACTORY	The MTR interviews revealed that the participation of SEMARNAT in the project needs to be increased. Although the publication of the National IAS List is highly relevant, and that there have been budget cuts, a more active focal point for IAS is missing to support the implementation of the project and the National Strategy on Invasive Species. There are opportunities and requests for the development of legal regulations for species or groups of species used in production, as well as to manage pathways and vectors of IAS introduction and spread. The SEMARNAT General Directorate for Wildlife should be more involved to improve coordination with other agencies such as CONANP for expediting the process of issuing permits for control actions in NPA and especially for EDRR.
PROFEPA – Federal Law Office for Environmental Protection	SATISFACTORY	The General Directory for Forest Inspection and Surveillance and the General Directory for Environmental Inspection in Ports, Airports and Borders are committed to the project and IAS issues. Capacity building on IAS has been provided to 32 PROFEPA Delegations, which helped institutionalize the issue. Equipment and identification guides were provided with project funds. Detection at points of entry has increased as well as the presence of inspection agents in ports, airports and country borders. Improvements to the Registry System are under way and applications with identification guides will be developed for cell phones. Although not planned originally, the involvement of the PROFEPA General Directorate for Wildlife, Marine Resources and Coastal Ecosystems is highly desirable for its role of inspections on IAS that impact biological diversity.
SAGARPA – SENASICA - National System for Agricultural, Cattle Production and Food Sanitation, Innocuousness and Quality Control	SATISFACTORY	In spite of not being a formal partner, the participation of SENASICA is highly relevant for coordination with CONABIO and SEMARNAT in developing information standards for the IASIS. The scope of work by SENASICA on IAS has been enhanced, as ways to include IAS in sanitary certification are being assessed and may lead to a single certificate for sanitary issues. However, the implementation of prevention and control actions, especially best practices by productive sectors, is still pending.

INSTITUTION	RATING	JUSTIFICATION FOR RATINGS
SAGARPA – INAPESCA – National Institute for Fisheries	SATISFACTORY	Participation of INAPESCA in the project was hindered due to changes of personnel, including the Director, which delayed the implementation of activities. Although the current Director is invested in developing a closed cycle model for breeding ornamental fishes, another change of personnel is likely to happen with upcoming elections, and might again hinder the outcomes.
SAGARPA – CONAPESCA – National Commission for Aquaculture and Fisheries	SATISFACTORY	CONAPESCA has formalized its role as project partner, has a seat in the High-Level Committee and is aware of the work in development on aquaculture and ornamental fishes. CONAPESCA has decided to support producers who implement biosecurity measures developed through the project. Based on risk assessments and sanitary issues, CONAPESCA banned the importation of alien fishes in the Pangasiidae family.
SEMARNAT – IMTA - Mexican Water Technology Institute	HIGHLY SATISFACTORY	IMTA is invested in mapping aquatic plants and has initiated IAS control in Zapotlán, Jalisco, with municipal authorities, contributing to extra achievements related to the project. IMTA has identified biological control agents for water hyacinth (<i>Eichhornia crassipes</i>) and giant reed (<i>Arundo donax</i>) that may solve invasion problems by aquatic plants in the future. Unfortunately, CONANP and SEMARNAT have not granted IMTA the necessary permits for the release of these agents, an indication of lack of technical knowledge on IAS.
INECC – National Institute for Ecology and Climate Change	UNSATISFACTORY	INECC was seriously impacted by budget and personnel cuts since the 2014 elections, to the point that it has not been able to contribute to the project. The PMU is in contact with INECC on work to be developed in 2018.
CESAEM - Morelos State Water Sanitation Committee	HIGHLY SATISFACTORY	CESAEM provides support to companies on improving the quality and sustainability of aquatic products in the state of Morelos by performing assessments, prevention, detection and control of diseases and pathogens that pose risks to species in production. CESAEM is an auxiliary body to SENASICA at the state level. It has been a relevant partner in the project, building capacity on changes in regulations and protocols, implementing biosecurity measures as well as developing EDRR and improving production systems based on biosecurity measures.
NGOs		
GECI - Island Ecology and Conservation Group	HIGHLY SATISFACTORY	Besides achieving the expected outcomes in the control of alien vertebrates on islands, GECI has contributed the largest portion of financial resources for this task. An extra achievement is the eradication of cats on Socorro Island before project closure. The application of biosecurity protocols is new for GECI, which sought cooperation with SEMAR for the task. IAS issues have been disseminated to the public.
FCEA - Communication and Environmental Education Fund	HIGHLY SATISFACTORY	FCEA had never worked on IAS issues before getting involved in the project. Environmental education events organized through the project included discussions on possible solutions for existing IAS problems. The participation of FCEA was important for the project to reach a wider public that included children, teachers, journalists, legislators and others. FCEA is interested in doing more work on IAS, and has included the issue in other projects run by the organization. Information on aquatic IAS was included in an application developed by FCEA for cell phones on watersheds and water issues, which can be considered an extra achievement of the project.
Private sector / Local stakeholders / Stakeholder groups		
Representatives / Key productive sector associations	SATISFACTORY	Involvement of key productive sectors in aquaculture, ornamental fishes, cattle and goat production is uneven among sectors and producers. Best practice manuals are ready but still need to be implemented.

INSTITUTION	RATING	JUSTIFICATION FOR RATINGS
Local communities (Islands and NPA)	SATISFACTORY	The engagement of communities on islands and around NPA is heterogeneous. Those more impacted by IAS have been more involved. There is naturally more interest on IAS that are a nuisance, such as rats, and less collaboration when the issue is pets. The commitment of the Cooperative of Abalone Fishermen on Cedros Island is remarkable, at the same time the application of biosecurity measures by GECl is implemented with considerable effort. Implementation status in continental NPA is very diverse, facing problems such as invasion of natural areas by urban sprawl as well as succeeding in engaging people from local communities to do very hard work in mechanical control of invasive plants.
Academia		
UNAM – Self-Governing National University of Mexico / UAM – Self-Governing Metropolitan University - Xochimilco Branch	HIGHLY SATISFACTORY	Risk assessment for non-native plants and rapid risk assessment protocols and results are some of the key expected outputs of the project. Extensive tests have been made, and more adjustments are still required for the rapid assessment not to be biased. The model for invasive plant surveys developed has generated systematized information that provides a better understanding of plant invasions in the areas covered. The universities have written a reference manual and disseminated information on IAS to students and other professionals.
UANL - Self-Governing University at Nuevo León	HIGHLY SATISFACTORY	The University has been key in providing scientific background to biosecurity measures in the state of Morelos and on the identification of aquatic IAS, as well as for adjusting risk assessment protocols for aquatic species to Mexico and testing and correcting the rapid assessment protocol.
Financial management		
UNDP Mexico - United Nations Development Program	HIGHLY SATISFACTORY	The UNDP has been impeccable as financial agency of the project and in pursuing high quality in project reports, products and management processes. Some dissatisfaction has been voiced due to processes of approval of consultancy products, which take long, causing delays in payments and implementation. These issues are more related to verification processes and the quality of products than to the participation or management by the UNDP, not affecting the participation rating.

3.6 EVALUATION OF INFORMATION AND DISSEMINATION MECHANISMS

HIGHLY SATISFACTORY

Many dissemination materials were produced through the project for different types of public and purposes, from environmental education to general information and for schools – especially through FCEA – and university students, who contributed in performing rapid risk assessment analyses (MERI). The quality of materials is good, and they are diverse enough to suit many purposes (printed material, posters, folders, stickers, games, road signs, audio recordings for radio programs and short videos for local television). Project priority issues are covered, as well as the identification of species per area of interest such as NPA and islands. Biosecurity materials for islands and ornamental fish producers clearly indicate prevention activities to be adopted by the public.

These materials were also used in the many capacity building and environmental education workshops held on IAS and related issues. Workshops held as part of Component 1 included many types of public, from community members to legislators and journalists. Monthly meetings on biosecurity are organized with SEMAR on Guadalupe Island, RB Banco Chinchorro and PN Arrecife Alacranes, as well as other meetings for exchange of experiences on IAS management and biosecurity, for example in Ciudad de Chetumal for personnel of four NPA, and participation in

environmental forums such as ExpoAmbiente. Printed materials are available for Guadalupe, Espiritu Santo and Cedros Islands, Revillagigedo Archipelago and RB Banco Chinchorro.

Workshops held in continental NPA (Component 2.2) amount to 19 so far, with 390 participants, one third of which were women. The numbers of female participants can be used as a baseline for future reference, as the project was not designed to include gender issues. Opportunities to improve gender balance may be developed with the Subcommittee on Gender formed for APFF Sierra de Álamos Río Cuchujaqui and in the work developed by GECI with communities on islands on biosecurity issues and the eradication of feral pets.

The materials produced should be more visible on the project web page (CONABIO website), especially those that suit different purposes and educational activities for replication. A section on dissemination materials would provide better visibility. IAS issues have recently been part of events in Botanical Gardens, reaching out to a new type of public, including children and people who are keen on gardening and ornamental plants, an important pathway of introduction and spread of IAS.

The National IAS List published by SEMARNAT has received special attention for dissemination. It is available from the CONABIO, SEMARNAT and COFEMER (Secretary of Economy) websites, and has been presented to those involved in the project and used in several workshops for dissemination and capacity building. The list is being used by the institutions linked to the project as a base for risk assessments, prevention measures, EDRR and control. Newspaper articles on the list were published especially by journalists involved in capacity building through the project. The list was presented to legislators in a workshop and became a consolidated reference in an article published in the book on challenges faced by Mexico on IAS (CESOP, 2017). The scientific community published a note on the List in Science magazine in April, 2017.

The [CONABIO web page](#) has been an important means of information on the project and on IAS, although information and products (such as maps and tools) are missing for several project outputs. The website includes basic information on IAS, pathways, partner institutions, resources, impacts and the IASIS, apart from news on IAS. Products of consultancies have been reviewed by the PMU and UNDP to ensure quality standards as possible for local knowledge and format. However, it would be useful for the public interested in the project to have summaries per component and output in order to make the project easier to understand and communicate results more effectively.

3.7 PARTICIPATION CONTEXT OF CO-IMPLEMENTATION MANAGEMENT PARTNERS

3.7.1 Monitoring and Evaluation

SATISFACTORY

The Monitoring and Evaluation (M&E) Plan has an adequate budget and is being implemented. Periodic reports are delivered in accordance with deadlines and based on reliable information.

Progress activities and advances, including expenditures, are presented in meetings of the High-Level, Technical and Scientific Committees and with stakeholders. The project has been undergone three financial audits (2015, 2016 and 2017) without any findings, which is remarkable.

The evaluation of risks to the project presented in the design phase was updated for the annual reports (2015, 2016 and 2017, and PIR 2017). One of the risks mentioned the difficulty of approval of the Law on Biodiversity with suggestions from the PMU. In April 2018, the Law was rejected by the Deputies Chamber. As project implementation is now in the 5th year, and national elections are coming up, it is unlikely that a new proposal may be approved before project closure. This is an

indicator of a realistic evaluation of risks. Other minor risks are being mitigated and do not seem to pose any serious threats to the development of project outputs. A complementary assessment of problems and relevant issues was carried out to allow for mitigation and follow up.

M&E tools have been in use by the PMU to follow work in development. Indicators in the Strategic Results Framework are assessed every three months, as well as the complementary set of indicators per output. In some reports, the number of animals eliminated in control efforts was reported without reference to a total estimate, which does not provide a clear notion of progress [for example, “70% (549 cats) of the estimated cat population has been eliminated” instead of “549 cats were eliminated” without further reference]. This should be avoided in progress reports (annual reports, QPR, PIR), as well as repeating information from former reports to avoid confusion. If no progress was made in the reporting period, this should be made clear as well.

Some of the activities, although implemented, were not completed according to deadlines set in the indicators. In some cases, this is due to planning problems in the project design more than to M&E. The 15 subcommittees to support IAS management, for example, were planned to be established in year 1, which was not realistic. At the end of 2017, six subcommittees were established for continental NPA, while the other three are in process in 2018. This shows that, during the design phase, the challenges faced by the PMU in finding qualified professionals to carry out project activities was not clearly understood, and potential complications regarding political will and involvement by many stakeholders was not adequately considered. In other words, planning was overoptimistic in the design phase. In other cases, there are some monitoring gaps, as in the case of control of invasive plants in Cumbres de Monterrey NP. The initial plan was altered due to the baseline studies, so less hectares per species and more species were prioritized for control. This means that the indicator, as established in the beginning of the project, will not reflect the expected achievement. The change is well justified, as more invasive plant species were identified after the project was designed, but a corresponding change in the indicator should have been negotiated at the time with the UNDP to keep the M&E plan updated and the indicators, measurable. CONANP started to control giant reed on 160 hectares in 2014 with funds from PROCER, in which case the species and the area are aligned with the indicator. The report on results indicates that the methods used were inefficient to eliminate giant reed, and that only 31% of privet trees (*Ligustrum lucidum*) actually died after control, again due to the use of inefficient methods. At APFF Sierra de Álamos Río Cuchujaqui and at Cañón del Sumidero, the results of control of African grasses have not been satisfactory so far because the methods chosen are inefficient and the work is interrupted, allowing for reinvasion. Therefore, although control work has been implemented in various sites, effectiveness is very low, therefore the results are not useful to the project and especially not for replication to other areas or projects. From an M&E standpoint, it is unsatisfactory that these results were not properly assessed longer ago and the methods, changed, and that in some reports these activities were reported as achieved based on area covered, but not on effectiveness.

Another monitoring gap refers to the control of five plant species in PN Arrecife Alacranes in the first year of implementation, to be carried out by GECI. CONANP NPA managers, probably for lack of capacity on IAS, restricted the control work (of *Casuarina*, because it provides shade, and of chemical control, for fear of negative impacts). This shows how important it is to build capacity before such measures can be applied. Therefore, instead of control work, a floristic survey was carried out in 2016. Again, the indicator was not adjusted to reflect this change of plans. Once the inventory was finished, the efforts of GECI focused on the development and application of biosecurity protocols and eradication and control of vertebrates. The activity on plant control was abandoned, and monitoring failed to notice. This activity is not mentioned in the annual reports written by GECI staff

on their work on islands. Among the many actions brilliantly executed by GECI in the scope of the project, this one was disregarded. This again indicates the complexity of following up on so many outputs carried out by a large number of partners and contractors, and highlights the relevance of having appropriate indicators to facilitate M&E, as explained in item 2.4.

Based on the assessment of indicators and expected outputs at the time of the MTR, it is important to state that the MTR should have been carried out at the end of the 2016, when the project was halfway through implementation. The PMU and collaborators have produced a wealth of information, baselines, studies, reports, products and dissemination materials required to achieve expected results. It might be considered a design issue that most activities were focused on prevention, EDRR, eradication and control of known IAS, while baselines were still necessary because not enough information was available for implementation. Because it has taken so long to generate baselines, the potential of achieving the expected outcomes is affected. In Component 2, application of biosecurity protocols for islands, operational EDRR in NPA and the definition of cost-effective control methods for invasive plants are all key outcomes, but not yet consolidated. Perspectives of fulfillment would be better had the MTR been conducted earlier, as there would be more time for applied work and consolidation. Especially in the case of plant control in some areas where the dry climate only allows work to be carried out in the summer months, there is high risk of not achieving the desired results because, if control is not properly carried out in the coming three months (summer 2018), with authorization from CONANP NPA Directors and adequate equipment, there will not be enough time for consolidation, as at least one extra year is necessary for monitoring and sustained control. This will require swiftness on part of the PMU, CONANP and consultants, in a concerted effort to generate good results in the very short term.

3.7.2 Financial planning

HIGHLY SATISFACTORY

Financial planning in AOP gained efficiency along project implementation, as gradually larger amounts of funds are committed in contracts and used per year. The 2018 AOP is more daring, as more than twice the amount of funds from former years is to be disbursed. This is because by December 31st, 2017, total spending totaled USD 2,368,500.03, equivalent to only 44% of the total budget. The AOPs have been coherent with the gain of experience and executive capacity of the PMU. **External audits** of financial resources have been carried out without any findings in 2015, 2016 and 2017.

According to some of the interviewees in the MTR, **delays in payment** have occurred, but are due to detailed and repeated revisions of consultancy reports and products, meant to maintain quality standards, not with processing issues. Still, delays in field activities for lack of resources may be harmful to project achievements, especially when action is dependent on seasons and may not be carried out at any time. Therefore, better balance needs to be achieved between these issues.

The overall project budget has benefitted from fluctuations in the **exchange rate**, resulting in a larger amount of funds in national currency and contributing to the viability of project extension to the end of 2019. Complementary resources for the extension were negotiated with partner organizations: CONANP USD 35,000; PROFEPA USD 20,000; SEMARNAT USD 15,000; CONAFOR USD 15,000, and GECI USD 5,000. The average annual cost of salaries for the PMU is estimated at approximately USD 90,000. Because partner organizations have been planning to carry out activities with their own funds and in-kind contributions, this renegotiation has not impacted the work plans already designed.

Some comments are relevant in terms of **cost-efficiency**:

- investments made in capacity building have involved several types of public, beginning with government agencies linked to IAS management and NPA staff, and extended to representatives of communities near NPA or living in Biosphere Reserves, journalists, legislators, teachers, school children and two NGOs. GEI already had expertise in the control of vertebrates on islands, but benefitted from the project for increasing its scope of work to cover prevention and EDRR measures included in biosecurity protocols. FCEA had never worked on IAS before the project, but incorporated the issue in other activities run by the association. The organizations which have coordinated capacity building and information events have also gained capacity in the process. The approach of reaching out to a diversity of types of public and using many information materials has changed the vision of many people. Reports on workshops show that many participants were presented IAS concepts and issues for the first time;
- the subcommittees formed for IAS management in NPA are only beginning to operate, but there is good acceptance and motivation for ongoing work. This indicates that the investment in consultancies to establish these governing bodies has been worthwhile. Follow up is necessary to make ensure consolidation and continued operation beyond project closure;
- EDRR systems have been designed, but more time is needed to ensure their operation and functioning. It is essential ensure that detection alerts are reported and that rapid response protocols are followed as designed and manage to contain or eradicate invasion *foci*. A very relevant point is to verify whether NPA personnel understand the concepts of EDRR well enough to react to any sightings of IAS, especially individuals or very small populations, and that any non-native or unknown species found, regardless of specific protocols, triggers a rapid response. Cost-efficiency in these systems is directly related to the detection of isolated individuals and small populations, for which response actions are more urgent, of lower cost and highest possibility of eradication compared with established populations. Training based on simulations of early detection that must trigger rapid response is an effective way to determine cost-efficiency and the efficacy of these systems;
- investments in control and eradication of invasive alien vertebrates on islands, carried out with co-financing from GEI has excellent cost-benefit, both because the work is highly efficient and because 90% of the funds come from other sources. Cost-effectiveness of investments on biosecurity programs for islands, on the other hand, still cannot be properly assessed, as these programs require consolidation;
- investments in the control of African grasses in continental NPA have not been cost-effective due to the use of mechanical methods and lack of follow up, resulting in reinvasion (APFF Sierra de Álamos Rio Cuchujaqui), reinvasion and loss of investment in plantations of native trees (PN Cañón del Sumidero) and low efficiency of control due to the methods used (PN Cumbres de Monterrey). There are recommendations for manual removal of iceplant (*Mesembryanthemum crystallinum*) at El Vizcaíno BR as well as ongoing manual removal of princess vine (*Cissus verticillata*) at RB Marismas Nacionales Nayarit and intentions of trying to control pink grass (*Melinis repens*) with rotational grazing at APFF Tutuaca, among other mechanical methods. Also at RB Los Tuxtlas, plant control has only been carried out with mechanical methods. Although mechanical control is appropriate in certain situations, work developed through the project has been mostly experimental and ignored available

technical information on control methods for plant species. This has negative impacts on the project for not achieving the expected results nor defining effective control methods that may be replicated to other areas or projects. While evaluations of effectiveness are not available, experimentation without a proper technical background continues, committing more resources with low probability of good outcomes.

Stakeholders committed **co-financing** funds for project implementation in the design phase. The political context has interfered in the capacity of government agencies to fulfill their commitments, as budgetary cuts have been applied to government agencies responsible for environmental management and related issues. Regardless of this scenario, CONABIO has so far contributed 63% of the total co-financing planned (Table 7), a positive indication that it will be able to fulfill its contribution by the end of the project. CONANP has also fulfilled its commitment, having contributed 51.9% of planned resources so far. SEMARNAT has only contributed 30.8% of the amount initially planned. CONAFOR has made a considerable in-kind contribution, more than three times the original amount, which corroborates its involvement in several project activities; IMTA has contributed 94% of its total commitment, PROFEPA, 60.1%, and CESAEM, 85.6%.

The government agencies INAPESCA and INECC might not be able to fulfill their co-financing commitments unless the new national government to be elected in 2018 supports environmental management. INECC was affected both by budget cuts and changes in institutional responsibilities and personnel, reasons why it has not been involved in the project so far or fulfilled the co-financing commitment. The PMU is working to engage INECC in 2018. INAPESCA had not informed the PMU on the amount of in-kind contributions by the end of the MTR, despite being engaged in activities related to aquaculture.

FCEA fulfilled its contractual work for the project and includes IAS in environmental education work as feasible. The NGO contributed 58% of the funds committed, as well as in-kind resources. It is no longer involved in the project, therefore the fulfillment of the co-financing commitment is no longer expected. GECl has so far contributed 75% co-financing and has provided the second largest financial contribution to the project (after CONABIO). The universities UNAM/UAM have only been able to contribute 24% of the amount initially established, most of which are in-kind. The UANL has contributed 100% of planned co-financing resources.

The government agencies and organizations which provided significant cash contributions to the project are CONABIO, GECl and CONANP. Partner organizations CONAFOR, IMTA, PROFEPA, INAPESCA, INECC and CESAEM only made in-kind contributions. The cash contributions made by SEMARNAT, UNAM/UAM and UANL represent small amounts. Higher in-kind contributions by SEMARNAT are desirable to increase engagement and appropriation of IAS governance, as well as the sustainability of project activities.

Given the requirement of the MTR to analyze the co-financing contributions of project partners, the PMU engaged in requesting and consolidating the project co-financing table for the first time since project start. From now on, the PMU will follow up every three months in order to have the co-financing data organized at the end of the project. This follow up is important for the project Terminal Evaluation as well as to renegotiate values, if feasible, with the new government at the end of 2018.

Table 7 – Financial resources per partner institution, including co-financing. Planned values refer to 4 years of implementation; real values refer to December 31st, 2017.

Co-financing (Type / Source)	Self-financing UNDP (USD \$)		Government / Institution (USD \$)		Associate organization (USD \$)		Total (USD \$)	
	Planned (total)	Real (Dec. 2017)	Planned (total)	Real (Dec. 2017)	Planned (total)	Real (Dec. 2017)	Planned (total)	Real (Dec. 2017)
Government								
CONABIO								
Economic contribution	400300.00	148808.35	4657468.00	2934543.76			5057768.00	3083352.11
Loans / concessions								
In-kind contribution			616153.00	243425.94			616153.00	243425.94
Other								
Totals	400300.00	148808.35	5273621.00	3177969.70			5673921.00	486851.88
CONANP								
Economic contribution	1170559.00	421353.13	1899026.00	803998.00			3069585.00	1225351.13
Loans / concessions								
In-kind contribution			800000.00	596698.00			800000.00	596698.00
Other								
Totals	1170559.00	421353.13	2699026.00	1400696.00			3869585.00	1822049.13
CONAFOR								
Economic contribution	833334.00	212872.97					833334.00	212872.97
Loans / concessions								
In-kind contribution			3908597.00	14150078,57			3908597.00	14150078,57
Other								
Totals	833334.00	212872.97	3908597.00	14150078,57			4741931.00	14362951,54
SEMARNAT								
Economic contribution	190000.00		125000.00	27200.00			315000.00	27200.00
Loans / concessions								
In-kind contribution			47611.00	26000.00			47611.00	26000.00
Other								
Totals	190000.00		172611.00	53200.00			362611.00	53200.00
IMTA								
Economic contribution	87498.00	64999.00					87498.00	64999.00
Loans / concessions								
In-kind contribution			906801.00	852272.00			852272.00	906801.00
Other								
Totals	87498.00	64999.00	906801.00	852272.00			994299.00	917271.00

PROFEPA								
Economic contribution	744500.00	392735.21					744500.00	392735.21
Loans / concessions								
Contribution in cash			3985740.00	2428315.20			3985740.00	2428315.20
Other								
Totals	744500.00	392735.21	3985740.00	2428315.20			4730240.00	2821050.41
INAPESCA								
Economic contribution	133332.00	4454.91					133332.00	4454.91
Loans / concessions								
In-kind contribution			833333.00	0			833333.00	
Other								
Totals	133332.00	4454.91	833333.00	0			966665.00	4454.91
INECC								
Economic contribution	32500.00	4296.90	138000.00	0			170500.00	4296.90
Loans / concessions								
In-kind contribution			9000.00	0			9000.00	
Other								
Totals	32500.00	4296.90	147000.00	0			179500.00	4296.90
CESAEM								
Economic contribution	137491.00	25659.12					137491.00	25659.12
Loans / concessions								
In-kind contribution			83000.00	71068.00			83000.00	71068.00
Other								
Totals	137491.00	25659.12	83000.00	71068.00			220491.00	96727.12
NGOs								
FCEA								
Economic contribution	833334.00	212872.97					833334.00	212872.97
Loans / concessions								
In-kind contribution			3908597.00	0			3908597.00	0
Other								
Totals	833334.00	212872.97	3908597.00	0			4741931.00	212872.97
GECI								
Economic contribution	1100859.00	906769.00	2917541.00	229347.17			4018400.00	1136116.17
Loans / concessions								
In-kind contribution			201000.00	150750.00			201000.00	150750.00
Other								
Totals			3118541.00	380097.17			4219400.00	1286866.17

Universities								
UNAM / UAM								
Economic contribution	45000.00	16375.00	23000.00	66667.00			68000.00	23041.67
Loans / concessions								
In-kind contribution			311667.00	73863.64			311667.00	73863.64
Other								
Totals	45000.00	16375.00	334667.00	80530.31			379667.00	96905.31
UANL								
Economic contribution			3,000.00	3,700.00			3,000.00	3,700.00
Loans / concessions								
In-kind contribution								
Other								
Totals			3,000.00	3,700.00			3,000.00	3,700.00

Incremental costs of global environmental benefits can be measured indirectly in terms of the amount of data produced on IAS (biology, origin, impacts, invasiveness in different areas; in what other countries they are invasive, whether they function as vectors of other IAS; climatic matching and potential distribution), as well as through applied management, especially of vertebrates on islands. This information is not only relevant to Mexico, but to other global networks and managers dealing with IAS in other countries. Sharing information therefore contributes to informed decision-making for the conservation of biodiversity of global importance. The development of the IAS Information System (IASIS) and of a national gateway for IAS, as well as the publication of a national IAS list, are relevant contributions to Mexico and other countries for IAS governance.

Likewise, it is difficult to measure impacts or benefits of increased capacity at the global, national or local levels, especially because results become more evident in the long term. Strengthening capacity for control at points of entry to prevent IAS introductions is probably one of the best cost-benefit investments made by the project. Preventative actions as well as EDRR will help protect Mexican biodiversity of global importance. The gradual development of EDRR in NPA must expand application or rapid response measures from known target species to all non-native species detected in order to protect biodiversity.

Work in progress with productive sectors in aquaculture and ornamental fishes at the national and local levels is yielding positive results for the adoption of best practices in production, including biosecurity protocols, changes in awareness and incentives for the production of native species. The focus is to reduce escape and provide sound alternatives to protect biodiversity. These benefits will be better measured as best practices are more widely applied and consolidated.

Other benefits generated in terms of **incremental costs** can be measured due to the successful eradication of invasive alien vertebrates on islands, especially through the increase of marine bird populations and restoration of native vegetation and natural landscapes after the removal of goats. It is premature to measure benefits from other activities that are still in development and require consolidation, even if a solid base has been generated in terms of baselines, best practice manuals and EDRR protocols. This analysis will be better performed in the project Terminal Evaluation.

3.7.3 Implementation and execution arrangements

HIGHLY SATISFACTORY

The project was very ambitious when designed for including activities on several components of the National Strategy on Invasive Species while establishing a very small Management Unit to maximize investments on outcomes in the National Strategy Framework. The project has invested substantially in actions, differently from other projects where a lower percentage of funds is assigned to project activities. The Project Management Unit (PMU) was initially formed by the Coordinator, Georgia Born-Schmidt, hired on February 2014, during the design phase. The project started officially in November, 2014, but the Administrative Coordinator, Rodrigo Mejía, was only hired in February, 2015. The project assistant Jordi Parpal joined the PMU in July, 2015, and only in February, 2018 did Viviana Reyes Gómez join the group. The administrative cost of the project is only 8%. The PMU is rather small to manage the implementation and monitoring of 36 project outputs. This may have led to delays in implementation. Activities under Component 2.1 are in charge of GECI, while Component 2.2 lies with CONANP, supervised by the Coordination for IAS in Central CONANP, the link between NPA and the project. These shared responsibilities allow the PMU to focus more on implementation of Component 1, although it must monitor the whole project and follow progress closely. This history shows how the PMU was highly undersized to implement 25 different actions in parallel for

Component 1, besides negotiating and supervising actions in Component 2 with GECI and CONANP. Implementation was naturally slow under this structure, aggravated by challenges already mentioned such as the lack of experts for some consultancies. In this context, the extension granted to the project is highly relevant for the expected results to be achieved for most of the outputs. At the moment of the MTR, only 8 of the 36 actions were completed (22%), 64% are on target for achievement and 14% at risk of not being completed. The extension is especially important for the latter, apart from the opportunity of mainstreaming project actions and IAS management into the new government to be elected in 2018.

The relationship between CONABIO and the UNDP has been collaborative and helped engage project partners and external stakeholders. The initial selection of stakeholders and definition of their respective roles was well done and adequate in terms of the expected outcomes. Although not all project partners are equally engaged in the project, and some have not signed MoUs, all participate in specific activities in accordance with institutional roles. Although formal agreements have not been necessary for the implementation of project activities, they are desirable and strategic to increase the level of commitment and increase the likelihood of sustainability after project closure.

The management arrangements in this project are innovative because, besides High-Level and Technical Committees, a Scientific Committee was established, which is not usual in GEF projects. As invasive alien species are a new topic for many people and stakeholders involved, this committee is expected to provide guidance and support implementation. The participation of experts on areas related to biodiversity is also relevant for EDRR networks in roles of detection, identification or eradication and control actions. Some operational issues require improvement, such as:

- a) High-Level representatives often do not participate in the meetings themselves, but send substitutes who are not empowered to make decisions. The meetings are therefore not effective or agile, creating delays for decision-making and project implementation;
- b) knowledge available from the Scientific Committee has not been mainstreamed to increase the effectiveness of invasive plant control in continental NPA.

3.7.4 Rating of quantity, quality and opportunity of resources to and from the project that may have affected implementation

SATISFACTORY

Resources are the base of the result chain in a process. This project was designed counting on the availability of different resources (financial, human and material) for implementation. The distribution of resources to 36 planned outputs has led to specific products intended to generate changes or impacts on the conservation of biodiversity of global importance and to increase capacity for IAS management at the national level.

Resources include working hours, employees of partner organizations, volunteers, financial resources, consultants, equipment, infrastructure, technology and materials. Financial resources are most often considered more important. Funds provided by GEF and co-financing funds from partner organizations (cash and in-kind) create opportunities for achievement. The resources committed through this project have provided Mexico with an injection of information, capacity, equipment and materials that make way for improvement on IAS management in future years.

Co-financing resources are key for the achievement of GEF objectives, and contribute directly to project results. However, budget cuts were applied by the national government to environmental agencies, which had an impact (at different scales) on project implementation. For example, because less funds were available, some actions were prioritized over environmental education and

information activities. Losses of personnel also affected implementation, especially in cases where people had participated in capacity building.

In this context, the lack of resources (financial, material and human) have affected project implementation in NPA, where the achievement of some outcomes is at risk. In general, NPA do not have enough personnel to carry out the commitments established with the project; operational capacity is hindered by the amount of management and control actions in NPA. Employees mentioned the lack of material resources to follow up on prevention, EDRR, eradication, control and monitoring after consultancies are concluded. Budget cuts also affected complementary funding sources such as PROCER, affecting related projects. In other cases, it has been difficult to hire consultants for specialized work, for lack of knowledge and experience on IAS issues.

This lack of resources is more related to institutional issues than with project design or implementation. In the planning phase, CONANP committed institutional funds, including material (equipment and infrastructure) and human (in-kind) resources, but did not consider the need to improve institutional capacity by renewing and acquiring equipment necessary to complete project results in prevention, EDRR, eradication and control. Budget cuts were not part of reality at the time. Now it seems that it would have been sensible to include some funds in the project to ensure that these actions would find no obstacles for implementation.

Finally, in some cases, resources have not been available at the right time for activities to be carried out (seasons of the year) due to payment delays. This problem is linked to the lack of quality of consultancy reports and products, as the UNDP and PMU have to ensure quality standards not always easily accomplished by consultants and service providers.

In the same way, the composition of the PMU has at times represented a limitation. Although the staff is proactive and professional, the amount of outputs, contracts and activities to be implemented and monitored can be overwhelming, creating delays and inconsistencies in follow up.

This situation decreases efficiency, which refers to how resources are applied with the best economic results. Although the project may be efficient in many aspects, there are inherent risks and design problems that prevent the best performance.

3.7.5 Coordination and guidance

None of the persons interviewed during the MTR expressed any concern or dissatisfaction about the project management arrangement between the UNDP and CONABIO. There have been no serious management issues that would have required intervention by the UNDP. The PMU has been able to engage partner organizations as feasible in the current political context despite governmental budget cuts. The role of the UNDP is widely acknowledged as implementing agency, as well as the role of CONABIO as executing agency.

Some dissatisfaction was voiced over delays in payments due to repeated revisions of consultancy products, which contributed to delay implementation of control work in the field and prevented workers from with appropriate protection clothing. Other complaints were expressed because products delivered before deadlines were not accepted for being early, so consultants had to wait for reviews based on contract dates. While the PMU and UNDP have to maintain quality standards, service providers may need to carry out action at specific and limited times of year. Better balance needs to be sought in these cases, with clear identification of causes and practical solutions. If this is a frequent issue, an assessment might help find ways to review the hiring process so that standards and timing are clear and may generate the expected results.

4 PROJECT RESULTS AND SUSTAINABILITY

4.1 RATINGS FOR PROJECT ACHIEVEMENTS TO DATE

SATISFACTORY

The project objective is to protect biodiversity of global importance in vulnerable ecosystems by strengthening capacity to manage invasive alien species in Mexico. The immediate objectives are organized in two components, and five sub-components. Sub-component 1.1 refers to increasing knowledge and capacity to provide information for decision-makers, stakeholders and the public; in 1.2 the aim is to strengthen the political, legal and regulatory frameworks; and 1.3 refers to improving institutional coordination mechanisms to prevent, detect and reduce the risk of IAS introductions and spread.

Component 2 is focused on preventing the introduction and spread of IAS in 15 Natural Protected Areas [six islands (2.1) and nine continental areas (2.2)] by applying best practices to key productive sectors, while developing and applying prevention, EDRR, eradication and control measures to NPA.

This section of the MTR is aimed at pointing out project achievements rather than gaps or limitations. A multitude of products and positive impacts has been generated through the project, improving IAS management in Mexico. There has been progress towards nearly all outputs. Some outcomes have already been achieved, but most of the outputs require more time for completion.

One of the major achievements in Sub-component 1.1 is the definition of risk assessment protocols and the generation of more than 500 risk assessments, mostly rapid assessments performed for the species in the National IAS List published in 2016. Risk assessments were used to justify the decision of prohibiting the importation of fish species in the Pangasiidae family and of the alfalfa leafcutter bee (*Megachile rotundata*), acknowledged as invasive in other countries. No risk assessment tools were in use for evaluating import requests before the project, and adoption of the protocols represents a significant change in IAS management for Mexico. The CONABIO IAS Information System is being improved and integrated with a citizen science platform entitled "Naturalista", to which people can contribute data, and which is supported by a network of taxonomists and other professionals. The results of surveys and baselines developed through the project are also being added to the system, such as the location of invasive aquatic plants mapped by IMTA.

Institutional coordination efforts between CONABIO, SEMARNAT and SENASICA to establish information standards on pests and sanitary threats and harmonize databases also contributes to the IASIS, as more information is available and more accessible to those who need it. The improvement of information systems has indirectly contributed to increasing capacity and knowledge of IAS issues, and generated relevant tools for IAS management and decision-making.

The most relevant achievement in Sub-component 1.2 is the publication of a National IAS List, which allows the government to establish national priorities for management involving various sectors of society. Relevant outcomes are the voluntary proposals for regulations on ornamental fishes and on African oil palm (*Elaeis guineensis*) by small farmers, which contribute to improve the regulatory framework. Although the National IAS List is not legally binding, it establishes clear reference on IAS and creates the need for management of these species in NPA and in environmental restoration, as well as reaches out to private sectors using listed species. A natural consequence of an IAS list is the development of regulations for species or groups of species, which in the mid-term benefits the respective sectors for providing guidelines on prohibited species and on best practices to avoid impacts from the use of listed IAS allowed in production (e.g. ornamental plants, pets, fishes).

Training events carried out on the inspection of forest products in some relevant points of entry have increased capacity for the detection of forest pests. An EDRR protocol was developed in an Incident Command System course. Another product of sectorial involvement in the project is the reforestation manual for native species as alternatives to invasive forestry species developed by CONAFOR.

Substantial progress has been made in Sub-component 1.3 on institutional coordination due to the establishment of three Committees to support project implementation (Executive or High-Level, Technical and Scientific), as communication is facilitated and IAS issues are mainstreamed into different government agencies. The inclusion of CONAPESCA in the Technical Committee is a positive result expected to lead to improvements in IAS management in aquaculture.

The outcomes of Sub-component 2.1 have been especially successful for the eradication of vertebrate species on islands, including the recovery of marine bird populations and of native vegetation. Biosecurity protocols developed to increase the perpetuity of eradication are being applied but require consolidation and appropriation by CONANP.

In Sub-component 2.2, relevant progress has been made with the establishment of sub-committees to support IAS management in protected areas and increase institutional coordination. Best practice manuals for productive sectors that use NPA and reconversion plans for fish species have been developed, while practical application and involvement of producers are expected from 2018. These are innovative activities that require cultural change, with more solid results expected by the end of the project.

The project has greatly contributed to the implementation of several objectives of the National Strategy on Invasive Species. These advances are rated Satisfactory by the MTR Team.

4.2 CONTEXT ANALYSIS TO ALLOW FOR MEASURING ADVANCES OR CHALLENGES IN IMPLEMENTATION TO DATE

Mexico is one of the 17 mega-biodiverse countries in the world and hosts a large number of endemic species, approximately 10,000. This high biodiversity poses a challenge for conservation, influenced by a long history of contact, colonization and trade with other parts of the world. Mexico has long borders with three other nations (USA, Guatemala and Belize), an extensive coastline (11,000 km) along two oceans, 90 marine ports with more than 6,000 ships arriving per year and regulated as well as non-regulated trade in many points of entry. As a result, many non-native species have been introduced, while native species have been moved beyond their native ranges. At the end of 2017, 196,008 records of occurrence of non-native and invasive alien species had been appended to the IASIS, of which 2,002 were considered potentially invasive. The project objective is to conserve biodiversity of global importance by establishing prevention, EDRR, eradication and control measures for IAS with the involvement of government agencies at the federal, state and municipal levels, decision-makers, productive sectors, academia, NGOs and the general public.

The Mexican government has published relevant policy documents that provide a base for the project: National Biodiversity Strategy (2000), updated and presented at the CBD COP meeting in 2016; National Strategy on Invasive Species (2010); National Development Plan 2013-2018; Strategic Forest Program 2025; and National Biodiversity Strategy and Action Plan 2016-2030. The 2010 National Portfolio identifies IAS management as one of eight priority issues in the focal area of biodiversity.

The Convention on Biological Diversity (CBD) provides relevant guidelines on IAS management at the global level, including a focus on prevention and EDRR for reasons of cost-effectiveness. Other international conventions are related to IAS: Convention on International Trade in Endangered Species of Fauna and Flora (CITES), Sanitary and Phytosanitary Agreement of the International Trade Organization; International Convention for the Control and Management of Ships' Ballast Water and Sediments; and Code of Conduct for Responsible Fishing of the FAO, which includes guidelines for IAS management in aquaculture.

The Mexican government participates in regional initiatives such as the North American Plant Protection Organization, the Commission for Environmental Cooperation in North America, a side agreement to the North America Free Trade Agreement (NAFTA), and the Trilateral Committee for Wildlife and Ecosystem Conservation established between wildlife agencies and other government bodies in the USA, Canada and Mexico, which included IAS management issues for the first time in 2008.

Considering the scope of the project, one of the main challenges in implementation has been to reach out and maintain many different organizations involved and active, as well as gradually increasing participation by others in charge of related issues. Participation has increased with implementation, but the people involved are not always keen to take on responsibility, nor have the same level of awareness about IAS. In some cases, the lack of political will limits advances. This is the case of regulations on IAS, as there are conflicts with productive sectors (e.g., from forage grasses grown for cattle and goats to aquaculture and ornamental fishes, forest species and ornamental plants), contradictions with environmental protection laws, and promotion of IAS by government agencies.

Budget cuts applied by the national government to environmental and other agencies have also created challenges for the project. Less resources often imply a slower rate of implementation and partner engagement. The institutions which had made the largest co-financing commitments have fortunately been able to fulfill them, so, except for some of the agencies, no major impacts have ensued.

Because IAS is a rather new topic for many people, the PMU has often had problems in the selection of consultants to carry out planned activities. Calls for proposals sometimes receive no applications, or applicants do not have the expertise to fulfill contracts accordingly. This has generated unsatisfactory results especially in the control of invasive plants in NPA, including lost investment in plantations of native species, as well as delays due to the time dispensed in the selection and hiring process.

Due to the danger currently created by organized crime in many areas in Mexico, some activities have had to be cancelled or have not started. Field work is limited by insecurity, which contributes to delay implementation. In some cases, applicants who were willing to work under these conditions lacked the desirable experience to generate the expected results.

On the other hand, engagement by many different stakeholders has been essential for advances to be made, especially towards the goal of strengthening national capacity. Many institutions linked to the project participated in the development of the National Strategy on Invasive Species and continue contributing their knowledge and experience to the project. Some agencies have used their own funds to develop project activities, which is a positive sign of commitment and project sustainability. Other funds have also been used, especially by CONANP for management in protected areas.

The PMU has established excellent relations with project partners, consultants and collaborators by being attentive, ensuring transparency and managing the challenges mentioned with satisfactory results. Complementary sources of funding are continually sought for, especially considering the sustainability of actions after project closure. The funds available from GEF have been impeccably managed, and consultancies for the achievement of expected results have been prioritized over administrative and travel expenses, equipment and salaries.

The context in which the project is developed along with other national and international projects has created opportunities for increased efficiency by avoiding duplicate efforts and more focus on achievements. Collaboration has been established with several other projects such as *“Strengthening CONANP with innovative and continuous improvement methods”*; the *“Program to protect marine bird nesting sites from IAS”* (CONANP, INE, GECI, Marisla Foundation and American Bird Conservancy); the *“Multidisciplinary program to increase the sustainability of the aquarium industry”*; several REDD+ initiatives which collect information on forest pests; GEF projects *“Priority species”* (*Strengthening the Protected Area System to improve the conservation of species at risk and their habitats*) and *“Resilience”* (*Strengthening resilience to safeguard biodiversity threatened by climate change*). Lessons from marine projects were gathered on the control of lion fish (*Pterois volitans*) in the publication *“Invasive lion fish: control and management guide”* (Morris Jr. J.A. Ed., 2013. El pez león invasor: guía para su control y manejo), and from the project *“Integrated assessment and management of the Gulf of Mexico Large Marine Ecosystem”* supported by UNIDO-GEF. IMTA leads a continuous biological control program for water hyacinth in the Santiago river, providing relevant capacity at the national level for the control of widespread aquatic invasive species. Risk assessments of zebra mussel (*Dreissena polymorpha*) are being developed in areas of high biodiversity in the Colorado river watershed with funds from the continuous monitoring program for aquatic species in rivers along Mexican borders (CONABIO / UANL).

4.3 ANALYSIS OF INDICATORS OF IMPACT AND GEF TRACKING TOOLS

4.3.1 Indicators of impact in the Strategic Results Framework

The first part of the Strategic Results Framework includes indicators of impact focused on general project objectives, strengthening capacity at the national level and improving the legal and regulatory framework as well as institutional coordination to prevent the introduction and spread, eradicate and control IAS. The goal is to protect biodiversity of global importance from the impacts of IAS in Mexico. Ratings for outputs are based on the indicators and presented in Table 8 with corresponding justifications.

Table 8 – Indicators of global impact in the Strategic Results Framework, ratings and MTR justification for ratings.

Indicator	Baseline	Self-reported level at PIR 2017	End of project target	MTR Rating	Justification for MTR ratings
Supporting framework for implementation of the National Strategy for Invasive Species (NSIS), as measured by: National (federal and state level) and international institutions (government, NGOs & Universities) involved in the implementation process of the NSIS.	# of official institutional partners involved in IAS management in Mexico: 8 governmental institutions, 3 Universities, 2 NGOs, 1 State level organization.	9 governmental institutions, 6 Universities and 1 association of producers.	1 additional institutional partner becomes involved in IAS management each year of the project.	S	The number of project partners has increased, but only CONAPESCA has signed a formal agreement. Despite the lack of formal agreements, the High-Level Committee includes SENASICA and CONAGUA; SHCP was involved once in a specific debate. SEMAR got involved in the implementation of the GloBallast Convention (beyond providing support to GECI on islands). The Mexican Association of Fishermen, UNAM Institute of Ecology (dissemination materials), UAM Iztapalapa on water hyacinth and the Universidad of Wisconsin in Madison have collaborated on different activities.
Supporting framework for implementation of the National Strategy for Invasive Species (NSIS), as measured by: Cost effectiveness of IAS management actions.	No consolidated information on the costs of different IAS management strategies (prevention, response, control, etc.) in Mexico, or how costs differ in varying ecological / logistical conditions.	The PIR does not provide information on progress because it will be carried out in 2019.	Cost coefficients, based on IAS management activities carried out at selected project field sites, developed and guiding priority setting of NSIS goals / activities by end of project.	U	To be carried out in 2019, when more information is available.
Entry and spread of IAS into 15 islands (6 island groups) reduced through biosecurity inspections of goods/persons who arrive at the islands by air/sea.	0% of goods and persons arriving at islands are subject to biosecurity inspections.	A biosecurity plan for each group of islands has been drafted, which are planned to be approved at the end of 2017. These documents form the basis for biosecurity inspections.	Goods and persons arriving at islands are subject to biosecurity inspections • 100%: Guadalupe, Socorro, Banco Chinchorro • 50%: San Benito, Espíritu Santo • 25%: Arrecife Alacranes	MS	Island biosecurity protocols are ready, but implementation is still not consolidated. Protocols have to be institutionalized by CONANP, which must take the lead role in applying them. Some inspections are carried out by the Navy and GECI, as well as other stakeholders, but application has to become a part of the routine for CONANP. The percentages of people who are inspected are not yet satisfactory, neither is the process of inspection reliable or sustainable.
Populations of key IAS contained to below thresholds that endanger native species and their habitats, providing additional protection to at least: • 155 endemic species, and 168 species of flora and fauna classified under NOM-059, at 15 islands (6 island groups) totaling 46,420 hectares.	Populations of selected high impact IAS at sites (low, medium, high; estimates will be validated during year 1 of the project): Feral cats (<i>Felis catus</i>) on Espíritu Santo Island and Banco Chinchorro BR - Medium.	Eradication of feral cats completed in Espíritu Santo and Banco Chinchorro Islands.	Populations of selected high impact IAS at sites (low, medium, high; estimates will be validated during year 1 of the project): 0	HS	Cats were eradicated from RB Banco Chinchorro in 2015. On Espíritu Santo Island, cat eradication is at the final phase of absence confirmation.

Indicator	Baseline	Self-reported level at PIR 2017	End of project target	MTR Rating	Justification for MTR ratings
<ul style="list-style-type: none"> • 191 endemic species, and 983 species of flora and fauna classified under NOM-059, at 9 mainland protected areas totaling 4,240,349 hectares. 	Feral cats (<i>Felis catus</i>) in Isla Guadalupe and Isla Socorro - Medium.	Feral cat eradication in Isla Socorro is almost completed (95% of reduction). In Guadalupe island eradication is in progress, with 549 cats captured.	Low	HS	The initial aim was to control cats on Socorro Island to reduce the population, but eradication will be completed before project closure. Eradication on Guadalupe Island is progressing as planned and is expected to be completed in 2020. GECl has secured funds to complete the work.
	Mice (<i>Peromyscus eremicus cedrosensi</i>) on San Benito Archipelago – High.	Eradication of mice completed in San Benito Oeste island.	0	HS	Completed. Monitoring ongoing for absence confirmation.
	Feral goats (<i>Capra hircus</i>) on Isla Espiritu Santo – Medium.	In Espiritu Santo 187 feral goats have been captured and given to universities and ranchers 187 on the mainland.	0	MS	This activity is not on target for completion because it is dependent on authorization by CONANP for the use of fire arms. All goats that could be removed from the island have been shipped to the continent. In 2017, only two goats were captured in four months of work. This is a clear signal that this method is no longer viable. Once authorization is granted, eradication can be completed in a few months. CONANP must collaborate with authorizations urgently.
	Black rats (<i>Rattus rattus</i>) on Banco Chinchorro – High.	Eradication of rats completed in Banco Chinchorro.	0	HS	Completed. Monitoring ongoing for absence confirmation.
	In the case of the continental ANPs, the indicators, as well as its reference levels and targets, are not specific, neither measurable nor achievable (in terms of partner capacity). However, a level of evaluation and assessment is provided based on progress to date.				
Vidrillo (iceplant) (<i>Mesembryanthemum crystallinum</i>) at El Vizcaíno Biosphere Reserve – High	El Vizcaíno: The base line for iceplant (vidrillo) has been established, Terms of Reference for eradication of 5 ha are about to be published.	Medium	MS	There was no baseline on the density, distribution or impact of iceplant in the NPA. Now a baseline has been developed, and control work should begin shortly. A model for replication is expected as part of the output.	

Indicator	Baseline	Self-reported level at PIR 2017	End of project target	MTR Rating	Justification for MTR ratings
	Pacific Oyster (<i>Crassostrea gigas</i>) at El Vizcaíno Biosphere Reserve - Medium	According to a petition of the Biosphere Reserve, <i>Crassostrea gigas</i> was changed for two other species that, as a result of the consultancy, have become more pressing for the reserve. These are Red-bellied tilapia (<i>Tilapia zillii</i>) and American bullfrog (<i>Lithobates catesbeianus</i>).	Low	MU	The target species had been changed, but it was later decided to maintain focus on the Pacific oyster and include other species. An assessment of the impacts of Pacific oysters is being conducted to verify capacity for establishment and presence of pathogens. If the information is corroborated, the species will be included in the NPA management plan, but no control action has been planned so far. If there is no evidence of impact, production will be authorized. Management plans and distribution maps were developed for tilapia, bullfrog and iceplant. A pilot control program on 5ha of iceplant will be executed in 2018.
	Black rats (<i>Rattus rattus</i>) at the APFF Sierra de Álamos-Río Cuchujaqui – High	No progress yet, species (<i>Rattus rattus</i>) is in review and will possibly be substituted by another IAS.	Medium	U	This indicator reflects a flaw in project design because the black rat is not considered a problem in the NPA. It was initially proposed as a problem species by an expert based on a punctual observation which was not checked at the time. Nevertheless, its density and places of occurrence in the NPA are unknown. Instead of control actions, a baseline was developed. The species is advertised as one of the IAS in the area.
	Salt cedar (<i>Tamarix ramosissima</i>) at the APFF Sierra de Álamos Río Cuchujaqui – High	Control activities of salt cedar have taken place in 2016 in 6.6 ha, during which 118 trees have been cut off (100% of the coverage).	Medium	HS	Mechanical control of salt cedar was successful in the Arroyo del Mentidero, as it was a relatively initial invasion. Two plants were found during the MTR mission, which indicates the need for sustained control. The species cannot be considered eradicated, but results are highly satisfactory so far. Giant cane control sites were not visited during the mission, and no reports on the effectiveness of control are available. The species was not considered for this rating, as it is not contemplated by the indicator.

Indicator	Baseline	Self-reported level at PIR 2017	End of project target	MTR Rating	Justification for MTR ratings
	Giant Cane (<i>Arundo donax</i>) (90 hectares) and Chinese Privet (<i>Ligustrum lucidum</i>) (120 hectares) at the Cumbres de Monterrey National Park – Medium	Control measures have been applied on 30 ha invaded by giant cane, on 25 by Chinese privet, on 15 ha by Kalanchoe x houghttoni, on 5 ha by <i>Nicotiana glauca</i> and 10 ha invaded by <i>Koelreuteria paniculata</i> .	Low	MS	Control actions financed by the project were carried out in smaller areas than initially planned, but were extended to more species. These changes have been justified in ToR for consultancies, but the indicator has not been adjusted. Control of giant cane was initiated in 2014 in 160 ha with PROCER funds (CONANP), but one year later a monitoring report states that 70% of the plants controlled seemed affected, but were not dead. This indicates low effectiveness. Control actions in 2014 covered 50ha of privet (<i>Ligustrum lucidum</i>), 2ha of golden rain tree (<i>Koelreuteria paniculata</i>), 10ha of kalanchoe and 2ha of tree tobacco (<i>Nicotiana glauca</i>). The current contract for control of privet and golden rain tree ends on August 1 st , 2018, with a target of 20 hectares. Results are unsatisfactory so far (only 31% death for privet and golden rain tree), which means the project still does not have a consolidated method for replication. Although more species were included for control work than contemplated by the indicator, results so far are not effective. Personal protection equipment has not been provided for workers, even for chemical control, creating risks for the project in terms of health and negative exposure.
	Feral dogs (<i>Canis lupus familiaris</i>) and feral cats (<i>Felis catus</i>) at the Cañón del Sumidero National Park – High	Since 2014 a total of 17 feral dogs and 9 cats have been captured.	Low	HS	Feral dog and cat populations have been reduced due to sustained control. Native species begin to reoccupy the NPA.
	Lionfish (<i>Pterois volitans</i>) at the Sian Ka'an Biosphere Reserve – Medium	No progress yet for Lionfish.	Low	U	There are no reports on advances for this output, although fishermen supposedly catch lion fish for food and to sell on Cozumel Island. There is no precise information on the reduction of population size or other measure of impact.
Color code for ratings:	Achieved	On target to be achieved	Not on target to be achieved		

4.3.2 GEF Tracking Tools

Indicators of management effectiveness (METT)

Indicators in the Management Effectiveness Tracking Tool refer to the achievement of the overall project objective of safeguarding biodiversity of global importance in Mexico. Advances have been made by the project (summary in Table 9 and complete version in Annex 7). The MTR Team considered that the total score should be higher than attributed by the PMU in the PIR 2017.

The national coordination mechanism advanced from having legal character and responsibility for the development of a National Strategy on Invasive Species for IAS (2 points) to the implementation phase (3 points).

Some contingency plans are in development, especially with the productive sector for ornamental fishes, which will deserve a *bonus point* once consolidated. Implementation of the National Strategy on Invasive Species is still incomplete therefore the score has not been altered (2 points).

The legal infrastructure has advanced with the publication of the National IAS List and a few sectorial regulations. The inclusion of IAS management in state biodiversity strategies was also considered (score increased from 2 to 3).

In terms of improvements on prevention, the main pathways of introduction and spread of IAS have been identified and guide part of the project activities, but are not yet effectively managed and monitored. The score has not changed, but is expected to increase from 1 to 2 by the end of the project.

The regular monitoring in place at the beginning of the project referred to agencies linked to SAGARPA working on agricultural inspections for animal and plant sanitary issues. The project, however, is focused on biodiversity protection, for which no active or regular monitoring was in place. Had this been initially considered, it would be easier to measure progress now based on biosecurity measures in development, as the initial score should have been 0 (zero) instead of 1 (one). This reality changed when PROFEPA included IAS in the scope of their inspection, as well as because monitoring is in place for a few species in continental NPA and on islands. Although EDRR systems still require consolidation, the score should change from 0 to 1 for biodiversity monitoring, while the other scores did not change.

The indicator on best practices is the hardest to assess because (a) the project has activities in different protected areas with different productive sectors whose level of involvement and application of best practices is heterogeneous; and (b) in some cases, score 3 has been achieved (eradication and control), but did not necessarily achieve score 2 (evaluation of criteria for species prioritization). Scores should ideally be considered as: (a) level 3 for eradication and control of vertebrates on islands; (b) level 1 for control of plants in NPA, where effective methods have not yet been defined; (c) level 1 for work with productive sectors, because the technical base is developed including best practices and biosecurity measures, but practical application has to be implemented with producers; and (d) risk assessment tools for evaluations have reached score 2, but not all have been completed or are available. This score is expected to increase to 3 before the project ends.

Bonus points were accepted because INAPESCA is monitoring lion fish and armored catfish and GECL conducts monitoring before investing in eradication efforts on islands as well as afterwards, for absence confirmation. The other two bonus points were not accepted and the score has not changed since the initial evaluation, but the bonus point on inferring environmental restoration is acknowledged for the islands.

When the Tracking Tools are assessed again for the Terminal Evaluation of the project, it might be relevant to separately assess progress in the environment from progress in agriculture and forestry, as these were better prepared from the beginning of the project to inspect and control IAS that impact economic sectors. The level of change in the area of biodiversity should be more significant for having started from zero scores for nearly all the indicators.

Institutional Capacity Scorecard

The institutional capacity scorecard was filled out in the project preparatory phase by the institutions involved. At the MTR, scorecard values were compared between initial scores and those attributed to each institution by the PMU in the PIR 2017 (institutions had not been asked to review the scorecard in preparation for the MTR, as expected). There are no significant changes in capacity; the total score increased from 43 to 47 (summary in Table 10 and detailed version in Annex 7). This difference is due to:

- an improvement in capacity to implement policies, legislation, strategies and programs;
- a small improvement in capacity to engage and reach agreements on IAS issues, which indicates a positive tendency for interinstitutional cooperation.

A comparative summary of 2013 and 2017 scores with the analysis performed by the MTR Team is presented in Table 9. A higher score was given due to the great progress made through the project on generating information on IAS, including the National List, baselines for NPA, studies, surveys, maps and mapping methodologies for invasive plants, risk assessments and other data sources such as Naturalista, which provides occurrence data that was not available before. There will always be more information to collect and information systems require constant updating, but the methodologies and data available provide a wealth of information that can be used as a technical base for policies, regulations, certification criteria and best practices, as well as for prevention, EDRR, eradication and control of IAS in priority areas for the conservation of biological diversity. Other score changes suggested by the MTR refer to the dialogue on IAS established with the public. The outreach of this project to several types of public must be acknowledged, especially as many people were not aware of IAS before. CONANP employees directly involved in IAS management, communities in the surroundings of NPA, key productive sectors representing pathways of IAS introduction and spread, governmental agencies in charge of IAS management, legislators, journalists and citizens received information and increased their knowledge and capacity on IAS issues. This process is ongoing and supported by printed dissemination materials produced through the project as well as information online. For these reasons, the MTR Team considered that the score for criterion “5” on the dialogue established with society on IAS should be 2 rather than 1, as well as the score for capacity of adaptation of institutions involved in the project.

Table 9 – Management Effectiveness Tracking Tool scorecard (METT) in comparison with targets set for end of project.

Project objective: Safeguard biodiversity of global importance in vulnerable ecosystems by strengthening capacity to prevent, detect and manage IAS in Mexico.					
Indicator	Level of reference	Self-reported level in PIR 2017	Target at end of project	Level and evaluation at mid-term (MTR)	Justification
Strengthened national level invasive species management framework, measured by an increase in total score of the IAS Tracking Tools:					
1) Is there a National Coordination Mechanism to assist with the design and implementation of a national IAS strategy?	1	3	3	3	CONABIO is a well-respected and stable organization leading IAS management and the implementation of the National Strategy. The three Committees established to support project implementation are expected to continue functioning after project closure to support the implementation of the National Strategy.
2) Is there a National IAS strategy and is it being implemented?	2	2	3	2	The National Strategy on Invasive Species is being partially implemented through the project, focused on priority activities. Full implementation of the Strategy will continue after project closure. Engagement of other organizations and sectors has been gradual, especially as IAS is a new issue for most institutions at the managerial level. Budgetary restrictions have also limited implementation in some cases. The updated version of the National Biodiversity Strategy (2016) includes issues on IAS.
3) Has the national IAS strategy led to the development and adoption of comprehensive framework of policies, legislation, and regulations across sectors?	2	3	4	3	A National List of IAS was published by SEMARNAT. Recommendations on IAS management have been drafted for inclusion in other laws and regulations, but no results in terms of official publications have been achieved so far. Sectorial regulations are in development.
4) Have priority pathways for invasions been identified and actively managed and monitored?	1	1	2	1	Priority pathways of IAS introduction and spread have been identified. SAGARPA - SENASICA and PROFEPA carry out routine inspections on agricultural and forest products. Biosecurity inspections on islands have begun, and priority species and pathways have been identified in continental NPA as a base for EDRR systems. Systematic monitoring for the protection of biodiversity still requires consolidation.
5) Are detection, delimiting and monitoring surveys conducted on a regular basis?	1	1	5	1+1 bonus = 2	Monitoring is carried out regularly in some sectors and areas, but requires consolidation in others. The work on islands and on ornamental fishes is more advanced, while in continental NPA prevention and EDRR are in development. One bonus point was accepted due to the use of international standards in information databases.
6) Are best management practices being applied in project target areas?	1	1	8	1/3 = 2 + 2 bonus = 4	The level of development and application of best practices is quite different between the sectors prioritized in the project. Vertebrate control on islands should score 3 points; control of plants in continental NPA should score only 1 point; application of best practices with productive sectors is generally at level 1, as baselines are defined (best practice manuals, capacity building), but implementation and practical application are not developed; and although risk assessment protocols could be considered to fulfill item 2 of the criteria, they are not ready for all groups of species, while the rapid risk assessment protocol needs to be adjusted; therefore, level 2 is more adequate for now. The final scores are 2 for the MTR + 2 bonus points for monitoring systems and habitat restoration on islands.
Total score	8	11	25 (of 29)	15	

Table 10 – Institutional capacity Tracking Tool scorecard.

Development capacity <i>scorecard</i> for IAS projects	Baseline score (project / possible total) Baseline	Score in PIR 2017 (PMU)	Baseline score (project / possible total) Target	Level and evaluation at mid-term (MTR)	Justification
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes.	(5) (9)	(5) (9)	(8) (9)	(5) (9)	The IAS agenda is still dominantly implemented by CONABIO, while it is important that other agencies take ownership of the issues and mainstream IAS management into their routines. Legal infrastructure has not changed significantly, although the publication of the National List is a considerable achievement and the first step for complementary regulations.
2. Capacity to implement policies, legislation, strategies and programmes.	(20) (39)	(23) (39)	(34) (39)	(23) (39)	There are experts on IAS in some government agencies, but they are not evenly distributed. The number of scores for this criterion has increased because there is increased capacity and improved management, project implementation is monitored, as well as the National Strategy on Invasive Species, and CONABIO is a strong leader. Institutional responsibilities on IAS have been mainstreamed into a number of agencies.
3. Capacity to engage and build consensus among all stakeholders.	(8) (15)	(9) (15)	(13) (15)	(9) (15)	The number of scores increased due to increased cooperation between agencies and interinstitutional coordination.
4. Capacity to mobilize information and knowledge.	(4) (9)	(4) (9)	(8) (9)	(6) (9)	Considering all the information generated through the project, from the National List, baselines, surveys, studies and a significant increase in data in the IASIS, the MTR Team considers that 6 scores better characterize this criterion, as there is enough information available as a base for many prevention, EDRR and control plans, as well as to provide a base for policies, regulations and complementary actions (all criteria increase to level 2).
5. Capacity to monitor, evaluate, report and learn.	(6) (15)	(6) (15)	(13) (15)	(8) (15)	No improvements. The criteria reflect citizen engagement as well as institutional changes, which occur very slowly as this new issue is presented and discussed.
Strengthened National Capabilities for the management of IAS, as measured by the UNDP Capacity Development Scorecard	Average Capacity Development Score on the Scorecard = 43	Average Capacity Development Score on the Scorecard = 47	Average Score for Capacity Development in the Scorecard at the end of the project = 76	Average Capacity Development Score on the Scorecard = 51	

4.4 ADVANCED RATINGS FOR SUSTAINABILITY PROSPECTS OF PROJECT RESULTS

Institutional framework and governance: Moderately likely

Nearly all persons interviewed expressed concern on the upcoming change of national government in the second semester of 2018. The project extension to the end of 2019 is therefore considered important to increase the prospects of sustainability of project actions, as it creates opportunities for discussion and for mainstreaming IAS into the new government. This is especially relevant for those agencies where IAS issues have not so far been well institutionalized, such as SEMARNAT. The potential changes in personnel also threaten the consolidation of some activities that are in development, such as the closed cycle production model for ornamental fishes in development by the General Assistant Director in Aquaculture Research at INAPESCA, who will probably be replaced before the year is over. Project stakeholders must prioritize presenting and integrating IAS concepts and project activities in the agenda of the new government. Whenever possible, integration and capacity building workshops should be organized for new personnel who replaces those currently engaged in the project.

Environmental: Moderately likely

The eradication of vertebrates on oceanic islands generates permanent benefits to native species, but this condition is somewhat dependent on the consolidation of biosecurity systems to avoid the introduction of new IAS. GECI is permanently involved in the conservation of islands and carries out work on several of them, a positive factor that contributes to project sustainability. Plant regeneration is another positive consequence of the eradication of vertebrates, complemented by restoration efforts such as tree plantings on Guadalupe Island. For these reasons, the sustainability of these actions on islands is considered Likely. It is important to consolidate the application of biosecurity protocols by NPA staff (CONANP) as well as to ensure there is sufficient capacity to verify detection alerts and carry out at least basic prevention, EDRR and control measures.

Sustainability in continental NPA is directly linked to the continuous application of prevention, EDRR, eradication and control measures. This will depend on maintaining and increasing capacity and commitments established through the project. Sustained monitoring and control are required in continental NPA sites for restoration to be achieved, which also requires resources. Improving control effectiveness is key for the work to be viable both for cost-effectiveness reasons and achievement of expected results. This, in turn, requires capacity building for those who carry out the work. If these issues are solved within the timeframe of the project, environmental sustainability will be more likely for the restoration of these areas and the continuity of control work.

Project partners should, as feasible, consider results from studies on the distribution of IAS in different scenarios of climate change for setting priorities. These models should also be used to adapt IAS management plans for island and continental NPA.

Financial resources: Moderately likely

A general concern for lack of funding for ongoing work on IAS was expressed by most persons interviewed, especially due to budget cuts by the national government to environmental agencies. The uncertainty brought forth by upcoming elections makes it difficult for those involved in the project to form a clear opinion of future prospects, as it is not possible to know if the new government will provide more or less support to environmental and agricultural issues, possibly affecting the sustainability of activities and outcomes. There is always work that can be carried out

even with few resources, such as the work that depends on existing personnel and routine expenses, especially in NPA, without incurring in large extra costs. Prevention measures and EDRR are the most cost-effective approach to managing IAS, therefore likely to be maintained where established during the project. The extension of this approach to other areas, however, will be more dependent on funding for capacity building and equipment for practical application of prevention, EDRR and control measures. Suggestions were made by interviewees to involve the Army on IAS management, as well as engage the fire brigades in NPA, especially during the wet season. If early detection alerts can be considered as environmental emergencies, other possibilities of involvement and funding may be available.

Socioeconomic: Likely

A multitude of seeds have been sown on IAS issues throughout Mexico as the project reached out to a diversity of types of public and generated a large variety of information materials that will gradually reach an even larger number of citizens. Many people benefitted by information and capacity building events declared IAS as a new topic, or saw it from a different perspective for their impacts on biodiversity, in the case of those involved in productive activities or sanitary surveillance. The amount of information generated, compiled and made available has been multiplied many times since project start, while events and workshops included relevant numbers of people. The guides and manuals such as reforestation with native plants, identification of invasive plants and ornamental fishes and, especially, best practice manuals for producers in key sectors will continue to engage more people. The effect of this outreach will take longer to become more visible, and will require more people to apply what has been developed, especially in the case of best practices and certification with productive sectors. Socioeconomic sustainability is considered Likely mainly due to the changes already achieved in society.

4.5 RATINGS FOR PROJECT DESIGN, IMPLEMENTATION AND RESULTS

Ratings and respective justifications are presented in Table 11.

Table 11 – Ratings for project design, implementation and results. Legend:

TOPIC	RATING	JUSTIFICATION FOR RATINGS
Outcomes: Highly satisfactory (HS), Satisfactory (S), Moderately satisfactory (MS), Moderately unsatisfactory (MU), Unsatisfactory (U), Highly unsatisfactory (HU)		
4.5.1 Project design		
Design	S	Project design was adequate in terms of the scope of activities and the stakeholders needed for implementation. Funds requested to the GEF and co-financing commitments by stakeholders were also adequately planned. The project includes the development of management tools such as information systems, risk assessment protocols, prevention measures, EDRR and eradication / control of IAS. The selection of NPA was based on scientific criteria. The initial plan to make changes to national laws was not very realistic for a 4-year project, especially as a baseline study of legal gaps and inconsistencies had to be conducted first, and because the project was to go through a change in national government due to elections. The main deficiency in project design is in the indicators, which are not SMART and have not facilitated adequate monitoring of the 36 different outputs to be developed, especially in the case of species or actions to be carried out in NPA.
National ownership	HS	The project is aligned with GEF Strategic Objective 2: Mainstream biodiversity conservation and sustainable use in terrestrial and marine productive landscapes and sectors. It is also aligned with the CDB Aichi targets and with the UN Sustainable Development Goals. At the national level, it contributes to the five agreements of the Pact for Mexico with the UNDP Country Program 2014-2018.

TOPIC	RATING	JUSTIFICATION FOR RATINGS
		The National Strategy on Invasive Species is being partially implemented through the project, covering several components and largely increasing awareness, management capacity and knowledge on IAS.
UNDP comparative advantage	HS	An appropriate level of collaboration has been established between the UNDP Country Office, CONABIO and the PMU in project management. The UNDP has the comparative advantage of being part of an international network in charge of many projects that contribute with lessons learned, examples and synergies with activities in the project. Part of the role of UNDP is to disseminate project outcomes, replicable models, lessons learned and experiences to other projects in Mexico and beyond. Learning opportunities and collaboration can be established especially if the Country Office is able to promote meetings for exchange of experiences between projects under implementation. None of the persons interviewed questioned the ability or the comparative advantage of the UNDP in its role of implementing agency.
Relation between projects and other interventions in the sector	S	Lessons and experiences from other GEF – UNDP projects have been used since the design phase, as well as the long-term experience of GECI on vertebrate eradication on islands and the knowledge available from NPA staff to plan the activities in development. The PMU has interacted with international networks such as the Global Invasive Species Information Network (GISIN), the Invasive Species Specialist Group (ISSG – IUCN), the North American Plant Protection Association (NAPPO) and the North American Invasive Species Network (NAISN).
Indicators	U	As explained in detail in items 2.4, 3.1 and 4.3, the indicators developed for the project have created some monitoring difficulties. The indicators do not provide a comprehensive view of progress and outcomes. Given that the project is in an advanced phase, with only 15 months left for implementation, that changes in indicators are not favored by GEF and UNDP, and that reviewing all indicators would deviate the PMU from more relevant tasks of project implementation, the MTR Team does not recommend that indicators be adjusted at this point. Adjusting a few indicators will not change the overall reality, and reviewing them all would then require assessments at least for project start and mid-term, which would be time-consuming.
Management arrangements	HS	Project management arrangements are adequate and functional. The PMU is supported by the UNDP as implementing agency as well as by the CONABIO General Directorate for Analyses and Priorities. CONABIO and many partner organizations participate in the development of activities in Component 1, while Component 2 is in charge of GECI for work on islands (2.1) and CONANP (Central Office) in continental protected areas (2.2). The High-Level, Technical and Scientific Committees complement the arrangement. The latter is considered of high relevance by many of the participants and expected to provide a scientific background to the outputs in development.
4.5.2 PROJECT IMPLEMENTATION		
Financial planning	HS	Financial management has been impeccable. Although part of co-financing was compromised due to budget cuts, the institutions which committed the highest amounts of funding have been able to fulfill their contributions. Some of the partners have not kept proper records of co-financing (especially in-kind), and require closer follow-up by the PMU to ensure that this information is available for the Terminal Evaluation of the project.
Monitoring and Evaluation	S	The large number of project activities carried out by many partner organizations, especially GECI and CONANP, combined with changes in certain outputs that were not adjusted in the corresponding indicators, have created some difficulties for M&E. The M&E plan was well designed and the budget is adequate; the indicator matrices have been updated. The problem is, as mentioned before, that the indicators are not comprehensive, leaving certain activities without follow up.

TOPIC	RATING	JUSTIFICATION FOR RATINGS
Implementation arrangements	HS	Project coordination by the PMU/CONABIO and the UNDP, supported by the three committees (High-Level, Technical and Scientific) has been efficient. The arrangement for GECI and CONANP to take the lead in Component 2 allows the PMU focus on Component 1, which involves a larger number of stakeholders and outputs. Nearly all organizations engaged from the design phase are involved in implementation, and although capacity and quality can always be increased, results are satisfactory so far.
Participation of stakeholders	S	Ownership of the project and of IAS issues is heterogeneous, and it would be unrealistic to expect it to be equitable. Considering that IAS, particularly from a biodiversity standpoint, are a new topic for most of the institutions involved, especially government agencies in complementary sectors, and that changes of approach are noted as well as open discussions on how to improve IAS management, the level of engagement and participation of partner organizations in the project is considered relevant. At this point in implementation, the increase in capacity and in IAS management by several agencies is strengthened. IAS management is institutionalized in CONABIO, Central CONANP and some NPA. Replicable models of IAS control are expected before project closure so the benefits can be extended to other areas. The participation of agencies in charge of productive sectors and border inspections at the national level (SENASICA, CONAPESCA, INCAPESCA, CESAEM, linked to SAGARPA, as well as PROFEPA and CONAFOR, linked to SEMARNAT), is a relevant achievement, as it is not uncommon for these agencies to deny or not care about impacts on biodiversity and refuse to participate in such discussions. IAS issues have permeated management at the national level in the most relevant government agencies, to date maybe the most significant change accomplished, which is likely to extend beyond the life of the project.
Replicability	S	A multitude of materials was produced through the project for replication and dissemination, especially for key productive sectors which introduce and spread IAS (aquaculture, cattle and goat breeding, forestry, ornamental plants). Best practice manuals are available, and a certification process for ornamental fish production is in development. Management tools such as risk assessment protocols, information systems, IAS mapping methods, climate change modeling, cost coefficients and economic analyses are relevant for government agencies. Dissemination materials for the general public have been produced, especially for NPA. Ongoing work by GECI will extend eradication and control on islands to other areas, including the application of biosecurity protocols. Environmental education was promoted by FCEA, which has incorporated IAS issues in their work. Consolidation of many of these outputs is still required and must be the focus of the project until closure to ensure replicability, especially in the case of invasive plant control, EDRR and application of best practices by producers.
Cost-effectiveness	S	The investment made so far through the project, complemented by relevant co-financing, has generated changes of awareness and management of IAS at the national level. The project has made substantial investment in actions for the achievement of expected outcomes. Openness on the part of government agencies and other partners involved in the project is evident at the time of the MTR, paving the way for further development of IAS management especially because several agencies which often promote the use of IAS for production purposes, agencies in charge of border control, productive sectors and the general public are involved. Most of the investment made through the project is part of the most cost-effective approach in IAS management, focused on prevention tools such as risk assessment, biosecurity measures to prevent the introduction of IAS and development of EDRR systems. These are supported by relevant information systems. Scientific information for mapping invasive plants has been produced in a systematic way for the first time, which feeds back into the information system and supports planning for IAS management. To increase cost-effectiveness, best practices and certification for productive sectors as well as the application of biosecurity measures on islands and EDRR and invasive plant control in NPA require consolidation.

TOPIC	RATING	JUSTIFICATION FOR RATINGS
Management by UNDP Country Office	S	<p>As mentioned before, participants have acknowledged the relevance of UNDP as implementing agency in all interviews conducted during the MTR. Some complaints exist due to UNDP and GEF standards involving changes in report formats or quality issues. While these are mostly external aspects that require compliance by the UNDP, it is also relevant to ensure that resources are available for practical management in the field at the right time of year, especially in places where management can only be carried out during the short, wet season. This situation may require flexibility on part of the UNDP, or urgency in the analysis and approval of certain reports. The UNDP has provided technical support to the project on many processes, but at times urgent issues did not receive quick responses, or explanations were too brief to actually solve them. More support is required in terms of follow up on changes of format, criteria for issuing contracts and other administrative issues to ensure a more effective communication between the UNDP and the PMU on UNDP and GEF procedures.</p> <p>The UNDP did not prepare the PMU to receive the MTR. Information on project activities and progress was not organized to facilitate the evaluation, while indicators (GEF TTs, and especially the Institutional Capacity scorecard) and co-financing information were not ready. The UNDP should have briefed the PMU on the MTR procedures and ensured that the project was ready to be evaluated. As a consequence, it took the MTR Team much effort and time to locate information on some of the activities and indicators. This does not favor the evaluation, as information is scattered and had to be obtained from many different sources, including people from NPA and consultants. No information is available for some of the outputs in the project web page nor in the material sent to the MTR Team for the evaluation. The MTR ToR included evaluability and theory of change tables that are not a part of this evaluation process. It is very important that the UNDP better instructs and prepares the PMU for the Terminal Evaluation. Evaluability tables can be used as a check-list. Information gaps may lead to misunderstandings in progress and achievements, adversely affecting the project in the evaluation results.</p>
4.5.3 RESULTS		
Achievement of outputs, outcomes and objectives	S	<p>The project has generated a multitude of products and positive impacts, as well as paved the way to improve IAS management at the national level. Many of the project outputs are still in development. Significant investments have been made in management tools, information systems and baselines to support project planning and practical action. The tools, guides and manuals are relevant products that will outlast the project. The time left for implementation must be focused on the practical application of the information produced so far, especially for EDRR systems, biosecurity on islands by CONANP, control of invasive plants and regulations for productive sectors. Participation by SEMARNAT has been reported as insufficient, and should be improved if feasible. The expected project outcome will be better measured with more time and only if all the knowledge produced is applied in practice, in the field, to generate positive results for the conservation of biodiversity.</p>
Sustainability	<p>General: ML</p> <p>Institutional framework and governance: ML</p> <p>Environmental: ML</p>	<p>Institutional framework and governance: the main concern seems to be the change of national government in 2018. The project extension to the end of 2019 is key for the project to renegotiate agreements and ensure the work will continue in the new government. Potential changes in personnel are also a concern, as some activities may be at risk of not being completed if commitments are not renewed.</p> <p>Environmental: the permanence of the positive effects of eradication depend on the consolidation of biosecurity systems for islands and on continuous monitoring to avoid reinvasion by IAS. Prevention, EDRR and control in NPA are dependent on the maintenance of personnel and capacities developed for the purpose.</p>

TOPIC	RATING	JUSTIFICATION FOR RATINGS
	Financial resources: ML Socioeconomic: L	<p>Financial resources: most stakeholders raised concern with the lack of specific funding for IAS management after project closure, especially in the context of budget cuts by the current government. Uncertainty created by the future result of upcoming elections have not made it possible to estimate government support for the coming years.</p> <p>Socioeconomic: the strategy of involving many types of public in the project through capacity building and environmental education, complemented by a multitude of information materials, has been efficient in reaching out to the public. The amount of information and materials produced, compiled and available online, has been multiplied many times since project start, while events and workshops included relevant types of public. The application of best practices by producers hold potential for significant change. The increase of public awareness may be better measured with later in the project and once it is expressed through other initiatives, from education to economic production and legal documents.</p>
Contribution to improve national / local capacity	S	<p>The main outcome of the project, to strengthen IAS management, has so far been well consolidated. The most important government agencies are involved in IAS management and have ownership of the issue. The participation of agencies linked to SAGARPA (SENASICA, CONAPESCA, INAPESCA), as well as CONAFOR and PROFEPA, is relevant, especially for interinstitutional coordination and the identification of common concerns and interests that lead to finding better balance between productive sectors and biodiversity conservation. There will always be a need for capacity building, as people change jobs and more knowledge is available, to ensure that IAS management is mainstreamed into all levels of government. But in many countries the dialogue between agriculture and forestry agencies with those in charge of biodiversity is difficult and does not yield positive results, while in Mexico a relevant opportunity for cooperation has been established at the national level and also at the local level (NPA).</p> <p>It is especially relevant to promote continuous capacity building for CONANP personnel, both for the Central CONANP Coordination for IAS and in protected areas for improved capacity to apply prevention measures, EDRR systems, biosecurity protocols for islands and monitoring and rapid response actions.</p>

5 CONCLUSIONS

Table 12 – MTR conclusions.

General conclusion	The level of development at mid-term is Satisfactory. Baselines have been developed, a national IAS list was published, an integrated information system is under construction as well as risk assessment protocols; relevant productive sectors are involved in project implementation, best practice manuals are available, many types of public have participated in events and workshops, prevention measures and EDRR systems have been developed, some invasive plants are being controlled, terrestrial vertebrates have been eradicated or are under control on islands and biosecurity protocols are ready for application. The time left for project implementation must be dedicated to the practical application of all the information produced, from protocols to best management practices, in order to test their efficiency and mainstream these practices in the routine of government agencies in charge of IAS management.
	Outcome 1
C1	The development of the IASIS and of a national gateway on IAS are highly relevant to Mexico for providing information on IAS as a base for public policies, sectorial regulations, risk assessments, management of IAS in priority areas for biodiversity conservation and for reference to productive sectors in applying best practices. It will be important to gradually improve contents that are more specific to Mexico, as well as increase flexibility for data filters and searches.
C2	The publication of a National IAS List is a relevant outcome of the project for clearly identifying existing IAS and providing an information base for prevention, EDRR, eradication and control. A consequence of the national list tends to be the development of sectorial regulations for the conservation of biodiversity. It is desirable to complement the current list with fish and forest species. Acknowledgement of IAS used in production systems should be seen as an opportunity for qualifying the respective sectors with sustainable management and for new market products based on the sustainable production of indigenous species.
C3	The approach of engaging the most relevant productive sectors in the project is an indicator of judicious environmental management. The materials developed for these sectors (best practice manuals, certification for ornamental fishes, assessment of invasive forest species that should not be planted) need to be applied in practice by producers for actual benefits to be generated.
C4	Interinstitutional coordination is acknowledged by project stakeholders as essential for the development of IAS management because there are complex issues involved that require follow up in the mid and long terms. Improvement in cooperation between environmental and agricultural, aquaculture and border inspection agencies is widely acknowledged. It is highly desirable to engage the PROFEPA General Directorate for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems and the SEMARNAT General Directorate for Wildlife so that IAS issues can permeate the respective legal attributions. Representatives of institutions which have participated in the project believe that institutional and intersectorial coordination will be key for the success of IAS management in Mexico.
C5	Outputs 1.17, 1.1.11, 1.1.12, 1.3.1 and 1.3.6 are less developed and require special attention of project managers and supporting committees for the expected results to be produced before the project ends. It will be unlikely to produce changes in national laws as expected from output 1.2.1. This issue has not been prioritized from the beginning of the project, there is not much time left, and upcoming elections will interfere in political support. Even if actual changes are not feasible, it is possible to develop objective proposals, for future reference, to include IAS in relevant national laws mentioned in the project.
	Outcome 2
C6	CONANP is a key partner to the project due to its responsibility for Natural Protected Areas , and expected to continue the activities and expand them to other NPA after project closure. In spite of the dedication of the Coordination for IAS at Central CONANP, its level of influence on actions developed in NPA is hindered by lack of personnel, too diverse responsibilities, and institutional arrangements. NPA Directors are hierarchically higher than the Coordinator for IAS at Central CONANP. This has affected the possibility of coherence for all actions in place in continental NPA that are supervised from Central CONANP as a link to the project. Experimental methods with a poor technical base have been tried out in different NPA without yielding satisfactory results. Even if the Central Coordination for IAS were in charge of providing management guidance, it would not be able to do so for lack of technical expertise. This Coordination needs more personnel or to be solely dedicated to IAS in order to be able to implement the actions in the project, extend them to other NPA in the future and guide implementation. It is highly desirable that the Director of the Department for the Conservation of Priority Species, who is hierarchically at the same level of NPA Directors, gets more involved in IAS management, especially on key issues that require assistance for implementation and which are to be continued and extended to other NPA.
C7	While the control of invasive alien vertebrates on islands is a global reference of success, the control of invasive alien plants has not yet defined viable, cost-effective methods. The country seems to lack the expertise of invasive plant management in natural areas, as the work carried out so far lacks technical reference and a scientific base, not building on work carried out in other countries, often on the same invasive species. Restrictions of authorization by CONANP for certain control methods hinder advances for cost-effective control. The best available technologies have not been used, which reflects lack of technical capacity to conduct invasive plant management and the need for specific capacity building for CONANP and SEMARNAT staff in charge of control and permits, as well as for workers in the field.

C8	<p>Although no specific control action for aquatic plants is part of the project, some NPA Directors have not authorized the use of biological control for invasive aquatic plants. This implies lost opportunities to control these threats and restore aquatic ecosystems and their ecological functions. IMTA has identified and isolated biological control agents and has the expertise to implement biocontrol in Mexico. The control of invasive aquatic plants is generally more complicated because of limited possibilities of herbicide use (which have to be specifically registered for use in aquatic habitats) and because of the inherent difficulties and costs of working in aquatic environments. In many countries, biological control is often only dedicated to agricultural pests, while there is no interest or expertise in using biocontrol for environmental management. This opportunity is available in Mexico and must not be discarded for lack of understanding or fear of negative impacts, as it is feasible to work at low levels of risk. The impacts of not doing anything must be compared to potential negative impacts of management. It is very important that NPA Directors of areas where aquatic plants are invasive improve their capacity for IAS management and especially receive information on biological control so that the level of opposition to its application is reduced.</p>
C9	<p>Project implementation is advanced and capacity building for IAS management has been ongoing at various levels (awareness, increased knowledge, institutional capacities) and types of public. The project must now clearly focus on the practical application of all the products developed so far, especially in prevention, EDRR and invasive plant management. As the lack of personnel that can dedicate time to IAS in some protected areas hinders the pace of implementation, it is desirable to assign more personnel for work on IAS. Capacity building efforts should focus on ensuring that these actions are carried out as expected.</p>
Project management and M&E	
C10	<p>The indicators developed when the project was designed have affected the monitoring of the 36 outputs to be implemented. The complexity of the project, given the number of outputs and stakeholders involved, combined with problems in project design, especially the lack of measurable indicators that represent expected outcomes and changes in planned activities, have created monitoring difficulties and risk of failure in achieving what was initially planned. For example, in some NPA, species and areas planned for control were altered, but the corresponding indicators were not adjusted; the control of five invasive plant species in Arrecife Alacranes NP was replaced by a survey of native plants. These are diversions from the original plan that have not been properly explained and adjusted. The development of baseline studies was also not properly considered in project design, and have taken much longer than expected.</p> <p>The MTR Team found it very difficult, in some cases, to find organized information on some of the project outputs and activities. Reports are often not available, or do not inform progress clearly. There are no reports on some of the outputs, and some products are referred to more than one output in different components. Many products available from the project page on the CONABIO website are not organized with a clear relation to their corresponding outputs and there are outputs for which no information is available. Only subcomponent 2.2 is well organized in this sense, although reports on consultancies paid with complementary funds such as PROCER are not available. Among the files sent to the MTR Team for the evaluation, (reports, products and project documents) there is no information on several outputs in Component 1.</p> <p>The MTR Team evaluated the indicator matrices based on available material (Strategic Results Framework and Indicators per Output), but considered it necessary to compile a third table to evaluate all the outputs (Table 4), as many are not covered by the indicators.</p> <p>During the MTR, it was often mentioned that during the design phase the guidance received from the UNDP was to avoid an excessive number of indicators, and to focus on global results rather than on each output. Indicators can be set for any part of a results chain, but should always be related to expected outcomes. As it is difficult to measure change, few SMART indicators are desirable. Still, there must be a sufficient set of indicators to measure progress and the scope of change achieved.</p> <p>The possibility of adjusting indicators was discussed in meetings during the MTR mission in order to improve the measurability of progress in project implementation. In the process of writing the MTR report, and assessing each set of indicators, it is clear that most of the indicators would require adjustment, which would demand a large amount of work by the PMU. At this point of advanced implementation, the MTR Team does not recommend adjusting the indicators to avoid deviation from the main activities that need to be consolidated. The M&E tables should be updated periodically to facilitate follow up, but remaining implementation time must be dedicated to the practical application of all information produced on prevention measures, EDRR systems, control and best practices applied by productive sectors. These activities are now more important than educational workshops, as these are the outcomes that can make a difference for the conservation of biodiversity of global importance, the overall objective of the project.</p>

6 LESSONS LEARNED AND BEST PRACTICES

Project design – Lessons learned

Had the project initially developed better **indicators** in the Strategic Results Framework, the advances and achievements of the project could be better measured, with a clear understanding of outputs, products, impacts and tangible results. An improved assessment of performance of the project and participants would bring out the need to redirect or adapt activities in order to achieve the expected results.

To design a project with 36 outputs to be managed by a small PMU of 3-4 persons without **SMART indicators of progress and results** has created difficulties in follow up and in providing a clear, concerted view of the entire project. Difficulties in locating consultants with expertise and capacity on IAS to carry out project demands do not seem to have been accounted for in the design phase. To advertise calls for consultancies on websites of other partner organizations, not only the UNDP, might increase the chances of reaching professionals who are interested in working for the project.

Project management – Lessons learned

Projects with multiple outputs and stakeholders that require many consultancies should develop **detailed hiring processes and M&E tools for easy follow up**. It is important to define criteria and specific contents for reports beforehand in order to increase compliance with UNDP and GEF standards in reports delivered by consultants. The implementation of activities has suffered delays in some cases because reports were repeatedly reviewed until the expected standards were reached. These processes are related to the scarcity of professionals with experience or expertise on IAS management in natural areas.

Limiting the management of **funds to each fiscal year** (administrative arrangements) causes delays in project activities, as noted in work by CONAFOR and in NPA. Multiannual contracts would be more effective to avoid interrupting ongoing work and to enable planning and requesting permits for execution at ideal times of the year in areas where control is dependent on climatic conditions.

Capacity building on IAS is essential for the project to achieve the expected results and have support from those involved. Contents should include basic concepts, impacts, species persistence and control methods. This is a new issue for many people who require capacity building and information at different levels, from technical capacity for management in relevant government agencies to legislators, academics and workers applying prevention, EDRR, eradication and control measures in the field and environmental education for the general public. The focus of the project on strengthening national capacity on IAS could not have been better designated, as several limitations and implementation delays have been registered in this report for lack of capacity and of specialized professionals on IAS in Mexico.

Project management – Best practices

Establishment of a **Scientific Committee** for support to project implementation, in addition to the Technical and High-Level Committees, with the prospect that all committees will continue working after the project ends to support the implementation of the National Strategy on Invasive Species. This structure is recommended for other GEF projects, especially when dealing with issues that are considered new by many of the stakeholders involved, such as IAS and climate change.

Project management – Practices that require improvement

This project includes important examples of indicators that have not been functional for M&E. This is a common issue in large projects, and often a result of not having quantified information in the design phase for all aspects that require monitoring. As actions are implemented and more information becomes available, project managers often find it necessary to adjust outputs and make use of adaptive management. Two situations emerged in this project: (a) outputs were altered without corresponding adjustments in indicators, which impaired the measurement of results and project performance; and (b) outputs that no longer made sense were maintained because they are represented in indicators. These situations arose due to the **inflexibility in adjusting the indicators**, leading to investments that could have been better directed and irrelevant results. It would be important that the rules set for project implementation allowed some flexibility for adjustments in outputs and indicators based on solid needs of adaptive management, especially during the first year of implementation, when most of the planned activities are validated.

Component 1 – Lessons learned

Some **outputs were not well designed** in terms of the time estimated for their achievement. A viability study should have been carried out before expectations of **changes in national laws** were included in project design. Five relevant national laws are mentioned in the project plan, creating expectations for changes to include IAS issues. At this point, this is not viable, both because the time left for implementation is too short, and because of national elections in 2018. It is more realistic for four-year projects to develop proposals for changes at that level, but not to commit to such results, as the chances of unsatisfactory results are rather high.

Component 1 – Best practices

To invest in improving **national coordination** on IAS by engaging government agencies with several responsibilities, direct and indirect, related to IAS. To engage key productive sectors is a strategic approach for the management of IAS pathways and vectors, as well as to produce cultural changes on the use of alien species, as is the case of promoting a native species of fish (tenguayaca *Petenia splendida*) for production.

The decision by SEMARNAT to support the **UMA** (Management units for the conservation of wildlife) that use native species rather than alien species. CONABIO prepared a database for SEMARNAT on production practices in UMA for support in selecting the units to receive incentives (the tool requires updating in order for the quality of the policy to be maintained).

The initiative by SENASICA of verifying the possibility to **unify sanitary and environmental certification** in single permits.

The initiative by **ornamental fish producers** of developing certification standards considering environmental risks posed by IAS and their impacts to natural areas and to biodiversity.

Component 1 – Practices that require improvement

Not separate invasive alien species from other species that are alien or native in reports and in the information system under construction (IASIS). This is a new and complex issue for most people, including those who have technical qualifications in environmental work and related areas. It is very important to provide clear, objective information without confusing lists of species. The IASIS web page must include the concepts of native, alien and invasive alien species used in Mexico, as well as the criteria used to include species in the database. This is especially relevant because the concepts

used in Mexico differ from those adopted by the Convention on Biological Diversity and most countries (where alien species are those outside their native ranges, whether in the same country or not).

Component 2 – Lessons learned

The time initially estimated for the development of some **outputs was not realistic in the project design**. Actions that involve many stakeholders, such as the establishment of subcommittees to support IAS management, take long because it is necessary to begin with basic explanations of concepts and impacts, then allow time for some maturation before it can be discussed in a larger, more diverse group. All NPA subcommittees were planned to be established during the first year, which was rather unrealistic. Three of them are still in process of development after more than three years of project implementation.

When approaching stakeholders to form **subcommittees to support IAS management** in continental NPA it is better to begin by holding meetings with communities to explain the proposal and the basic concepts. This increases their understanding of problems and possible solutions. To perform a previous assessment of stakeholders is also useful before presenting proposals, as the local context must be considered. Approaching communities first has proved useful to avoid conflicts that often come up in meetings with government agencies due to land ownership and other problems which undermine collaboration. Although invited, representatives of **government agencies often do not attend meetings** in some areas, indicating the need for former contact. For these reasons, the establishment of committees is not straight forward and may take much longer than planned.

Vertebrate eradication and control programs need to be complemented by the **application of island biosecurity measures** to reduce the possibilities of new introductions and loss of investments in eradication. Once the application of biosecurity protocols is consolidated for the six islands contemplated by this project, it should be extended to other islands with appropriate adjustments to particular realities.

IAS eradication and control programs must be temporal and spatially sustained over time to be effective. Complementarily, financial resources and well-trained workers must be available. Mechanical control carried out by community workers who live in the surroundings of NPA has been frustrating, especially in the case of African grasses, as the areas subjected to control recovered fast and smothered seedlings of native trees that had been planted. Some workers mentioned being afraid that people would see the reinvasion and think that the control work had not been properly done. In some project reports the “eradication” of African grasses is mentioned when only one control effort was carried out and no follow up action was executed. The term “eradication” must be used cautiously, as eradication is difficult to achieve, while control is more realistic. Eradication requires sustained control and is often not viable, at least in the short term. Biological invasions are complex problems that require sustained actions over time, using adequate techniques with a diversity of available tools and products, complemented by technical capacity for management in natural areas to define the techniques and methods appropriate for each situation.

The **cost of invasive plant control** has been very high due to resistance in using more effective control methods. Experimentation without technical background has taken long and not generated good results. Integrated management should be adopted by the NPA in the future rather than mechanical methods, making use of the best methods and tools available for each species.

Component 2 – Best practices

Eradication of vertebrates on islands, including feral cats on Socorro Island, where only sustained control was expected, based on solid scientific and technical knowledge and the use of best available technology for excellent results.

The adoption of **trained dogs in biosecurity inspections** for islands and control of vertebrates.

The **production of native plants** for environmental restoration on Guadalupe Island by GECl. Relevant scientific knowledge was developed to reach an outstanding rate of seedling survival in the field based on physiological and environmental characteristics. It is very important to systematize and share this information so other restoration projects can use the technical principles developed. An estimate of seedling production costs should also be made for future reference.

A group of collaborators was formed at **RB Sian Ka'an** for implementing practical IAS control measures, such as phytosanitary brigades of the state government, groups of fishermen in the Punta Herrero community and personnel in the Biological Reserve. Once problems are identified, the groups carry out control actions as needed.

The EDRR system designed for **PN Cañón del Sumidero** includes an open form for any alien or unknown species to be reported to the park management for verification and rapid response when necessary. At **APFF Sierra de Álamos Río Cuchujaquí** any sightings of alien or unknown species are also requested to be reported.

The establishment of **subcommittees** to support IAS management because they enable communities to feel included and participate in decision-making that affects the areas where they live.

Component 2 – Practices that require improvement

Limit invasive alien plant control to mechanical options in several NPA and limit recommendations in consultancy reports to mechanical control when there is a wealth of information available on the control of invasive plants from many countries, including the leaders on IAS management at the global level. These recommendations have ignored the existence of the Scientific Committee, which can advise better methods for best cost-effectiveness.

Some NPA Directors have not allowed the use of **biological control**, especially for aquatic invasive plants that cause relevant damage and economic losses to Mexico, while IMTA has the expertise required for careful application with support from other countries where the same methods and agents have been used with significant benefits. Biological control agents are defined for giant cane (*Arundo donax*), an aggressive species of difficult and costly control, and water hyacinth (*Eichhornia crassipes*), but have not been released for lack of authorization (although not related to project activities, but to other cases of invasion by aquatic plants in NPA), again reflecting lack of capacity for objective decision-making.

Not provide **personal protection equipment** for workers carrying out mechanical or chemical control of invasive plants, and not using adequate tools to facilitate and qualify human work, such as weeding machines that can spare people the hardest work and increase productivity and the cost-benefit ratio of control.

7 RECOMMENDATIONS

Table 13 – MTR recommendations. Color code: orange: maximum priority; light yellow: priority 2; light blue: priority 3; gray: beyond project implementation.

Rec. #	PROJECT: Enhancing national capacities to manage invasive alien species (IAS) by implementing the National Strategy on IAS.	Organization in charge
P	Concentrate efforts in the time left for implementation on the practical application of the knowledge base generated by the project and finalize pending studies, increase the flexibility and scope of IASIS, correct the rapid risk assessment protocol (MERI) and consolidate the other risk assessment protocols, consolidate studies on cost-benefit of control and economic impact of IAS in Mexico, recommend regulations for IAS or groups of IAS in the National List, pursue the engagement of the SEMARNAT Wildlife Directory and the involvement of PROFEPA General Directorate for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems, establish multi-sectorial agreements or coordination models for ongoing IAS management and the implementation of the Nacional IAS Strategy; consolidate the application of best practices by productive sectors and of prevention measures, EDRR at points of entry and in NPA, consolidate the leadership of CONANP in the application of island biosecurity protocols, finalize the eradication of vertebrates as planned (goats on Espíritu Santo island) and restart the control of invasive plants with a technical and scientific base with support from the Scientific and Technical Committees.	PMU and partners
	Outcome 1	
R1	Develop and disseminate information on complementary lists of groups of species that were not included in the National List or update the National List in coordination with government agencies in charge of the missing species.	CONABIO, SEMARNAT, CONAFOR, CONAPESCA
R2	Consolidate risk assessment protocols in user-friendly systems (e.g. Excel) and adjust the rapid assessment protocol (MERI), providing validation tests to ensure there is no bias. Pursue options to formalize the use of risk assessment by agencies in charge of authorizing species imports for different uses in order to establish an impartial and consistent risk assessment process that includes biodiversity concerns. Pursue the inclusion of biodiversity criteria in risk assessment protocols used by SENASICA.	PMU, CONABIO, SENASICA, SEMARNAT
R3	Strengthen the sectors within SEMARNAT in charge of IAS in order to: a) improve IAS management, b) optimize authorization processes for eradication and control actions and to establish an expedited process for rapid response actions in EDRR systems in coordination with CONANP and c) ensure resources are available for the implementation of the National Strategy on Invasive Species. SEMARNAT personnel responsible for IAS management might require specific training to allow for proactive institutional coordination with CONABIO, CONANP and other government agencies in complementary sectors in charge of species introductions or sectors that function as pathways and vectors of IAS introduction and spread. This increase in capacity is highly relevant to support the implementation of the National Strategy on Invasive Species, especially after project closure. In the meantime, the project provides an important opportunity for advancement in the process of institutional coordination.	SEMARNAT
R4	Replicate biosecurity protocols developed for ornamental fishes to other species in aquaculture, pursuing a public policy to support producers in the implementation of biosecurity measures. Considering that aquaculture represents an expanding market, many new introductions of fishes, biological invasions and impacts due to the escape of alien fishes from breeding stations can be avoided.	CONAPESCA, INAPESCA

	Outcome 2	
R5	Strengthen the Central CONANP Coordination for Invasive Alien Species by assigning more personnel or allowing the Coordination to be exclusively dedicated to IAS management. This will improve management efficiency and increase support to NPA in order to ensure that all pending actions in the project are implemented in due time, as well as for future replication to other NPA. A higher level of involvement by the Director for the Conservation of Priority Species is desirable, as this position is levelled with NPA Directors. This is especially relevant for decision-making in key moments to ensure implementation of prevention measures, EDRR and control of IAS.	CONANP
R6	Control five invasive plant species in PN Arrecife Alacranes (planned for year 1) with support and permits issued by CONANP for mechanical and chemical control as needed and based on technical reference for each species and/or experts in invasive plant control. Conclude goat eradication on Espíritu Santo Island using the most viable methods and considering the cost-benefit ratio. Eradication must proceed based on hunting and complementary methods to ensure success. CONANP must support the work and provide the necessary permits for eradication to be achieved in a few months, as planned, to prevent the goat population from increasing, as well as the costs involved.	GECI, CONANP
R7	Systematize vertebrate eradication processes and verification methods for early detection alerts on islands for reference to other areas and projects. These references are especially important for CONANP in the application of EDRR systems, as it is not viable for GECI to travel to each island upon early detection alerts. CONANP must consolidate the capacity to verify the presence of IAS upon early detection alerts and carry out at least basic control and contention work as indicated in rapid response protocols.	GECI, CONANP
R8	Take the lead in applying biosecurity protocols for insular NPA, supported by the CONANP Department for Priority Species for Conservation (DEPC), General Directorate for Regional Operation (DGOR) and Regional Departments for NPA so that GECI takes a supporting role, inverting current roles. As GECI is an NGO, it can provide technical support, but does not have the legal mandate to enforce the necessary actions except for voluntary cooperation by the public. In this case, a government institution must take the lead in ensuring that the biosecurity protocols are effective. Besides, the presence of GECI on islands depends on projects, being occasional, while the presence of CONANP is sustained.	CONANP
R9	To promote simulations of EDRR systems developed for NPA (response chains) in order to test their efficacy and as a way to build capacity for NPA personnel. Once the effectiveness has been evaluated, the protocols should be disseminated for replication in other NPA.	PMU, CONANP
R10	Not perform experiments in the control of invasive plants without a technical basis. It is desirable to nominate one person to be in charge of IAS control in NPA, as well as one focal point in the Coordination for IAS in Central CONANP, who receive specific training to provide qualified technical support to ongoing control work. The best methods available must be applied, making use of existing experience and technical and scientific knowledge, in order to increase the chances of consolidating efficient control methods before project closure. Urgently implement new invasive plant control measures to consolidate replicable methods. Use chemical control for alien invasive grasses and estimate costs and efficacy in comparison with mechanical control. Make use of the expertise available in the Scientific Committee to support these actions and pursue capacity building alternatives outside Mexico if necessary, as there seems not to be much experience on integrated management of invasive plants in natural areas in the country.	CONANP

R11	<p>Organize a capacity building workshop for NPA Directors and personnel in the Central CONANP Coordination for IAS on threats posed by IAS to biodiversity, impacts, prevention measures, EDRR, eradication and control, available tools and methods, including biological control and chemical control, including content on control techniques and chemical products that are viable for use in natural areas for managing animal and plant IAS.</p> <p>Provide capacity building for CONANP staff on insular NPA to: (a) apply biosecurity protocols on islands, with clear roles for each part of the process; (b) post-eradication monitoring of IAS, installation and verification of early detection devices (baiting stations for rats, cat traps, etc.); (c) rapid response actions in case of early detection alerts, with command of different techniques and methods as necessary; (d) pursue support from communities living on and using the islands to prevent the introduction of pets and implement EDRR, with balance in female participation.</p> <p>Provide capacity building for CONANP staff in continental NPA on: (a) concepts, impacts, vectors and pathways of IAS introduction and spread; (b) prevention and EDRR applied to each NPA, with participation in the design of measures customized to the specific context of each NPA; (c) practical training for the application of prevention measures and EDRR with focus on early detection and immediate action on individuals or small populations of IAS, including practical simulations; (d) management of invasive alien plants, including content on different techniques and chemical products viable for use in natural areas and practical application in the field, in order to enable NPA staff to support and continue control actions initiated by workers and maintain monitoring of areas under control as well as intervene with repeated control actions at least in the case of small populations or initial invasions, or when there are no funds to hire external work.</p>	PMU, CONANP, CONABIO
Project management and M&E		
R12	<p>Ensure the extension of the project deadline to the end of 2019 in order to allow enough time for practical implementation of all the information produced through the project as well as for mainstreaming IAS management commitments in the new government.</p>	UNDP
R13	<p>Support the PMU in project management on the constant changes in administrative processes that may cause implementation delays. Carry out an assessment of processes that cause delays in project implementation, especially the approval of consultancy reports and other products. Seek ways to improve the initial quality of reports by providing consultants with a proposed structure and minimum contents to facilitate approval. This is important to optimize product reviews and, especially, to make sure that payments are completed in due time to allow for field activities to be carried out as necessary.</p>	UNDP / PMU
R14	<p>Strengthen the PMU with more personnel in this final implementation phase to ensure that all outcomes are achieved, especially due to the current changes in administrative processes of the UNDP.</p>	CONABIO
R15	<p>Systematize information on progress, achievements and limitations of the project for use in project management and especially for the Terminal Evaluation. Use the indicator and output tables updated for the MTR (Tables 2 and 8 – Strategic Results Framework, Table 3 – Indicators per output, Table 4 - progress per output and the Management Effectiveness / Institutional Capacity Tracking Tools), to monitor project implementation. The MTR Team does not recommend reviewing the indicators at this point in implementation because many would require revision, diverting efforts that must now be focused on the consolidation of activities and best practices. The set of tables is comprehensive and covers all the expected results and includes justifications for changes to activities initially planned. In the Outcomes section per component in the project web page (CONABIO website), link each file with the respective output and include brief summaries for those outputs that have not advanced or for which there are no products so far, so that anyone can find organized information and understand advances made by the project. Include reports and products from complementary sources, such as PROCER reports on plant control in NPA, on the web page, organized by topic and by NPA.</p>	PMU, CONANP, GECI

R16	Look for co-financing sources in complementary sectors, such as multilateral and bilateral cooperation agencies, development agencies, private sectors and foundations, NGOs and beneficiaries. This search for external alliances should be supported by the project Committees and Central CONANP.	High-Level / Technical Committees, Central CONANP
Recommendation for the mid-term – Regulatory Framework		
R17	<p>Mainstream IAS prevention and control into sectorial regulations of productive systems (aquaculture, forage grasses, forest products and others) and develop regulations for unregulated sectors (pets, ornamental plants and others) in order to reduce IAS escape and impacts of these sectors on biodiversity and ecosystem services.</p> <p>Develop regulations to legally formalize the use of risk analysis to evaluate species introductions to Mexico.</p> <p>Publish a legally binding National IAS List for reference inclusive of all biological groups, i.e. joint regulations between SEMARNAT, SAGARPA and CONAPESCA.</p> <p>Include obligations to enforce biosecurity protocols for islands (NPA) in the CONANP institutional framework.</p> <p>Improve the inclusion of IAS management issues in relevant national laws on biodiversity and economic production.</p>	SEMARNAT, SAGARPA, CONANP, CONAPESCA

ANNEX 1 - TERMS OF REFERENCE FOR THE MTR



Fecha: Noviembre, 2017

**Solicitud de Cotización
Contrato Individual
Concurso: SDC-73-2017**

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Fecha límite para recepción de ofertas:

A más tardar a las 23.59 horas del 30 de noviembre de 2017

País: México.

Descripción de la Consultoría: “Servicios de consultoría para realizar la Evaluación de Medio Término del Proyecto” (Consultor/a internacional).

Proyecto: 00089333 – FSP - Fort. capacidades manejo de Especies Exóticas Invasoras

Duración: 4 meses

Favor de enviar su propuesta **debidamente firmada** en formato electrónico (pdf, tiff, etc.) al correo electrónico licitaciones@undp.org con el título: **Oferta SDC-73-2017**

Cualquier duda respecto a la presente convocatoria deberá enviarse a los correos electrónicos señalados a más tardar **el 14 de noviembre de 2017**. Las respuestas o modificaciones, se publicarán en la página Web del PNUD a más tardar **el 16 de noviembre de 2017**.

1. ANTECEDENTES
2. PRODUCTOS ESPERADOS, RESPONSABILIDADES Y DESCRIPCION DE ACTIVIDADES.
3. REQUERIMIENTOS DE EXPERIENCIA Y CALIFICACIONES.
4. DOCUMENTOS A INCLUIR EN LA PRESENTACIÓN DE LA OFERTA.

Los consultores individuales interesados en participar en la presente convocatoria, deberán presentar los siguientes documentos/información:

<p>1. Propuesta de trabajo (Propuesta técnica) Describir brevemente: i.) Las razones que lo colocan como el mejor candidato para cumplir con éxito los servicios solicitados. i.i.) La metodología o actividades que planea realizar para cumplir con éxito los servicios o actividades solicitadas.</p>	<p>Formato Libre</p>
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<p>2. Propuesta Económica Utilizar el Formato 1 (obligatorio). El honorario ofertado deberá incluir todos los impuestos. Anexo II. Formato 1.</p>	<p>Anexo II Formato 1</p>
<p>3. Información Curricular CV Personal que incluya experiencias pasadas en proyectos similares con al menos 3 referencias. Formato P11, el cual se encuentra en anexos. (Para contratos mayores a US\$ 2,500).</p>	<p>Formato libre</p>
<p>4. Condiciones Generales. Las condiciones generales del contrato que se formalizará con la persona que resulte adjudicada. Anexo III</p>	<p>Anexo III</p>

5. PROPUESTA ECONOMICA

- **Suma de Gasto Global (*lump Sum*):**

La propuesta económica deberá especificar la suma de gasto global, y términos de pago en relación a entregables específicos y medibles (cualitativos y cuantitativos). Los pagos se basan en la entrega de productos o servicios. Para la comparación de las propuestas económicas, éstas deberán incluir a un desglose de la suma de gasto global (incluyendo viajes, viáticos, y número anticipado de días de trabajo.)

Viajes:

Todos los gastos de viaje (viáticos, pasajes, traslados) previstos deberán incluirse en la propuesta económica. Esto incluye todos los viajes para incorporarse a estaciones de trabajo/repatriación. En general, PNUD no aceptará costos de viaje que excedan a los boletos de clase económica. Si un consultor individual desea viajar en una clase más alta, los gastos correrán por su cuenta.

En caso de viajes no previstos, el pago de los costos del viaje incluyendo boletos, hospedaje y gastos de traslado, deberá acordarse entre la unidad de negocio respectiva y el consultor individual antes de viajar y será reembolsado.

6. EVALUACIÓN DE PROPUESTAS.

Los consultores individuales serán evaluados basados en el siguiente criterio:



***Análisis acumulativo:** Se adjudicará el contrato a aquel consultor/a individual que obtenga la mejor combinación técnico-económica. Donde la oferta técnica equivale al 70% y la económica el 30% de la calificación total.

*** Cumple/No Cumple:** Se adjudicará el contrato a aquel consultor/a individual que habiendo aprobado la fase técnica cotice el menor precio.

7. PROCEDIMIENTO DE PROTESTA.

El sistema de protesta pretende dar la oportunidad de apelar a aquellas personas o compañías a las que no les han sido adjudicados una orden de compra o contrato dentro de un proceso de contratación competitivo. El sistema no está diseñado para aquellos licitantes que hayan enviado sus ofertas fuera de tiempo, no hayan emitido respuesta o cuando todas las propuestas/ofertas hayan sido rechazadas. Si considera que no ha sido tratado de manera justa durante el proceso, pueda encontrar información detallada sobre los procedimientos de protesta en el siguiente enlace: <http://www.undp.org/procurement/protest.shtml>

De acuerdo a la normatividad en materia de adquisiciones del PNUD, el procedimiento para inconformidades es el siguiente:

Dentro de los diez días hábiles siguientes a la publicación del fallo por parte del PNUD, deberá elaborar escrito dirigido al Representante Residente del Programa de las Naciones Unidas para el Desarrollo México, indicando:

- a. Nombre de la empresa inconforme, dirección fiscal, número de teléfono, fax y correo electrónico.
- b. Indicar el número de licitación.
- c. Descripción de los hechos que motivan la protesta y explicación detallada de la forma en que fue perjudicado.
- d. Copia de la documentación relevante que soporte su inconformidad.
- e. Descripción de la forma en que considera se solucionaría su inconformidad.
- f. Toda la información adicional que considere anexar, como cronología de los hechos

Dicho escrito y documentación anexa, deberá entregarse en nuestras oficinas ubicadas en Montes Urales 440, colonia Lomas de Chapultepec, Piso 1, Área de Registro. México, DF. CP 11000. Dentro de los siguientes diez días hábiles, deberá recibir respuesta a su reclamo. Si tal respuesta no le satisficiera, podrá turnarla junto con su escrito original de protesta, al Director de la OPS (*Office of Procurement Support*): FF-805. 304 East, 45th Street, New York, NY. 10017. USA. Tel (212) 906-6571 Fax 906-6663), quien se hará cargo de revisar y tomar una decisión al respecto, la cual tendrá carácter de definitiva y obligatoria para todas las partes involucradas.

Motivos de No Participación:

En caso de no presentar propuesta, se solicita al oferente enviar notificación por escrito indicando la razón de no participación.



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8. ANEXOS

- Anexo I. Términos de Referencia.
- Anexo II. Formato 1.
- Anexo III. Condiciones Generales.
- Anexo IV. Formato P11



Términos de Referencia (TORS) Consultor Individual Anexo I

Fecha: Octubre de 2017.

Descripción de la Consultoría: "Servicios de consultoría para realizar la Evaluación de Medio Término del Proyecto" (Consultor/a internacional).

Duración estimada del Contrato: 4 meses

Fecha de inicio: Noviembre 2017 **Fecha de Término:** Febrero 2017

Número y Título del Proyecto: 00089333 "Aumentar las Capacidades Nacionales para el Manejo de las Especies Exóticas Invasoras (EEI) a través de la Implementación de la Estrategia Nacional sobre EEI".

Objetivo: Evaluar el diseño y la implementación del proyecto hasta la fecha, en términos de relevancia, efectividad, eficiencia, impacto y sustentabilidad para conocer su desenvolvimiento y estimar el alcance en el cumplimiento de los resultados esperados de acuerdo al Documento de Proyecto (PRODOC)^{1,2}.

Nombre de Supervisor de los Productos/Servicios: Director Nacional del Proyecto (Directora General de Análisis y Prioridades de la CONABIO) / Director del Programa de Desarrollo Sustentable PNUD/ Coordinador/a de Proyecto.

Descripción de Viajes: Trabajo presencial en la Ciudad de México por 10 días para la recolección de información y por 2 días para la presentación de resultados preliminares.

A partir de la aprobación de la propuesta metodológica de evaluación y del programa de trabajo, se definirán los viajes a campo en las regiones en las que opera el Proyecto³, sin embargo se adjunta una propuesta en el Anexo XVII a y b que considera la visita de 3 de las 6 ANP en islas y 4 de las 9 ANP continentales acorde con los avances de las actividades permitiendo la evaluación de actividades que cubren la mayor parte de los outputs y para garantizar la viabilidad de las visitas de las mismo en el tiempo establecido.

Lugar de trabajo: A distancia con presencia física en los momentos antes descritos.

Forma de Pagos: Tres pagos, contra la entrega y aceptación de productos y/o servicios por parte de: El Directora Nacional del Proyecto (Directora General de Análisis y Prioridades de la CONABIO)/ Coordinador del Proyecto, el Director de Programa de Desarrollo Sustentable y la Oficial Nacional de MyE.

¹La Evaluación de Medio Término se llevará a cabo de acuerdo con los lineamientos, normas y procedimientos establecidos por el PNUD y el GEF como se refleja en el Manual de la Planificación, Seguimiento, y Evaluación de los Resultados de Desarrollo¹ y en la Guía para la Realización del Examen de Mitad de Periodo en Proyectos Apoyados por el PNUD y Financiados por el GEF¹.

<http://web.undp.org/evaluation/guidance.shtml#handbook>

² http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_SP_2014.pdf

³ Los viajes a campo, se acordarán en la reunión de arranque de acuerdo a los criterios metodológicos que establezca el/la consultor/a y los aspectos logísticos que se definan en conjunto. Los costos de dichos viajes correrán a cuenta del Proyecto por lo que el consultor no debe tenerlos en cuenta en su oferta económica.

1. ANTECEDENTES

México ha determinado que la introducción y propagación de especies exóticas invasoras (EEI) es una amenaza significativa para la biodiversidad. Aunque México cuenta con algunos mecanismos existentes para la prevención y control de especies invasoras, éstos se han orientado tradicionalmente a resolver las amenazas a las actividades productivas y la salud humana y no contemplan las amenazas para la biodiversidad. Por otra parte, se ha prestado poca atención a las implicaciones de los sectores productivos y de importación de especies exóticas e invasoras tales como por ejemplo el comercio de acuarios, la acuicultura, productos derivados de la vida silvestre y forestales (en lo sucesivo, AAWF), sobre los ecosistemas, economía y salud pública; actividades han contribuido a la continua introducción de estas especies al país. El Gobierno de México (GOM) a través de esta propuesta implementada por el PNUD, busca fortalecer las capacidades institucionales para transformar y ampliar el alcance de los sistemas existentes de gestión de las especies invasoras, aprovechando el impulso generado por la publicación en 2010 de su Estrategia Nacional sobre Especies Invasoras (ENEI).

1.1. DESCRIPCIÓN DEL PROYECTO

El proyecto ***"Aumentar las Capacidades Nacionales para el Manejo de las Especies Exóticas Invasoras (EEI) a través de la Implementación de la Estrategia Nacional sobre EEI"*** también conocido como "GEF Invasoras", tiene como objetivo proteger la biodiversidad de importancia global en ecosistemas vulnerables a través del establecimiento de capacidades para prevenir, controlar y manejar las especies invasoras en México. Para lograrlo, el proyecto se articula en dos componentes principales que reflejan actividades prioritarias establecidas en la Estrategia Nacional sobre Especies Invasoras (ENEI).

El primero se ejecuta a nivel nacional y está dividido en tres subcomponentes enfocados a: (1.1) el incremento de las capacidades para proveer conocimiento e información para los tomadores de decisiones, actores clave involucrados y la población, (1.2) el fortalecimiento del marco político, legal y regulatorio y, por último, (1.3) la mejora de los mecanismos de coordinación interinstitucional para atención a las EEI.

El segundo componente se desarrolla en áreas prioritarias de conservación de la biodiversidad que sustentan ecosistemas relevantes a nivel global (Cuadros 1 y 2). El énfasis principal para este componente está en evitar la entrada, establecimiento y dispersión de EEI hacia estas áreas mediante la prevención y la aplicación de sistemas de detección temprana y respuesta rápida, a fin de evitar que lleguen a causar impactos en los ecosistemas y, de esta manera, evitar además, los altos costos de erradicación o control. El proyecto promueve la planeación y coordinación integrada para prevenir o atender los problemas que ocasionan las EEI en nueve áreas naturales protegidas (ANP) continentales y seis grupos de islas -representantes de todas las ecorregiones y tipologías de ANP existentes en la República- e incluye los primeros planes de bioseguridad de



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estos últimos. También se trabaja con las comunidades locales y productores para reducir el impacto potencial de las EEI, derivado de las actividades productivas dentro y alrededor de las ANP (por ejemplo, uso de especies exóticas en actividades productivas forestales, jardinería, agricultura, ganadería, y acuicultura). El proyecto apoya las medidas para manejar EEI ya establecidas en algunas de estas áreas, específicamente en sitios en donde generan impactos severos en la biodiversidad y ecosistemas, donde las medidas de control y erradicación pueden ser implementadas de forma efectiva en cuanto al costo y tienen una alta posibilidad de éxito (PRODOC, 2014).

En el proyecto colaboran varias instituciones del gobierno federal, en particular la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), por medio de la Dirección General Forestal y de Suelos (DGGFS), la Subsecretaría de Fomento y Normatividad Ambiental (SFNA), la Comisión Nacional Forestal (CONAFOR), el Instituto Nacional de Ecología y Cambio Climático (INECC), el Instituto Mexicano de Tecnología del Agua (IMTA), la Procuraduría Federal de Protección al Ambiente (PROFEPA), a través de la Dirección General de Inspección Ambiental en Puertos, Aeropuertos y Fronteras (DGIAPAF) y la Dirección General de Inspección y Verificación Forestal (DGIVF), la Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA) a través de la Comisión Nacional (CONAPESCA), y el Instituto Nacional de Pesca (INAPESCA), la Secretaría de Marina (SEMAR); un organismo estatal que es el Comité Estatal de Sanidad Acuícola del estado de Morelos (CESAEM), y organizaciones de la sociedad civil tal como el Grupo de Ecología y Conservación de Islas (GECI) y el Fondo de Comunicación y Educación Ambiental (FCEA); y tres universidades: Universidad Autónoma Metropolitana (UAM), Universidad Autónoma de Nuevo León (UANL) y Universidad Nacional Autónoma de México (UNAM). Además el proyecto colabora con diversas iniciativas relacionadas.

Para llevar a cabo el proyecto, el Gobierno de México y el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés) establecieron un acuerdo de colaboración por medio de un proyecto *full size en la modalidad de implementación nacional (NIM-modality)* para mejorar las capacidades nacionales para el manejo de EEI. Sus actividades son coordinadas por la Comisión Nacional para el Conocimiento y uso de la Biodiversidad (CONABIO) y la Comisión Nacional de Áreas Naturales Protegidas (CONANP) e implementadas por el Programa de las Naciones Unidas para el Desarrollo (PNUD México).

La CONABIO es una comisión intersecretarial, creada en 1992 con carácter de permanente. Su misión es promover, coordinar, apoyar y realizar actividades dirigidas al conocimiento de la diversidad biológica, así como a su conservación y uso sustentable para beneficio de la sociedad. Fue concebida como una organización de investigación aplicada, promotora de investigación básica, que compila y genera información sobre biodiversidad, desarrolla capacidades humanas en el área de informática de la biodiversidad y es fuente pública de información y conocimiento accesible para toda la sociedad. Es una institución que genera inteligencia sobre nuestro capital natural; sirve de puente entre la academia, el gobierno y la sociedad; promueve que la conservación y manejo de la biodiversidad se base en acciones realizadas por la población local, la cual debe ser un actor central en ese proceso. La CONABIO juega un papel fundamental en la



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coordinación de la información, planeación, y programas interinstitucionales relativos a las EEI en México.

El Programa de las Naciones Unidas para el Desarrollo (PNUD) es la red mundial de las Naciones Unidas para el Desarrollo que promueve el cambio y conecta a los países con los conocimientos, la experiencia y los recursos necesarios para ayudar a los pueblos a forjar una vida mejor. El PNUD está presente en 166 países, trabajando con los gobiernos y las personas para ayudarles a encontrar sus propias soluciones a los retos mundiales y nacionales del desarrollo.

Cobertura del Proyecto:

El proyecto es ejecutado en 15 Áreas Naturales Protegidas (ANP), seis se encuentran en islas y nueve son ANP continentales, cubriendo nueve diferentes ecorregiones y tres ambientes: terrestre, agua dulce, y costero. La selección de los ANP se realizó durante la fase preparatoria del proyecto mediante un estudio bajo un criterio de priorización multinivel, asegurando la representatividad de diferentes ecorregiones y enfatizando rasgos como zonas de alta biodiversidad y vulnerabilidad (véase cuadro 1 y 2).

Cuadro 1. Sitios pilotos en islas:

Ecorregión marina en la que se ubican	Superficie (ha)		Ramsar
Reserva de la Biosfera Archipiélago de Revillagigedo (Isla Socorro)	Pacífico transicional mexicano	636,685	636,685
Reserva de la Biosfera Isla Guadalupe	Pacífico sudcaliforniano	4,769.71	
Reserva de la Biosfera Islas de Pacífico de Baja California (Isla San Benito)	Pacífico sudcaliforniano	1,161,222	
Área de Protección de Fauna y Flora Islas del Golfo de California (Espíritu Santo -2 islas)	Golfo de California	420,809	
Parque Nacional Arrecife Alacranes (5 islas)	Mar Caribe	31,670	334,113
Reserva de la Biosfera Banco Chinchorro (4 islas/ cayos)	Mar Caribe	144,360	144,360



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Cuadro 2. Sitios pilotos en continente:

Nombre ANP	Estado	Superficie (ha)	Ramsar (ha)
Reserva de la Biosfera El Vizcaíno	Baja California Sur	2,547,790	44,100
Área de Protección de Fauna y Flora Sierra de Álamos-Río Cuchujaqui	Sonora	92,890	174.12
Área de Protección de Fauna y Flora Tutuaca	Chihuahua	444,489	
Parque Nacional Cumbres de Monterrey	Nuevo León	177,396	
Reserva de la Biosfera Marismas Nacionales Nayarit	Nayarit	133,854	200,000
Área de Protección de Recursos Naturales Cuencas de los Ríos Valle de Bravo, Malacatepec, Tilostoc y Temascaltepec	Estado de México	139,871	
Reserva de la Biosfera Los Tuxtlas	Veracruz de la Llave	155,122	8,921
Parque Nacional Cañón del Sumidero	Chiapas	217,894	21,789
Reserva de la Biosfera Sian Ka'an	Quintana Roo	528,148	652,193

1.2 ARTICULACIÓN LÓGICA DEL PROYECTO

En el Documento del Proyecto (PRODOC) se indica que el proyecto tiene como Objetivo: Proteger la biodiversidad de importancia global en ecosistemas vulnerables a través del establecimiento de capacidades para prevenir, controlar y manejar las especies invasoras en México.

El proyecto se articula en dos componentes, orientados a alcanzar el objetivo arriba mencionado (ver Anexo I, Tabla de información de proyecto, Anexo II, Marco de Resultados; Anexo III, Teoría del Cambio). A continuación, se desglosan los resultados establecidos en el PRODOC:

1. **Resultado #1: Marco Nacional de Manejo de EEI fortalecido.** Este resultado busca el fortalecimiento del manejo efectivo a nivel nacional, orientándolo de forma más concreta hacia la conservación de la biodiversidad; también desarrolla mejores recursos de información para EEI; establece prioridades y herramientas de toma de decisiones; fortalece la capacidad en instituciones clave, e involucra socios críticos (actores específicos del sector productivo) a actividades de prevención y de control de EEI. Además, el proyecto aborda políticas, regulaciones, capacidades y herramientas para reducir o eliminar prácticas dañinas en sectores productivos clave (acuicultura, comercio de especies de ornato, productos forestales y de la vida silvestre), que son las principales vías de



introducción de las EEI para ingresar a México y de dispersión a las áreas prioritarias de conservación.

En específico esto será alcanzado a través de:

1.1: Herramienta de toma de decisiones dirigida a proporcionar información para una toma de decisiones de manejo efectiva en cuanto al costo para atender amenazas de las EEI en sectores y paisajes clave (comercio de peces de ornato, acuicultura, comercio de productos forestales y de vida silvestre).

1.2: Orientación y regulación sectorial para fortalecer el control de las principales vías de las EEI a las zonas vulnerables.

1.3: Se cuenta con un marco multisectorial para implementar la Estrategia Nacional de Especies Invasoras (ENEI).

2. **Resultado #2: Manejo Integral de EEI para proteger ecosistemas vulnerables de importancia globales.** En los sitios piloto, el proyecto demuestra su efectividad para el manejo de EEI en áreas prioritarias de conservación que sustentan ecosistemas relevantes en el ámbito global. El énfasis principal es evitar la entrada y dispersión de EEI hacia estas áreas mediante la prevención y sistemas de detección temprana, y respuesta rápida, con el fin de evitar los impactos de EEI desde el inicio y por lo tanto evitar el costoso esfuerzo de control y erradicación.

El proyecto promueve la planeación y coordinación integrada de manejo de EEI, incluyendo los primeros planes de bioseguridad de estos sitios. También trabaja con las comunidades locales y productores para reducir el impacto potencial de EEI derivado de las actividades productivas entre y alrededor de las áreas de conservación.

2.1: Fortalecimiento de la prevención y del control de las poblaciones clave de EEI en islas seleccionadas.

2.2: Estrategias de vigilancia de EEI mejoradas y estrategias de control que reducen las tasas de introducción de los paisajes productivos y mantienen a las poblaciones por debajo de los umbrales que ponen en peligro a las especies endémicas y a sus habitantes en 9 Áreas Protegidas continentales.

El documento de proyecto, así como todos los productos elaborados hasta el momento, pueden descargarse de:

- <http://www.biodiversidad.gob.mx/especies/Invasoras/productos-gef.html>

1.3 ANTECEDENTES

México ha determinado que la introducción y propagación de especies exóticas invasoras (EEI) es una amenaza significativa para la biodiversidad. Aunque México cuenta con algunos mecanismos



existentes para la prevención y control de especies invasoras, éstos se han orientado tradicionalmente a resolver las amenazas a las actividades productivas y la salud humana y no contemplan las amenazas para la biodiversidad. Por otra parte, se ha prestado poca atención a las implicaciones de los sectores productivos y de importación de especies exóticas e invasoras - tales como el comercio de acuarios, la acuicultura, el comercio de productos derivados de la vida silvestre o forestales (en lo sucesivo, AAWF)-, sobre los ecosistemas, economía y salud pública con lo que estas actividades han contribuido, en mayor o menor medida, a la continua introducción de EEI al país. El Gobierno de México, a través de esta propuesta implementada por el PNUD, busca fortalecer las capacidades institucionales para transformar y ampliar el alcance de los sistemas existentes de gestión de las especies invasoras, aprovechando el impulso generado por la publicación en 2010 de su Estrategia Nacional sobre Especies Invasoras (ENEI).

Figura 1. (véase Anexo XVIII).

1.3 ESTADO ACTUAL DEL PROYECTO

Durante los primeros dos años del proyecto se han logrado resultados y elaborado productos conforme a los objetivos establecidos. Uno de los aspectos destacados del proyecto es el análisis de la situación normativa y reglamentaria actual a fin de proponer mejoras que permitan robustecer la atención a las EEI desde el punto de vista legal.

Componente 1

1.1 Generación de información relevante a tomadores de decisiones

En el tema de proveer conocimiento e información para los tomadores de decisiones y actores clave involucrados se logró un importante incremento del contenido del Sistema Nacional de Especies Invasoras de la CONABIO y se están desarrollando análisis de riesgo para identificar especies exóticas invasoras de alto riesgo, datos que han sido un insumo fundamental para la elaboración y publicación de la lista oficial de EEI así como para otros aspectos de regulación sectorial en los que se implican algunas EEI. Cabe destacar que algunas especies que figuran en la lista ya están presentes en el país; con estos análisis de riesgo se han identificado otras especies con alta probabilidad de entrada especialmente por la venta de mascotas, como es el caso de algunos reptiles, moluscos y plantas de acuario. Un trabajo a destacar con respecto a la compilación de información es el que realiza el IMTA respecto a la comprobación de la presencia de plantas acuáticas exóticas en la mayor parte de las cuencas más importantes del país.

Además, el Sistema Nacional de Monitoreo de la biodiversidad permite obtener información cuantitativa y cualitativa de los ecosistemas de México, este programa se lanzó en agosto de 2016



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y cuenta con 8000 puntos de muestreo en todo el país. Como parte de la colaboración se incluyó un catálogo con fichas de identificación de 23 EEI sobre las que se recolecta información actualizada sobre su distribución.

Otro aspecto importante para los tomadores de decisiones con el fin de identificar las zonas más susceptibles a la invasión en el país ha sido el desarrollo de un esquema de modelación, por parte de investigadores de la UNAM, con el que se han obtenido mapas de la distribución potencial actual y bajo cuatro diferentes escenarios de cambio climático en México (2050 y 2070) para 60 de las especies exóticas invasoras de mayor riesgo.

Investigadores de la UNAM y la UAM están trabajando en establecer un protocolo de análisis de riesgo para malezas de México con base en la adecuación del método utilizado en Australia (AWRA) y en tener una herramienta con información geográfica de las principales PEI en México a escala 1:50,000. Éste, se ha evaluado en la reserva de la biosfera de Sierra Gorda y en Cimatario. A partir de estos trabajos se ha aumentado en un 26% el número de EEI identificadas hasta la fecha en la zona.

En cuanto al desarrollo de capacidades, se llevó a cabo un curso sobre análisis de costo/ beneficio en proyectos de control de invasoras en el que participaron 17 representantes de instituciones de gobierno y académicos.

Con el fin de contar con una herramienta que aglutine todos los proyectos relacionados con EEI en México se está desarrollando la Plataforma de monitoreo de las actividades de la Implementación de la Estrategia sobre Especies Invasoras (Sistema Previene).

1.2 Fortalecer las vías de introducción en zonas vulnerables

Los trabajos con el sector productivo están dirigidos a la acuicultura, comercio de peces de ornato, productos de vida silvestre y productos forestales, por ser contribuidores clave en la introducción y propagación de las EEI en México.

En este subcomponente destaca el estudio orientado a las mejoras legales necesarias a fin de fortalecer la atención de las EEI en México en el que se definen diversas propuestas de mejora de las distintas leyes y reglamentos del país además de hacer propuestas de colaboración institucional en esta línea (véase sección correspondiente).

En el sector forestal, la CONAFOR elaboró el Manual de reforestación y restauración de suelos con especies nativas y se están desarrollando estudios claves para la atención de EEI como la predicción de riesgo para dos plagas forestales de alto riesgo de entrada al país (Avispa de la madera del pino, *Sirex noctilio* y escarabajo asiático de los cuernos largos, *Anoplophora glabripennis*) (ya finalizado) o el análisis de la posibilidad de uso de fuego controlado para controlar a determinadas EEI forestales. También es de destacar el monitoreo de plagas de importancia forestal que se está realizando en cinco puntos de entrada al país para la detección oportuna de especies exóticas y vectores de patógenos forestales.

En el marco del proyecto, la PROFEPA ha fortalecido sus capacidades de inspección gracias a diversos cursos especializados y la adquisición de equipamiento de sus inspectores. En total se capacitó a 149 inspectores en la identificación de EEI terrestres y acuáticas, así como en aquellas especies asociadas al comercio internacional de mercancías forestales mediante siete talleres de



alcance nacional. El objetivo en cada uno de los talleres fue el de reforzar los mecanismos de prevención de introducción, control y erradicación de especies exóticas invasoras.

Otro de los sectores productivos con el que se colabora es el de los peces de ornato, especialmente en el estado de Morelos por ser el principal productor del país. Se trabaja con actores clave del estado para desarrollar un programa a nivel estatal para el manejo de EEI en el sector acuícola. El proyecto apoya el trabajo del CESAEM para la caracterización de la producción de acuicultura dentro del estado, y prevenir el potencial de dispersión de EEI desde las unidades de producción. Para este fin, se actualizó el inventario de las unidades de producción de acuicultura, se elaboró un catálogo de peces de ornato y un índice de bioseguridad para clasificar el riesgo de 50 granjas. En base a esta información se ha desarrollado una propuesta para incrementar la bioseguridad de las unidades de producción acuícola, que se complementa con un Programa de concientización y divulgación sobre los riesgos asociados a las EEI acuáticas derivadas de la acuicultura ornamental, estudios a cargo de investigadores de la UANL.

INAPESCA, realizó un taller de capacitación para personal de gobierno sobre los fundamentos del Sistema de Comando de Incidentes (ICS) con miras a la implementación de una estrategia de coordinación a nivel nacional para la contención y control de las especies invasoras de alto impacto. A este taller asistieron 41 personas de SEMARNAT, CONAPESCA, INAPESCA, CONANP, CONABIO, SENASICA y PROFEPA.

1.3 Marco multi-sectorial para la implementación de la ENEI

El proyecto GEF-Invasoras busca contribuir a crear mecanismos de colaboración entre las diferentes instituciones del gobierno con atribuciones en EEI, por lo que se crearon tres comités:

El Comité Ejecutivo, a cargo de asegurar una colaboración permanente de alto nivel entre las instituciones clave para atender diversos aspectos relacionados con las invasiones biológicas, lo conforman titulares (o representantes nombrados por los mismos) de CONABIO, de la SEMARNAT, CONANP, CONAFOR, INECC y CONAGUA (Comisión Nacional del Agua), y de Sagarpa, la CONAPESCA y el SENASICA (Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria). En las reuniones se invita a otras instituciones o expertos conforme los temas a tratar. El comité se instauró en febrero de 2016 y sus sesiones, se llevan a cabo dos a tres veces al año; en ellas se discuten propuestas, políticas y se buscan sinergias y maximizar fortalezas de los esfuerzos de cada institución.

El Comité Científico actúa como un organismo líder para la implementación de la ENEI y proporcionar opiniones al Comité Ejecutivo. Es responsable de generar un reporte del avance realizado en la implementación de la ENEI, así como llevar a cabo una revisión científica de los productos elaborados. Fue el primero de los tres comités que se instauró en septiembre de 2015 y participan cinco especialistas reconocidos con base en su reconocida trayectoria académica y experiencia en relación con los temas que se abordan en el proyecto.

El Comité Técnico incluye a los principales actores que ejecutan acuerdos y en el caso de instituciones gubernamentales implementa acciones conforme a sus atribuciones y retroalimentan a los comités sobre los resultados respecto a la implementación de la ENEI. Este comité se instauró formalmente en octubre de 2016; participan 12 instituciones de las que



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destacan, además de los socios del proyecto, instituciones de gobierno como el SENASICA, el gobierno del estado de Morelos y una asociación de productores de peces de ornato.

En relación al tema de divulgación y concientización de la población respecto a la problemática de las EEEI la Subcoordinación de Especies Invasoras de la CONABIO ha organizado varios eventos de capacitación para estudiantes de la UAM-Xochimilco en el uso del Método de Evaluación Rápida de Invasividad, (MERI) y colaboró en un curso sobre EEI organizado por el CIBNOR apoyado por CONACYT que contó además con la participación de especialistas de la UAM, UNAM y GECI. Otro importante logro representa el Diplomado en línea “Fundamentos para Prevención, Manejo y Erradicación de Especies Exóticas Invasoras” que recibió apoyo del Departamento de Pesca y Vida Silvestre del gobierno de los Estados Unidos. Por otra parte, en el portal www.agua.org.mx se incluyó información sobre las EEI acuáticas y sus impactos.

Tanto la CONABIO, como el Fondo para la Comunicación y la Educación Ambiental, A.C. (FCEA) del proyecto y quienes se han sumado a la preocupación de las invasiones biológicas en el transcurso de la implementación del proyecto han elaborado material divulgativo diverso tanto sobre EEI en general, como sobre acuacultura en particular y una campaña de educación ambiental en 6 escuelas de Veracruz. El proyecto lleva dos años de trabajo y ha obtenido logros relevantes que se busca compartir con aliados potenciales, así como con otros países que enfrentan problemas similares.

Componente 2

2.1. Se avanza significativamente en el objetivo de elaborar PBI para las islas ya que se cuenta con borradores muy avanzados para Isla Guadalupe, Archipiélago de Revillagigedo, Isla Espíritu Santo, Banco Chinchorro y Arrecife Alacranes. Asimismo, se desarrolló el documento base por medio del cual se conformarán los Comités de Bioseguridad Insular (CBI). En el seno del Consejo Asesor de la Reserva de la Biosfera Archipiélago de Revillagigedo (RBAR), en la que se incluye a isla Socorro, se conformó la Comisión Especial de Bioseguridad, integrada por nueve representantes de todos los sectores involucrados en el área. Se llevó a cabo una reunión entre personal del Estado Mayor General de la Armada y GECI con el objetivo de colaborar en materia de restauración insular e implementación de medidas de bioseguridad insular.

Se realizaron pláticas mensuales sobre bioseguridad con el personal de SEMAR que se encuentra en el destacamento de Isla Guadalupe, un total de 120 marinos. También se realizaron dos pláticas en el destacamento de Cayo Norte Mayor (Banco Chinchorro) e isla Pérez (Arrecife Alacranes). Se diseñó y produjo diverso material de divulgación (folletos, calcomanías, juegos, posters) para las islas Guadalupe, Espíritu Santo, Archipiélago de Revillagigedo y Banco Chinchorro. Se produjo señalización para Banco Chinchorro y se diseñó la señalización para Guadalupe y Arrecife Alacranes. Asimismo, se realizó una reunión de intercambio de experiencias en manejo de EEI y bioseguridad en Chetumal, donde participó personal de cuatro áreas naturales protegidas del sureste mexicano.

Se han realizado operaciones de control de gato feral en Isla Guadalupe protegiendo así a las aves que anidan en la isla. En isla Espíritu Santo, la erradicación de gato feral se encuentra en la fase final de confirmación de ausencia, mientras tanto, la erradicación de cabra feral ha avanzado en un 30% al extraer 187 cabras vivas de la isla, las cuales fueron donadas a diversos sectores. En Isla Socorro, la erradicación de gato feral tiene un avance de 90%.

Se ha realizado el monitoreo de fauna nativa para comprobar los efectos de la erradicación o control de EEI en las islas Guadalupe, San Benito Oeste, Socorro, Banco Chinchorro y Arrecife Alacranes, alcanzándose resultados muy significativos para algunas especies como el albatros de Laysan en Isla Guadalupe o la pardela de Revillagigedo y las lagartijas endémicas de Isla Socorro

2.2. Estrategias de vigilancia de EEI mejoradas y estrategias de control que reducen las tasas de introducción de los paisajes productivos y mantienen a las poblaciones por debajo de los umbrales que ponen en peligro a las especies endémicas y a sus habitantes en 9 Áreas Protegidas continentales

Área Natural Protegida	Principales resultados
Reserva de la Biosfera El Vizcaíno	<ul style="list-style-type: none"> • Un programa de mejores prácticas en caprinocultura. • Tres planes de manejo y control para vidrillo (<i>Mesembryanthemum crystallinum</i>), rana toro (<i>Lithobates catesbeianus</i>) y tilapia (<i>Oreochromis</i> sp).
Área de Protección de Flora y Fauna Tutuaca	<ul style="list-style-type: none"> • Adjudicación de un estudio para definir la línea base de cuatro especies invasoras: truca arcoíris (<i>Oncorhynchus mykiss</i>), tilapia (<i>Oreochromis</i> sp), zacate buffel (<i>Cenchrus ciliaris</i>) y zacate rosado (<i>Melinis repens</i>).
Área de Protección de Flora y Fauna Sierra de Álamos - Río Cuchujaqui	<ul style="list-style-type: none"> • Infografía sobre la problemática de EEI. • Un taller de capacitación a una comunidad del área protegida sobre control de EEI. • Diagnóstico de control de pino salado (<i>Tamarix ramosissima</i>).
Reserva de la Biosfera Marismas Nacionales Nayarit	<ul style="list-style-type: none"> • Un plan de reconversión ganadera como estrategia de manejo para EEI y ferales. • Un taller de capacitación dirigido al sector ganadero sobre manejo de prácticas ganaderas sustentables.
Parque Nacional Cumbres de Monterrey	<ul style="list-style-type: none"> • Un diagnóstico de flora exótica invasora. • Seis talleres de educación ambiental sobre la problemática de EEI, tres en el sector urbano y tres en el rural.
Área de Protección de Recursos Naturales Valle de Bravo	<ul style="list-style-type: none"> • Una infografía sobre acciones de identificación, control y erradicación de EEI. • Un diagnóstico de mejores prácticas acuícolas en la producción de trucha arcoíris (<i>Oncorhynchus mykiss</i>) en el Municipio de Amanalco.



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	<ul style="list-style-type: none"> • Un diagnóstico de mejores prácticas con énfasis en ganado ovino, caprino y bovino.
Reserva de la Biosfera Los Tuxtlas	<ul style="list-style-type: none"> • Tres talleres de educación ambiental, uno para brigadas de vigilancia comunitaria y monitores ambientales, uno para representantes del sector productivo (ganadero, pesquero y acuícola) y uno para autoridades del sector ambiental y productivo. • Constitución de un Subconsejo de Especies Exóticas Invasoras.
Parque Nacional Cañón del Sumidero	<ul style="list-style-type: none"> • Implementación del Foro: EEI “una amenaza para la biodiversidad” • Un Protocolo de Detección Temprana y Respuesta Rápida sobre EEI. • Un diagnóstico del control de pasto jaragua (<i>Hyparrhenia rufa</i>).
Reserva de la Biosfera Sian Ka’an	<ul style="list-style-type: none"> • Adjudicación de un estudio para la elaboración e implementación de un Plan de reconversión productiva de tilapia por la especie nativa tenguayaca.

Algunos de los principales resultados se presentaron en un evento paralelo organizado por la SEMARNAT y la CONABIO y la con participación de la CONANP y GECl en la Conferencia de las Naciones Unidas, CoP 13, celebrada en Cancún en diciembre de 2016.

Este Proyecto ha sido sujeto a modificaciones de su PRODOC original, ya que sobre la marcha se han cambiado algunas prioridades sobre todo con respecto a algunas especies.

La línea base, las metas y el avance anual del proyecto en el periodo 2014-2017 es resumido en el Anexo IV. Más referencia sobre el proceso de diseño y ejecución del proyecto hasta la fecha se enlista en el Anexo V.

1.4. PROPÓSITO DE LA EVALUACIÓN

La revisión de medio término es obligatoria para proyectos financiados por el GEF e implementados por el PNUD y, por lo tanto, es un compromiso del Proyecto GEF-Invasoras. A la mitad del tiempo de ejecución del proyecto, se requiere realizar una revisión independiente que, bajo los estándares de las guías y procedimientos de monitoreo y evaluación del Programa de las Naciones Unidas para el Desarrollo y del GEF, realice un análisis del diseño del proyecto así como de los avances logrados en el marco de los indicadores identificados en el Marco de Resultado del proyecto, favoreciendo la medición de metas, objetivos y resultados alcanzados hasta el momento y orientado a brindar recomendaciones operativas y programáticas.

Debe basarse en los alcances de la implementación del proyecto, identificando relevancia, desempeño y éxito del proyecto, encontrando buenas prácticas, lecciones aprendidas y



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estrategias utilizadas durante el desarrollo de las actividades, resultados adicionales no esperados, y que identifique la originalidad, actualidad y pertinencia de los insumos generados, así como futuros impactos potenciales.

Al ser un proyecto GEF el análisis tendrá que referir la matriz “Calificación del desempeño del proyecto” (Anexo VI) y analizar los aspectos clave en materia financiera del Proyecto por medio de la calificación de la “**Tabla de Cofinanciamiento**” (Anexo VII).

Para cumplir con los requerimientos más generales del PNUD, la consultoría deberá también realizar un análisis que explique los factores que contribuyeron a alcanzar los resultados y aquéllos que pudieron haber ralentizado el alcance de los mismos. Por ello, será llamado a **incluir en la propuesta técnica la Matriz de evaluación llenada** (ver Anexo VIII) y ofrecer las respuestas del caso en el reporte final de evaluación. Entre otras, las preguntas evaluativas a las cuales se deberán dar respuesta son las siguientes (ver Anexo VIII para mayor referencia):

- ¿El proyecto es relevante en términos de las prioridades y necesidades del país para hacer frente a los posibles impactos derivados de las especies exóticas invasoras?
- ¿En qué medida los componentes del proyecto, así como sus otras características -- elección de socios, estructura de la unidad coordinadora, mecanismos de implementación, alcance, presupuesto, procesos administrativos, uso de recursos – permiten el alcance de los objetivos?
- ¿Se han logrado los efectos o productos enunciados? ¿Con qué grado de efectividad?
- ¿Qué factores han contribuido a lograr o no alcanzar los efectos buscados?
- ¿Han sido utilizados como herramientas de gestión durante la implementación del proyecto el marco lógico, los planes de trabajo o cualquier cambio realizado a estos?
- ¿En qué medida hay riesgos financieros, institucionales, socioeconómicos o ambientales para sostener los resultados del proyecto a largo plazo?
- ¿Existe evidencia de que los socios del proyecto darán continuidad a las actividades durante el resto del tiempo del proyecto y más allá de su finalización?
- ¿Existe evidencia de que las instituciones colaboradoras están institucionalizando los productos que se impulsan en el marco del proyecto?
- ¿En qué medida se ha logrado el objetivo general del Proyecto GEF-Invasoras de proteger la biodiversidad de importancia global en ecosistemas vulnerables a través del establecimiento de capacidades para prevenir, controlar y manejar las especies invasoras en México?
- ¿En qué medida el proyecto está orientado a los grupos más relevantes para obtener el resultado?
- ¿Los arreglos administrativos consideran y son los adecuados para las características de dispersión geográfica y de heterogeneidad de condiciones que requiere el proyecto?
- ¿Han sido eficientes y adecuados los procesos de gobernanza del proyecto o requieren ajustes?



- ¿Cuáles procesos han requerido de la implementación de un enfoque participativo? ¿Fue adecuada la estrategia implementada? ¿Qué resultados se tuvieron?
- ¿Existen estrategias y experiencias desarrolladas por el proyecto que tengan potencial de replicación?
- ¿Qué prácticas de sistematización de experiencias se están llevando a cabo?
- ¿Existen diferencias en el avance a nivel de las 9 ANP continentales y 6 grupos de islas de intervención directa del proyecto?
- ¿Qué otros proyectos con financiamiento nacional y/o internacional se están ejecutando en los mismos territorios que el proyecto GEF-Invasoras y cómo se vinculan con éste?
- ¿Se tuvieron en cuenta otros proyectos a nivel global y sus lecciones aprendidas?

1.5. OBJETIVOS Y ALCANCES DE LA EVALUACIÓN

En general, las evaluaciones de proyectos del GEF / PNUD deberán cumplir con cuatro objetivos:

- Analizar y evaluar resultados e impactos.
- Proporcionar recomendaciones y elementos para la toma de decisiones y la realización de enmiendas y mejoras necesarias.
- Promover la responsabilidad en el uso de los recursos.
- Documentar, retroalimentar y difundir las lecciones aprendidas.

La evaluación debe incluir una apreciación de la confiabilidad de los compromisos de cofinanciación y recomendaciones muy específicos en cómo enfocar los restos de recursos de GEF para optimizar el proyecto hacia los objetivos. En este sentido la evaluación debe involucrar todos los actores beneficiarios, así como a los responsables de la ejecución e implementación del proyecto indicado en el Documento de Proyecto (PRODOC).

El enfoque de la Evaluación de Medio Término (EMT) será mixto y abarcará por un lado una **evaluación de diseño del proyecto, por otro lado una evaluación de resultados (desempeño general y cumplimiento de las actividades)**. La evaluación debe examinar y evaluar apropiadamente las perspectivas de las diferentes partes interesadas. En particular, la EMT se centrará en los siguientes tres rubros.

i) Diseño del proyecto

En su Plan Estratégico más reciente el PNUD identifica como objetivo prioritario reforzar la calidad de sus programas y proyectos. De este compromiso ha surgido la necesidad que los proyectos cumplan con algunos parámetros de diseños. Estos últimos son:



Al servicio
de las personas
y las naciones

- a) *Targeting*: en qué medida se han identificados con claridad la tipología y las necesidades de los beneficiarios intermedios e finales.
- b) *Issues-Based Approach*: en qué medida se está dando respuesta integral a las necesidades identificadas, apoyándose en una teoría del cambio que pueda realísticamente incidir en la cadena de causa-efecto que se pretende modificar.
- c) *Scale y scaling-up*: en qué medida las iniciativas adoptadas están diseñada de una forma que facilitan su repetición, multiplicación y/o ampliación.
- d) *Sustainability*: en qué medida el proyecto logra adaptarse a su contexto, promueve aprendizaje, y facilita el crecimiento e involucramiento de actores capaces e interesados en apropiarse del proyecto y/o en velar o reforzar sus resultados.
- e) *Voice and participación*: en qué medida se han consultados los beneficiarios intermedios y finales durante la definición del proyecto, y en qué medida se ha establecido un mecanismo de retroalimentación que facilite eventuales ajustes al proyecto.
- f) *Partnership (SSC/TrC)*: en qué medida se han identificado y aprovechado oportunidades de cooperación sur-sur.

Un elemento adicional al diseño del proyecto de particular interés para el PNUD es la **evaluabilidad del proyecto**, y cómo ésta ha mejorado o cómo se ha ajustado a lo largo de su gestión. La sección 6.2 del Manual de planificación, seguimiento y evaluación de los resultados de desarrollo ofrece una breve guía al respecto. Un listado exhaustivo de los aspectos a valorar para medir la posibilidad de evaluar un proyecto se encuentra en el documento “Planning Evaluability Assessments: A synthesis” (p. 20-23)⁴.

ii) **Desempeño general del Proyecto**

Se refiere al logro de objetivos y resultados (progreso a la fecha). La consultoría deberá determinar el grado en el cual los objetivos se han alcanzado o se espera que sean alcanzados, y analizar si el proyecto ha generado alguna otra consecuencia, positiva o negativa. Identificará asimismo posibles resultados o efectos de corto y mediano plazo ya alcanzados por el proyecto, como por ejemplo capacidades institucionales fortalecidas, mayor conciencia pública, y marcos de políticas modificados, entre otros. Específicamente, la EMT analizará los siguientes aspectos:

- a) *Efectividad*: Evaluar cómo, y hasta qué grado, los objetivos esperados del proyecto serán alcanzados, tomando en consideración los “indicadores de logros” especificados en el documento de proyecto.
- b) *Relevancia*: Grado en el que una iniciativa de desarrollo y sus productos y efectos esperados concuerdan con las políticas y prioridades nacionales y locales, así como con las necesidades de los beneficiarios.

⁴ Disponible en la página:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/248656/wp40-planning-eval-assessments.pdf



- c) *Eficiencia*: Evaluar los resultados alcanzados a la fecha en relación a los insumos, costos, y tiempo de ejecución del proyecto, determinando si el mismo es costo-efectivo. Determinar cómo se compara la relación costo-tiempo y resultados del proyecto con otros proyectos similares. Analizar y definir si el proyecto se encuentra retrasado o a tiempo de cumplir con el calendario previsto.
- d) *Sostenibilidad*: determinar en qué grado los beneficios de las iniciativas continuarán una vez que haya terminado el proyecto.
- e) *Impacto*: identificar evidencias de que el proyecto está contribuyendo a su objetivo de mediano-largo plazo.

La evaluación deberá incluir además un breve análisis de los resultados en el contexto de los objetivos del Programa de País (CPD) 2014-2018 y del Plan Estratégico del PNUD (UNDP SP) 2014-2017. Cada uno de estos dos documentos de programación multianual cuenta con indicadores a los cuales los proyectos PNUD deben alinearse. **Estos indicadores deben de tomarse en cuenta a la hora de analizar el impacto de los proyectos PNUD.**

Un elemento adicional para cumplir con los requisitos del GEF es la evaluación de los aspectos clave en materia financiera del Proyecto, incluyendo **el alcance del cofinanciamiento programado versus lo ejercido**. Se requerirá del análisis del costo del Proyecto y su financiamiento, incluyendo los gastos erogados por año hasta el medio término. **Las desviaciones entre los gastos presupuestados y los ejercidos deberán de ser evaluados, analizados y debidamente explicados**. Se debe tomar en consideración la auditoría financiera realizada al Proyecto. El/la consultor/consultora internacional y un recibirá información financiera que se considere necesaria por parte de la Oficina de País y la Unidad Coordinadora del Proyecto, con la finalidad de completar la Tabla de Cofinanciamiento (Anexo VII), la cual deberá de ser incluida en el informe de la evaluación final.

iii) Cumplimiento de actividades y elaboración de productos

Se refiere al logro o alcance (hasta la fecha) de los productos comprometidos en comparación con el cumplimiento de actividades previstas.

- a) Productos entregados: Análisis del éxito del proyecto en alcanzar cada uno de los productos esperados a la fecha, tanto en cantidad como en calidad, y de su utilidad y oportunidad.
- b) Análisis de la efectividad de las metodologías utilizadas para desarrollar documentos técnicos.
- c) Evaluación del grado en que los productos del proyecto tienen el peso o autoridad/credibilidad científica, necesaria para ejercer influencia en el desarrollo de políticas y en la toma de decisiones, particularmente a nivel nacional.



Al servicio
de las personas
y las naciones

1.6. METODOLOGÍA DE LA EVALUACIÓN

Equipo de Evaluación

La revisión de medio término será liderada por un/a consultor/a internacional, quien podrá apoyarse de un/a consultor nacional que será eventualmente contratado en el marco de otra licitación⁵.

El perfil del/la consultor/a deberá apegarse a profesionales con amplias capacidades de destrezas y conocimientos, experiencia analítica y de evaluación, habilidades en aspectos técnicos del proyecto, en asuntos ambientales, en asuntos del desarrollo de negocios, así como experiencia con procesos de desarrollo social y económico asociado al manejo de recursos naturales.

El/la consultor/a internacional, que se licita en esta convocatoria, será responsable de la integración y presentación de la revisión y responsable de informe final. La selección del consultor nacional se llevará a cabo de manera conjunta entre la entidad implementadora y la ejecutora y una vez seleccionado se presentará para que pueda coordinar el trabajo conjunto bajo el liderazgo del/de la consultor/a internacional.

La evaluación debe proporcionar información basada en evidencia que sea creíble, confiable y útil de tal forma que se identifiquen lecciones aprendidas y recomendaciones pertinentes para el período restante de implementación del Proyecto GEF-Invasoras y para futuros proyectos.

La Evaluación de Medio Término iniciará con una revisión de la documentación básica clave del proyecto, siendo las principales fuentes escritas de información para la evaluación, las que se describen en el Anexo V, pero puede ampliarse a otras fuentes complementarias propuestas por el equipo consultor.

También se debe contemplar entrevistas con los actores involucrados, incluyendo personal clave que ha colaborado y/o participado en algún momento en el desarrollo y ejecución del proyecto. Se debe llevar a cabo visitas de campo, con el fin de observar directamente las actividades y resultados del proyecto. Para ello se determinarán las misiones requeridas para visitar la oficina del proyecto y otros actores clave, así como otras áreas de incidencia del proyecto (visitas a campo), a ser propuestas por el equipo evaluador en su propuesta técnica y finalizada al inicio de la evaluación.

El/la consultor(a) internacional y el/la consultor(a) nacional que tendrán que incluir **en su propuesta técnica una estrategia de investigación formulada a partir del Formato de Propuesta Metodológica (ANEXO X)**. En este documento se tendrá que ilustrar como se pretende usar e integrar evidencias basadas en documentos y otras recolectadas en campo, se deberá ofrecer una primera descripción del muestreo que se propone adoptar para recolectar la información primaria, junto con su justificación, así como delinear la estrategia que se seguirá para asegurar la calidad de la recopilación y el análisis de los datos. En adición se deberá ofrecer una propuesta

⁵ El equipo se seleccionará a través de dos procesos competitivos: uno para consultor internacional y otro para consultor nacional.



en cuanto a las visitas de campo a realizarse en las zonas de intervención. Los gastos asociados a las visitas no se incluyen en la propuesta económica, y serán a cargo del proyecto.

Se espera que esta evaluación siga un enfoque participativo y consultivo que asegure participación estrecha con funcionarios de gobierno de CONABIO, CONANP y otras dependencias colaboradoras (véase instituciones arriba mencionadas), la Oficina en el País del PNUD, el equipo del proyecto, el Asesor Técnico Regional del GEF/PNUD e interesados clave.

A lo largo de la evaluación, se deben tener siempre presentes las normas establecidas para dicho fin en el Manual de Planificación y seguimiento de evaluación de los resultados de desarrollo. La Evaluación del PNUD debe ser: Independiente; Intencionada; Transparente; Ética; Imparcial; De alta Calidad; Oportuna; Útil.

Cualquier cambio en la metodología que se apruebe debe estar en línea con los criterios internacionales, normas y estándares para los profesionales adoptadas por el Grupo de Evaluación de las Naciones Unidas, y debe ser avalado por la Oficina de País del PNUD, y su Centro Regional antes de ser implementado y con la Agencia Ejecutora.

Etapas de la evaluación

i) Revisión de documentos

La lista de documentos a revisar está incluida en el Anexo V. Todos los documentos serán entregados al equipo evaluador por la Oficina de País del PNUD y por el Equipo del Proyecto. El equipo del proyecto y la Oficina de País del PNUD orientarán sobre la importancia relativa de cada documento y las secciones claves donde el consultor debe poner especial atención.

El/la consultor/a internacional y el/la consultor(a) nacional deben consultar dichas fuentes relevantes de información que incluyen, entre otras: La política de evaluación del PNUD y el GEF, el documento de proyecto, minutas y decisiones del comité directivo, planes operativos y de trabajo, reportes de avances, informes anuales (PIR), archivos del proyecto, documentos de directrices del PNUD, legislación nacional relevante al proyecto y cualquier otro material que pueda ser de utilidad.

Asimismo, será de suma importancia la revisión, análisis de documentos y análisis final de hallazgos agregados de otras consultorías relevantes que se elaboraron para el proyecto.

ii) Entrevistas

Las entrevistas para esta evaluación deberán estar orientadas hacia la identificación de resultados alcanzados, procesos fortalecidos e indicios de sostenibilidad de los esfuerzos para el resto del tiempo de ejecución del Proyecto y después de su término.

El/la consultor/a internacional y el consultor nacional llevarán a cabo entrevistas de acuerdo al muestreo más adecuado para responder las preguntas de la evaluación, pudiendo estar incluidas las siguientes instituciones y personas:



Al servicio
de las personas
y las naciones

- Subcoordinadora del Programa de Especies Invasoras de la Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO)*
- Director de Especies Prioritarias para la Conservación de la Comisión Nacional de Áreas Naturales Protegidas (CONANP)*
- Direcciones Regionales y de ANP piloto del Proyecto que se visitan (CONANP)
- Dirección General Forestal y de Suelos (DGGFS) de la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT)
- Subsecretaría de Fomento y Normatividad Ambiental (SFNA), de la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT)*
- Departamento de Monitoreo y Control de Especies invasoras, Gerencia de Sanidad de la Comisión Nacional Forestal (CONAFOR)*
- Directora de Vulnerabilidad y Adaptación Ecológica del Instituto Nacional de Ecología y Cambio Climático (INECC)*
- Responsable del Control Biológico de Plantas Acuáticas Exóticas Invasoras del Instituto Mexicano de Tecnología del Agua (IMTA)*
- Director de Inspección y Vigilancia de Vida Silvestre y Fitosanitaria En Puertos, Aeropuertos y Fronteras (DGIAPAF) de la Procuraduría Federal de Protección al Ambiente (PROFEPA)*
- Director de Verificación Técnica Forestal de la Dirección General de Inspección y Verificación Forestal (DGIVF), de la Procuraduría Federal de Protección al Ambiente (PROFEPA)*
- Subdirector de Ordenamiento Acuícola de la Comisión Nacional (CONAPESCA)**
- Director General Adjunto en Investigación Acuícola del Instituto Nacional de Pesca (INAPESCA)*
- Gerente del Comité Estatal de Sanidad Acuícola del estado de Morelos (CESAEM)*
- Director General del Grupo de Ecología y Conservación de Islas, A.C. (GECI)*
- Programa de las Naciones Unidas para el Desarrollo en México (PNUD)
- Unidad Coordinadora del Proyecto
- Director General Adjunto de Esquemas de Financiamiento Ambiental de la Secretaría de Medio Ambiente y Recursos Naturales. Punto Focal Operativo del GEF
- Consultores externos del proyecto
- Universidades públicas y centros de investigación que han colaborado con el proyecto (UNAM, UANL, UAM)*

*: se cuenta con MOU

**.: se cuenta con carta de compromiso para formar parte del Comité Ejecutivo

Se debe llevar a cabo visitas de campo en coordinación con personal de la UCP, GECI y CONANP, con el fin de observar directamente las actividades e impactos del proyecto y realizar entrevistas con los destinatarios.

- Entrevistas semi-estructuradas: El equipo debe desarrollar un proceso para llevar a cabo entrevistas semi-estructuradas para asegurar que todos los temas sean cubiertos.



- Discusiones en grupos (enfoque) con los beneficiarios del proyecto se llevarán a cabo cuando sea necesario.
- Cuestionarios, deberán presentar una batería de preguntas clave para su revisión y aprobación por parte de la UCP, CONABIO, CONANP y PNUD previo a la realización de entrevistas.
- Técnicas participativas y otro enfoque para recopilar y analizar datos, si es necesario.

Para la evaluación, el Proyecto brindará el apoyo para concretar las entrevistas con los actores principales, arreglar las visitas de campo, asegurar la logística y viáticos para el equipo de evaluación, coordinando las fechas de visita a campo con las Direcciones de ANP y GECI. Además, existirá una reunión de apertura con PNUD y personal del proyecto en la que se discutirán los detalles de la Evaluación.

Las herramientas de levantamiento deberán ser aprobadas por el PNUD, la CONABIO y la CONANP y deberán cumplir con la necesidad de obtener información sobre la implementación del proyecto. Un reporte descriptivo de las respuestas otorgadas por los entrevistados se debe presentar a la oficina del PNUD junto con el reporte final.

Mecanismos de implementación

La principal responsabilidad de la gestión de esta evaluación reside en la Oficina País de PNUD México como agencia implementadora, en coordinación con la CONABIO y la CONANP. La Unidad Coordinadora del Proyecto tiene la responsabilidad sobre la coordinación y la logística de la evaluación (traslados, hospedaje, comunicaciones, etc.). El/la consultor(a) internacional en coordinación con el/la otro consultor(a) nacional que se contrate, deberá concertar entrevistas con actores clave, organizar visitas de campo y coordinarse con dependencias. La entidad ejecutora revisará los entregables y participará en la validación de los mismos.

2. PRODUCTOS ESPERADOS, RESPONSABILIDADES Y DESCRIPCION DE ACTIVIDADES

RESPONSABILIDADES

El **producto inicial** de la consultoría de EMT será el informe de arranque (*inception report*), elaborado conforme al Anexo XI. En este se deberá incluir el plan de trabajo con el cronograma propuesto, así como la metodología de la evaluación propuesta.

El producto final de la consultoría de EMT deberá explicar el propósito de la evaluación, qué fue exactamente lo evaluado, **y cuáles fueron los métodos utilizados** (véase Anexo XII). Deberá destacar las limitaciones metodológicas, identificar las principales preocupaciones y conclusiones basadas en evidencias, y las consiguientes conclusiones, recomendaciones y lecciones.



El informe deberá proporcionar información sobre cuándo tuvo lugar la evaluación, los lugares visitados, las entidades/personas con las que se habló, e incluirá un resumen ejecutivo con la síntesis de la información contenida en el informe principal para facilitar respuestas y acciones correctivas claras por parte de la gestión. La evaluación clasificará la ejecución del proyecto en términos generales y proporcionará clasificaciones individuales a cada una de las categorías analizadas, con breves justificaciones basadas en los resultados del análisis principal, siguiendo el criterio de calificación especificado.

Los resultados, conclusiones y recomendaciones deberán presentarse de manera completa y equilibrada. El informe de evaluación deberá ser escrito en español y en inglés y seguirá la estructura planteada en el Anexo XII.

1	<p>Actividad 1: Etapa de preparación, la cual incluirá la revisión de toda la documentación relevante proporcionada; Preparación para el trabajo de campo (en coordinación con el Punto Focal de Monitoreo y Evaluación en PNUD, el Gerente de Proyecto, el Coordinador de Proyecto y el/la consultor nacional y la Dirección General de Análisis y Prioridades: Analizar la documentación del proyecto incluyendo antecedentes y documentos de diseño del proyecto y otro material que tenga información del proyecto (PIR, reportes trimestrales); Familiarizarse con la situación de desarrollo general del país (se deben revisar los CCA, UNDAF y otros reportes del país). Preparar la misión de manera detallada, incluyendo metodología, en coordinación con el PNUD y el equipo del proyecto. Tener una teleconferencia con CONABIO, CONANP, PNUD y UCP para revisar y diseñar el plan de trabajo.</p> <p>Actividad 2: Elaborar una propuesta de las misiones de campo. Consensuar la lista de personas, instituciones y organizaciones que desea entrevistar (acordado y contextualizado con el acompañamiento del/la consultor/a nacional), informando con 15 días de anticipación a la Unidad Coordinadora del Proyecto GEF-PNUD a fin de programar dichas reuniones. Dentro del mismo periodo, consensuar herramientas de levantamiento de información (batería de preguntas, cuestionarios, número de grupos y enfoque de cada uno).</p> <p>Actividad 3: Integrar el informe de arranque (inception report), conforme al Anexo XI, incluyendo el plan de trabajo y metodología de la evaluación coordinada con el resto del equipo evaluador (evaluador/a nacional).</p>
2	<p>Actividad 4: Durante la etapa de visita de campo y entrevistas con las contrapartes y beneficiarios in situ, incluyendo el PNUD:</p> <ul style="list-style-type: none"> • Llevar a cabo reunión de planeación con el equipo de evaluación, CONABIO, CONANP, PNUD y UCP. • Llevar a cabo reuniones con actores nacionales relevantes en coordinación con el/la consultor/a nacional.



Al servicio
de las personas
y las naciones

	<ul style="list-style-type: none"> • Aclarar dudas finales sobre el material disponible del proyecto, con especial atención en los resultados y productos del proyecto. • Visitar sitios del proyecto acordados. • Observación y revisión de las actividades finalizadas y en curso. • Hacer entrevistas con beneficiarios y actores clave acordados y con los instrumentos consensuados. <p>Actividad 5: Presentar hallazgos y observaciones preliminares a CONABIO, CONANP, PNUD y UCP para discusión de los mismos.</p>
<p>3</p>	<p>Actividad 6: Revisar globalmente el cumplimiento de las normas y procedimientos del sistema administrativo, financiero y reportes del proyecto, verificando que estén conformes con las reglas financieras y regulaciones del PNUD y GEF (informe de auditoría, reportes financieros y balance a medio término).</p> <p>Actividad 7: Presentar el informe en forma borrador para comentarios y retro-alimentación.</p> <ul style="list-style-type: none"> • Elaborar reporte Borrador: este debe ser entregado en un plazo no mayor a las dos semanas de finalizada la misión y conforme a lo establecido en el Anexo XII de estos términos. • Llevar a cabo entrevistas finales / validación con CONABIO, CONANP, el PNUD, el PNUD-GEF-RCU y equipo del proyecto. • Elaborar borrador en el formato adecuado • Revisión telefónica de las conclusiones finales con CONABIO, CONANP, PNUD y UCP e incluir últimas correcciones con base en este intercambio. • Elaborar y entregar el informe final. <p>Actividad 8: Durante la etapa de entrega del informe final de evaluación, se llevará conforme al Anexo XII.</p> <ul style="list-style-type: none"> • Presentar reporte final de evaluación aprobado por CONABIO, CONANP, PNUD y UCP. • Finalizar el reporte final y entregarlo para comentarios. • Sistematizar evidencias recopiladas para el informe. • Elaborar un banco de datos de entrevistas, imágenes, análisis y otras evidencias relevantes del trabajo de campo.



Al servicio
de las personas
y las naciones

DESCRIPCION DE ACTIVIDADES

ITEM	ACTIVIDAD	PRODUCTO	CALENDARIO	% PAGO
1	<p>Actividad 1: Etapa de preparación, la cual incluirá la revisión de toda la documentación relevante proporcionada; Preparación para el trabajo de campo (en coordinación con el Punto Focal de Monitoreo y Evaluación en PNUD, el Gerente de Proyecto, el Coordinador de Proyecto y el/la consultor nacional y la Dirección General de Análisis y Prioridades: Analizar la documentación del proyecto incluyendo antecedentes y documentos de diseño del proyecto y otro material que tenga información del proyecto (PIR, reportes trimestrales); Familiarizarse con la situación de desarrollo general del país (se deben revisar los CCA, UNDAF y otros reportes del país). Preparar la misión de manera detallada, incluyendo metodología, en coordinación con el PNUD y el equipo del proyecto. Tener una teleconferencia con CONABIO, CONANP, PNUD y UCP para revisar y diseñar el plan de trabajo.</p> <p>Actividad 2: Elaborar una propuesta de las misiones de campo. Consensuar la lista de personas, instituciones y organizaciones que desea entrevistar (acordado y contextualizado con el acompañamiento del/la consultor/a nacional),</p>	<p>Producto 1: Plan de trabajo, metodología de evaluación y arreglos logísticos a ser aprobados por CONABIO, CONANP, PNUD y la UCP.</p> <p>Producto 2: Listado de personas, instituciones y organizaciones que desea entrevistar y baterías de preguntas aprobados por la UCP, CONABIO; CONANP y PNUD.</p> <p>Producto 3: Inception Report aprobado por CONABIO, CONANP, PNUD y UCP.</p>	Semana 3	20



Al servicio
de las personas
y las naciones

	<p>informando con 15 días de anticipación a la Unidad Coordinadora del Proyecto GEF-PNUD a fin de programar dichas reuniones.</p> <p>Dentro del mismo periodo, consensuar herramientas de levantamiento de información (batería de preguntas, cuestionarios, número de grupos y enfoque de cada uno).</p> <p>Actividad 3: Integrar el informe de arranque (inception report), conforme al Anexo XI, incluyendo el plan de trabajo y metodología de la evaluación coordinada con el resto del equipo evaluador (evaluador/a nacional).</p>			
2	<p>Actividad 4: Durante la etapa de visita de campo y entrevistas con las contrapartes y beneficiarios in situ, incluyendo el PNUD:</p> <ul style="list-style-type: none"> • Llevar a cabo reunión de planeación con el equipo de evaluación, CONABIO, CONANP, PNUD y UCP. • Llevar a cabo reuniones con actores nacionales relevantes en coordinación con el/la consultor/a nacional. • Aclarar dudas finales sobre el material disponible del proyecto, con especial atención en los resultados y productos del proyecto. • Visitar sitios del proyecto acordados. • Observación y revisión de las actividades finalizadas y en curso. • Hacer entrevistas con beneficiarios y actores clave 	<p>Producto 4: Inception report ajustado con las entrevistas previas a visitas de campo.</p> <p>Producto 5: Presentación oral de los hallazgos ante los actores relevantes del proyecto, presentación ejecutiva en PPT sobre principales hallazgos y borrador preliminar del informe de evaluación con base en la metodología de evaluación aprobada.</p>	Mes 3	40



Al servicio
de las personas
y las naciones

	<p>acordados y con los instrumentos consensuados.</p> <p>Actividad 5: Presentar hallazgos y observaciones preliminares a CONABIO, CONANP, PNUD y UCP para discusión de los mismos.</p>			
3	<p>Actividad 6: Revisar globalmente el cumplimiento de las normas y procedimientos del sistema administrativo, financiero y reportes del proyecto, verificando que estén conformes con las reglas financieras y regulaciones del PNUD y GEF (informe de auditoría, reportes financieros y balance a medio término).</p> <p>Actividad 7: Presentar el informe en forma borrador para comentarios y retro-alimentación.</p> <ul style="list-style-type: none"> • Elaborar reporte Borrador: este debe ser entregado en un plazo no mayor a las dos semanas de finalizada la misión y conforme a lo establecido en el Anexo XII de estos términos. • Llevar a cabo entrevistas finales / validación con CONABIO, CONANP, el PNUD, el PNUD-GEF-RCU y equipo del proyecto. • Elaborar borrador en el formato adecuado • Revisión telefónica de las conclusiones finales con CONABIO, CONANP, PNUD y UCP e incluir últimas correcciones con base en este intercambio. • Elaborar y entregar el informe final. 	<p>Producto 6: Revisión realizada e incluida en el informe.</p> <p>Producto 7: Primer borrador de informe en el formato editable y conforme a la estructura acordada.</p> <p>Producto 8: Primer borrador de informe en el formato editable y conforme a la estructura acordada.</p> <ul style="list-style-type: none"> - Informe final integrando las observaciones y comentarios hechos a la versión preliminar por parte de CONABIO, CONANP, PNUD y UCP. - Compendio de Evidencias recopiladas para el informe. - Banco de datos de entrevistas, imágenes, análisis y evidencias relevantes del trabajo de campo. 	Mes 4	40



Al servicio
de las personas
y las naciones

	<p>Actividad 8: Durante la etapa de entrega del informe final de evaluación, se llevará conforme al Anexo XII.</p> <ul style="list-style-type: none"> • Presentar reporte final de evaluación aprobado por CONABIO, CONANP, PNUD y UCP. • Finalizar el reporte final y entregarlo para comentarios. • Sistematizar evidencias recopiladas para el informe. • Elaborar un banco de datos de entrevistas, imágenes, análisis y otras evidencias relevantes del trabajo de campo. 			
TOTAL				100

El producto inicial de la consultoría de EMT será el informe de arranque (inception report), elaborado conforme al Anexo XI. En este se deberá incluir el plan de trabajo con el cronograma propuesto, así como la metodología de la evaluación propuesta.

El producto final de la consultoría de EMT deberá explicar el propósito de la evaluación, qué fue exactamente lo evaluado, y cuáles fueron los métodos utilizados (véase Anexo XII). Deberá destacar las limitaciones metodológicas, identificar las principales preocupaciones y conclusiones basadas en evidencias, y las consiguientes conclusiones, recomendaciones y lecciones.

El informe deberá proporcionar información sobre cuándo tuvo lugar la evaluación, los lugares visitados, las entidades/personas con las que se habló, e incluirá un resumen ejecutivo con la síntesis de la información contenida en el informe principal para facilitar respuestas y acciones correctivas claras por parte de la gestión. La evaluación clasificará la ejecución del proyecto en términos generales y proporcionará clasificaciones individuales a cada una de las categorías analizadas, con breves justificaciones basadas en los resultados del análisis principal, siguiendo el criterio de calificación especificado.

Los resultados, conclusiones y recomendaciones deberán presentarse de manera completa y equilibrada. El informe de evaluación deberá ser escrito en español y en inglés y seguirá la estructura planteada en el Anexo XII.

3. REQUERIMIENTOS DE EXPERIENCIA Y CALIFICACIONES.

De la propuesta	
1	Valoración de la propuesta
De la formación	
1	Maestría en el área de biología, ciencias naturales, gestión de recursos naturales o afines, deseable experiencia en temas de invasiones biológicas, de conservación y gestión de los recursos naturales. (Comprobable en CV)
De la experiencia	
1	Mínimo de 4 años de experiencia internacional en monitoreo y evaluación de proyectos bajo los lineamientos del GEF implementado por PNUD. (Comprobable en CV)
2	Mínimo de 4 años de experiencia en el diseño, implementación, monitoreo y/o evaluación de proyectos de conservación de biodiversidad. (Comprobable en CV).
3	Mínimo de 2 años de experiencia en los temas de bases de datos o capacitación relacionado a especies exóticas invasoras (Comprobable en CV).
4	Participación en procesos de elaboración de Estrategias o Programas de Prevención y Manejo de Especies invasoras o de conservación y restauración ecológica (comprobable en CV).
5	Experiencia en la metodología del marco lógico, demostrable en el diseño o evaluación de al menos 2 proyectos con esta metodología.
6	Experiencia de al menos 2 proyectos revisando el cumplimiento de las normas y procedimientos del sistema administrativo, financiero y reportes del proyecto, verificando que estén conformes con las reglas financieras y regulaciones del GEF. (Comprobable con productos terminados y cartas de satisfacción del cliente).
7	Dominio del inglés hablado y escrito. Demostrable con CV y entrega de dos informes escritos en inglés.

4. EVALUACIÓN DE PROPUESTAS

Los consultores individuales serán evaluados basados en el siguiente criterio:

Análisis acumulativo: Se adjudicará el contrato a aquel consultor(a) que obtenga la mejor combinación técnico-económica. Donde la oferta técnica equivale al 70% y la económica el 30% de la calificación total. Cabe señalar que serán susceptibles de análisis económico únicamente aquellas propuestas que obtengan al menos el 70% de los puntos técnicos disponibles (665/950).

ITEM	CRITERIOS DE EVALUACION	PUNTAJE
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Al servicio
de las personas
y las naciones

De la propuesta		
1	<p>Valoración de la propuesta</p> <p>A) No cumple con el requisito mínimo: 0 puntos</p> <p>B) • El oferente incluye en su propuesta técnica los objetivos, los procedimientos a seguir para su cumplimiento, definición del alcance de los trabajos, metodología y cronograma de actividades en donde se refleje la entrega de los productos en el plazo requerido y las necesidades de recursos. Incluye todos los anexos (dos formatos, uno de metodología - Anexo X - y uno de matriz de evaluación - Anexo VIII) que se están solicitando debidamente llenados con información no verificable o confiable y la propuesta inicial de visitas de campo: Cuando hay elementos faltantes en la secuencia de actividades y la planificación y la propuesta requiere ajustes para la implementación eficiente del proyecto: 210 puntos</p> <p>C) • El oferente incluye en su propuesta técnica los objetivos, los procedimientos a seguir para su cumplimiento, definición del alcance de los trabajos, metodología y cronograma de actividades en donde se refleje la entrega de los productos en el plazo requerido y las necesidades de recursos. Incluye todos los anexos (dos formatos: uno de metodología - Anexo X - y uno de matriz de evaluación - Anexo VIII) que se están solicitando debidamente llenados con información verificable y confiable y la propuesta inicial de visitas de campo. Cuando es clara la presentación y es lógica y realista la secuencia de actividades y la planificación y promete una implementación eficiente del proyecto: 300 puntos</p>	300
De la formación		
1	<p>Maestría en el área de biología, ciencias naturales, gestión de recursos naturales o afines, deseable experiencia en temas de invasiones biológicas, de conservación y gestión de los recursos naturales. (Comprobable en CV)</p> <p>A) No cumple con el requisito mínimo: 0 puntos</p> <p>B) Cumple con grado de maestría: 70 puntos</p> <p>C) Cumple con un grado mayor al de maestría: 100 puntos</p>	100
De la experiencia		
1	<p>Mínimo de 4 años de experiencia internacional en monitoreo y evaluación de proyectos bajo los lineamientos del GEF implementado por PNUD. (Comprobable en CV)</p> <p>A) No cumple con el requisito mínimo: 0 puntos</p> <p>B) Entre 4 y 5 años con experiencia en proyectos GEF/PNUD: 105 puntos</p> <p>C) Más de 5 años con experiencia en proyectos GEF -PNUD: 150 puntos</p>	150
2	<p>Mínimo de 4 años de experiencia en el diseño, implementación, monitoreo y/o evaluación de proyectos de conservación de biodiversidad. (Comprobable en CV).</p> <p>A) No cumple con el requisito mínimo: 0 puntos</p> <p>B) Entre 4 y 5 años de experiencia: 70 puntos</p> <p>C) Más de 5 años de experiencia: 100 puntos</p>	100



Al servicio
de las personas
y las naciones

3	Mínimo de 2 años de experiencia en los temas de bases de datos o capacitación relacionado a especies exóticas invasoras (Comprobable en CV). A) No cumple con el requisito mínimo: 0 puntos B) Entre 2 y 3 años de experiencia: 70 puntos C) Más de 3 años de experiencia: 100 puntos	100
4	Participación en procesos de elaboración de Estrategias o Programas de Prevención y Manejo de Especies invasoras o de conservación y restauración ecológica (comprobable en CV). A) No cumple con el requisito mínimo: 0 puntos B) • Comprobada participación en 1 proceso de elaboración de Programas de Prevención y Manejo de Especies invasoras o de conservación y restauración ecológica: 35 puntos C) Comprobada participación en más de 1 proceso de elaboración de Programas de Prevención y Manejo de Especies invasoras o de conservación y restauración ecológica: 50 puntos	50
5	Experiencia en la metodología del marco lógico, demostrable en el diseño o evaluación de al menos 2 proyectos con esta metodología. A) No cumple con el requisito mínimo: 0 puntos B) • Experiencia en 2 proyectos bajo la metodología del marco lógico: 35 puntos C) Experiencia en 2 o más proyectos bajo la metodología del marco lógico: 50 puntos	50
6	Experiencia de al menos 2 proyectos revisando el cumplimiento de las normas y procedimientos del sistema administrativo, financiero y reportes del proyecto, verificando que estén conformes con las reglas financieras y regulaciones del GEF. (Comprobable con productos terminados y cartas de satisfacción del cliente). A) No cumple con el requisito mínimo: 0 puntos B) Experiencia en 2 o más proyectos similares, pero no implementados por el PNUD, conforme a reglas financieras y regulaciones del GEF: 35 puntos C) Experiencia en 2 o más proyectos implementados por el PNUD conforme a reglas financieras y regulaciones del GEF: 50 puntos	50
7	Dominio del inglés hablado y escrito. Demostrable con CV y entrega de dos informes escritos en inglés. A) No cumple con el requisito mínimo: 0 puntos B) Presenta 2 informes en inglés: 35 puntos C) Presenta más de 2 informes en inglés: 50 puntos	50
TOTAL PUNTAJE		950



Anexo II

Presentación de oferta económica
SDC-73-2017
Formato 1.

Programa de las Naciones Unidas para el Desarrollo (PNUD) México. Atención Sr. Representante Residente

[Insertar nombre de la persona], quien suscribe la propuesta, declaro que:

- a) He examinado y no tengo reservas a los requisitos solicitados, incluyendo las adendas o modificaciones a la presente convocatoria.
- b) Me comprometo a brindar servicios profesionales de consultoría en el área de **[indicar el área de especialidad en la que ofrece sus servicios]**.
- c) El precio total de mi propuesta es de [\$ número y letra en pesos mexicanos] **incluyendo impuestos.**
- d) Entiendo / entendemos que, PNUD no da anticipos para la ejecución de los servicios objeto de la presente licitación.
- e) Mi propuesta se mantendrá vigente por los días que se indican a continuación, contados a partir de la fecha límite fijada para la presentación de propuestas: **90 días calendario.**
- f) Esta propuesta me obliga y podrá ser aceptada en cualquier momento hasta antes del término de dicho período.
- g) Manifiesto no haber sido declarado/a inelegible por el PNUD para presentar propuestas.
- h) Entiendo que esta propuesta constituirá una obligación contractual, hasta la preparación y ejecución del Contrato formal.
- i) Entiendo que el PNUD no está obligado a aceptar mi propuesta evaluada como la más baja ni ninguna otra de las propuestas que reciba.

Nombre: [indicar nombre completo de la persona que firma la propuesta]

Firma:

El día [indicar día] del mes [indicar el mes] de [indicar el año]. [indicar fecha de firma de la propuesta]



Al servicio
de las personas
y las naciones

Ejemplo de desglose de oferta económica.

Favor de utilizar el siguiente formato, para desglosar el precio de sus servicios o entregables.
Deberán incluirse los impuestos correspondientes.

<i>Lista de Precios</i>					
<i>Validez de Oferta: 90 días a partir de la fecha de cierre de convocatoria.</i>					
<i>Descripción de la Actividad / Item</i>		<i>Precio unitario</i>	<i>Unidad de medida.</i>	<i>Cantidad</i>	<i>Descripción o justificación</i>
1	Honorarios Consultor.				
2	Viáticos y pasajes		Viaje / día		
	Total incluyendo impuestos				

Nombre: *[indicar nombre completo de la persona que firma la oferta]*

Firma: *[firma del participante]*

El día *[indicar día]* del mes *[indicar el mes]* de *[indicar el año]*. *[Indicar fecha de firma de la propuesta]*



Anexo III

Condiciones Generales para la Contratación de Servicios Profesionales

1. CONDICIÓN JURÍDICA

Se considerará que el Contratista tiene la condición jurídica de un contratista independiente con respecto al Programa de las Naciones Unidas para el Desarrollo (PNUD). Ni el personal del Contratista ni los subcontratistas que emplee se considerarán bajo ningún concepto empleados o agentes del PNUD ni de las Naciones Unidas.

2. ORIGEN DE LAS INSTRUCCIONES

El Contratista no solicitará ni aceptará instrucciones de ninguna autoridad externa al PNUD en relación con la prestación de los servicios conforme a las disposiciones del presente Contrato. El Contratista evitará cualquier acción que pudiera afectar de manera adversa al PNUD o a las Naciones Unidas y llevará a cabo los servicios comprometidos bajo este contrato velando en todo momento por los intereses del PNUD.

3. RESPONSABILIDAD DEL CONTRATISTA HACIA SUS EMPLEADOS

El Contratista será responsable por la competencia profesional y técnica de su personal y seleccionará, para trabajar en virtud del presente Contrato, a individuos confiables que se desempeñen eficazmente en la ejecución del mismo, que respeten las costumbres locales y que ajusten su conducta a elevadas normas éticas y morales.

4. CESIÓN

El Contratista no podrá ceder, transferir, dar en prenda o enajenar el presente Contrato, en todo o en parte, ni sus derechos, títulos u obligaciones en virtud del mismo, salvo que contara con el consentimiento escrito previo del PNUD.

5. SUBCONTRATACIÓN

En el caso en que el Contratista requiriera los servicios de subcontratistas, el Contratista deberá obtener la aprobación escrita previa y la autorización del PNUD para todos los subcontratistas. La aprobación de un subcontratista por parte del PNUD no relevará al Contratista de ninguna de sus obligaciones en virtud del presente Contrato. Los términos y condiciones de todos los subcontratos estarán sujetos y deberán ajustarse a las disposiciones del presente Contrato.



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de las personas
y las naciones*

6. LOS FUNCIONARIOS NO DEBERÁN OBTENER BENEFICIOS

El Contratista garantiza que ningún funcionario del PNUD o de las Naciones Unidas ha recibido o recibirá ningún beneficio directo o indirecto como consecuencia del presente Contrato o de su adjudicación por parte del Contratista. El Contratista acuerda que la violación de la presente disposición constituye un incumplimiento de una cláusula esencial del presente Contrato.

7. INDEMNIZACIÓN

El Contratista indemnizará, defenderá y mantendrá indemne a su costa al PNUD, a sus funcionarios, agentes y empleados contra todos los juicios, reclamos, demandas y responsabilidades de toda naturaleza o especie, incluidos los costos y gastos que se derivaren de actos u omisiones del Contratista o de sus empleados, funcionarios, agentes o subcontratistas en la ejecución del presente Contrato. Esta cláusula será aplicable también, entre otras cosas, a cualquier reclamo y responsabilidad que se vincule con indemnizaciones por accidentes de trabajo de los empleados del Contratista, así como responsabilidades por sus productos y por el uso de inventos o artículos patentados, material protegido por derechos de autor o por otros derechos intelectuales que pudieren presentar el Contratista, sus empleados, funcionarios, agentes, personal a cargo o subcontratistas. Las obligaciones establecidas en el presente Artículo no caducarán al terminar el presente Contrato.

8. SEGUROS CONTRA TERCEROS Y DE RESPONSABILIDAD CIVIL

- 8.1 El Contratista obtendrá y mantendrá los seguros de indemnización y responsabilidad contra todo riesgo con relación a elementos de su propiedad y a todo el equipo que utilizare para la prestación de servicios en virtud del presente Contrato.
- 8.2 El Contratista proporcionará y mantendrá los seguros correspondientes para cubrir indemnizaciones por accidentes de trabajo o su equivalente para su personal por cualquier reclamo a causa de accidentes o fallecimiento que pudieran tener lugar con relación al presente Contrato.
- 8.3 El Contratista también proporcionará y mantendrá seguros de responsabilidad civil por un monto adecuado a fin de cubrir reclamos de terceros por muerte o accidente, o pérdida o daños a la propiedad, que pudieren tener vinculación con la prestación de servicios bajo este contrato o por la utilización de cualquier vehículo, embarcación, aeronave u otro equipo alquilado o de propiedad del Contratista o de sus agentes, empleados o subcontratistas para la ejecución del trabajo o la prestación de los servicios vinculados con el presente Contrato.
- 8.4 A excepción de la indemnización del personal por accidentes de trabajo, las pólizas de seguro contempladas en este Artículo deberán:



- (i) Designar al PNUD como asegurado adicional;
- (ii) Incluir una cláusula en la que la Compañía de Seguros renuncia a subrogarse de los derechos del Contratista en contra o respecto del PNUD;
- (iii) Incluir la indicación de que el PNUD será notificado por escrito con treinta (30) días de anticipación por parte de los aseguradores de cualquier cancelación o cambio en la cobertura.

8.4 El Contratista proporcionará, a solicitud del PNUD, prueba satisfactoria de los seguros exigidos bajo esta Cláusula.

9. EMBARGO PREVENTIVO/ DERECHO DE GARANTÍA REAL

El Contratista no provocará ni permitirá que un derecho de garantía real, embargo preventivo o gravamen constituido o trabado por alguna persona sea incluido o permanezca en el expediente de cualquier oficina pública o en un archivo del PNUD para cobrar cualquier deuda monetaria vencida o por vencerse y que se le deba en virtud del trabajo realizado o de los materiales suministrados conforme al presente Contrato o en razón de cualquier otra demanda o reclamo contra el Contratista.

10. PROPIEDAD DEL EQUIPAMIENTO

La propiedad de cualquier equipamiento y de suministros que pudiera proporcionar el PNUD quedará en manos del PNUD, debiéndose devolver al PNUD dicho equipamiento al finalizar el presente Contrato o cuando el mismo ya no sea necesario para el Contratista. El equipamiento deberá devolverse al PNUD en las mismas condiciones en que fuera recibido originalmente por el Contratista, a excepción del desgaste normal que el mismo pudiera haber sufrido por su utilización. El Contratista será responsable ante el PNUD por el equipamiento dañado o deteriorado más allá del desgaste normal causado por su utilización.



*Al servicio
de las personas
y las naciones*

11. DERECHOS INTELECTUALES, PATENTES Y OTROS DERECHOS DE PROPIEDAD

11.1 A menos que se disponga expresamente por escrito de otro modo en el Contrato, el PNUD será el titular de todos los derechos intelectuales y demás derechos de propiedad, incluyendo patentes, derechos de propiedad intelectual y marcas comerciales con relación a los productos, procesos, inventos, ideas, conocimientos técnicos, o documentos y otros materiales que se vinculen directamente con o se produzcan o preparen o se armen como consecuencia de o en el transcurso de la vigencia del presente Contrato, no siendo esta enumeración taxativa. A su vez, el Contratista reconoce y acuerda que dichos productos, documentos y otros materiales constituyen trabajos llevados a cabo en virtud de la contratación del PNUD.

11.2 En caso de que dicha propiedad intelectual u otros derechos de propiedad consistan en cualquier propiedad intelectual o derecho de propiedad del Contratista: (i) que existían previamente al desempeño del Contratista de sus obligaciones en virtud del presente Contrato, o (ii) que el Contratista pudiera desarrollar o adquirir, o pudiera haber desarrollado o adquirido, independientemente del desempeño de sus obligaciones en virtud del presente, el PNUD no reclamará ni deberá reclamar interés de propiedad alguna sobre la misma, y el Contratista concederá al PNUD una licencia perpetua para utilizar dicha propiedad intelectual u otro derecho de propiedad únicamente para el propósito y para los requisitos del presente Contrato.

1. A solicitud del PNUD, el Contratista tomará todos los recaudos necesarios, ejecutará todos los documentos necesarios y asistirá en general para resguardar dichos derechos de propiedad y transferir los mismos al PNUD de acuerdo con los requerimientos de la legislación que fuera aplicable y del Contrato.
2. Sujeto a las disposiciones que anteceden, todo mapa, dibujo, fotografía, mosaico, plano, informe, cálculo, recomendación, documento y toda información compilada o recibida por el Contratista en virtud del presente Contrato será de propiedad del PNUD; y deberá encontrarse a disposición del PNUD para su uso o inspección en momentos y lugares razonables y deberá ser considerada como confidencial y entregada únicamente a funcionarios autorizados del PNUD al concluir los trabajos previstos en virtud del presente Contrato.

12. UTILIZACIÓN DEL NOMBRE, EMBLEMA O SELLO OFICIAL DEL PNUD O DE LAS NACIONES UNIDAS

El Contratista no publicitará o hará pública el hecho de que está prestando servicios para el PNUD, ni utilizará de modo alguno el nombre, emblema o sello oficial del PNUD o de las Naciones



Unidas o abreviatura alguna del nombre del PNUD o de las Naciones Unidas con fines vinculados a su actividad comercial o con cualquier otro fin.

13. NATURALEZA CONFIDENCIAL DE LA DOCUMENTACIÓN E INFORMACIÓN:

La información y los datos que son de propiedad de cualquiera de las Partes y que es entregada o revelada por una de las Partes (“Revelador”) a la otra Parte (“Receptor”) durante el cumplimiento del presente Contrato, y que es designada como confidencial (“Información”), deberá permanecer en confidencia de dicha Parte y ser manejada de la siguiente manera:

13.1 El receptor de dicha información deberá:

13.1.1 llevar a cabo la misma discreción y el mismo cuidado para evitar la revelación, publicación o divulgación de la Información del Revelador, como lo haría con información similar de su propiedad que no desea revelar, publicar o divulgar; y,

13.1.2 utilizar la Información del Revelador únicamente para el propósito para el cual le fue revelada la información.

13.2 En caso de que el Receptor tenga un acuerdo por escrito con las siguientes personas o entidades que requieren que mantenga su información como confidencial de acuerdo al presente Contrato y al Artículo 13, el Receptor podrá revelar la información a:

13.2.2 Los empleados, funcionarios, representantes y agentes del Receptor que tienen necesidad de conocer dicha Información para cumplir con las obligaciones del Contrato, y los empleados, funcionarios, representantes y agentes de cualquier entidad jurídica que el Receptor controla o que se encuentra bajo control compartido, que tienen la necesidad de conocer dicha Información para cumplir con las obligaciones del Contrato, tomando en cuenta que para dichos propósitos se entiende por entidad jurídica controlada como:

13.2.2.1 una entidad corporativa en la cual la Parte es propietaria o controla, ya sea en forma directa o indirecta, más del cincuenta por ciento (50%) de las acciones con derecho a voto; o,

13.2.2.2 cualquier entidad sobre la cual la Parte posee un control de gestión efectivo; o

13.2.2.3 para el PNUD, un Fondo afiliado como UNCDF, UNIFEM y UNV (por sus siglas en inglés).

13.3 El Contratista podrá revelar Información al grado requerido por ley, siempre que se encuentre sujeto y sin excepción alguna a los Privilegios e Inmunidades de las Naciones Unidas. El Contratista notificará al PNUD con suficiente antelación, cualquier solicitud para revelar Información de manera de permitirle al PNUD un tiempo razonable para tomar medidas de protección o cualquier otra acción adecuada previa a dicha revelación.



13.4 El PNUD podrá revelar la Información al grado requerido de conformidad a la Carta de las Naciones Unidas, a las resoluciones o reglamentos de la Asamblea General, o a las normas promulgadas por el Secretario General.

13.5 El Receptor no se encuentra impedido de revelar la Información: obtenida por un tercero sin restricciones; revelada por un Revelador a un tercero sin obligación de confidencialidad; que el Receptor conoce de antemano; o que ha sido desarrollada por el Receptor de manera completamente independiente a cualquier Información que le haya sido revelada.

13.6 Las obligaciones y restricciones de confidencialidad mencionadas se encontrarán vigentes durante la duración del Contrato, incluyendo cualquier extensión del mismo; y, a menos que se disponga de otro modo en el Contrato, permanecerán vigentes una vez rescindido el Contrato.

14. FUERZA MAYOR; OTRAS MODIFICACIONES EN LAS CONDICIONES

14.1 En el caso de cualquier evento de fuerza mayor y tan pronto como sea posible a partir de que el mismo haya tenido lugar, el Contratista comunicará este hecho por escrito con todos los detalles correspondientes al PNUD así como de cualquier cambio que tuviera lugar si el Contratista no pudiera, por este motivo, en todo o en parte, llevar a cabo sus obligaciones ni cumplir con sus responsabilidades bajo el presente Contrato. El Contratista también notificará al PNUD sobre cualquier otra modificación en las condiciones o en la aparición de cualquier acontecimiento que interfiriera o amenazara interferir con la ejecución del presente Contrato. Al recibir la notificación requerida bajo esta Cláusula, el PNUD tomará las acciones que, a su criterio, considere convenientes o necesarias bajo las circunstancias dadas, incluyendo la aprobación de una extensión de tiempo razonable a favor del Contratista para que el mismo pueda desarrollar sus obligaciones bajo el presente Contrato.

14.2 En caso de que el Contratista no pudiera cumplir con las obligaciones contraídas bajo el presente Contrato, ya sea parcialmente o en su totalidad, en razón del evento de fuerza mayor ocurrido, el PNUD tendrá el derecho de suspender o rescindir el presente Contrato en los mismos términos y condiciones previstos en el Artículo 15 "Rescisión", salvo que el período de preaviso será de siete (7) días en lugar de treinta (30) días.

14.3 Fuerza mayor, tal como se la entiende en esta Cláusula, significa actos fortuitos, de guerra (declarada o no) invasión, revolución, insurrección u otros actos de naturaleza o fuerza similar.

14.4 El Contratista reconoce y acuerda que, con respecto a cualquier obligación en virtud del presente Contrato que el mismo deberá desempeñar en o para cualquier área en la cual el PNUD se vea comprometido, o se prepare para comprometerse, o para romper el compromiso con cualquier operación de paz, humanitaria o similar, cualquier demora o incumplimiento de dichas obligaciones que surjan o que se relacionen con condiciones extremas dentro de dichas áreas o



cualquier incidente de disturbio civil que ocurra en dichas áreas, no se considerarán como tal, casos de fuerza mayor, en virtud del presente Contrato.

15. RESCISIÓN

- 15.1 Cualquiera de las partes podrá rescindir el presente Contrato con causa justificada, en su totalidad o parcialmente, notificando a la otra parte por escrito con un preaviso de treinta días. La iniciación de un procedimiento arbitral según la Cláusula 16.2 (“Arbitraje”) que se indica más abajo, no se considerará como rescisión del presente Contrato.
- 15.2 El PNUD se reserva el derecho de rescindir sin causa alguna el presente Contrato, en cualquier momento, notificando por escrito al Contratista con 15 días de anticipación, en cuyo caso el PNUD reembolsará al Contratista todos los gastos razonables en los que éste incurriera con anterioridad a la recepción del aviso de rescisión.
- 15.3 En caso de rescisión por parte del PNUD bajo el presente Artículo, no habrá pago alguno adeudado por el PNUD al Contratista a excepción del que corresponda por trabajos y servicios prestados satisfactoriamente de acuerdo con las cláusulas expresas en el presente Contrato.
- 15.4 En caso de que el Contratista fuera declarado en quiebra o sujeto a liquidación judicial o fuera declarado insolvente, o si el Contratista cediera sus derechos a sus acreedores, o si se nombrara a algún Beneficiario a causa de la insolvencia del Contratista, el PNUD podrá, sin perjuicio de ningún otro derecho o recurso al que pudiera tener lugar, rescindir el presente Contrato en el acto. El Contratista informará inmediatamente al PNUD en caso de que sucediera alguna de las situaciones arriba mencionadas.

16. RESOLUCIÓN DE CONFLICTOS

16.1. Resolución Amigable

Las Partes realizarán todos los esfuerzos posibles para resolver en forma amigable cualquier disputa, controversia o reclamo que surgiese en relación con el presente Contrato o con alguna violación, rescisión o invalidez vinculada al mismo. En caso de que las partes desearan buscar una solución amigable a través de un proceso de conciliación, el mismo tendrá lugar de acuerdo con las Reglas de Conciliación de la CNUDMI (en inglés, UNCITRAL) vigentes en ese momento o conforme a cualquier otro procedimiento que puedan acordar las partes.

16.2. Arbitraje

A menos que las disputas, controversias o reclamos que surgieran entre las Partes con relación a este Contrato, o con el incumplimiento, rescisión o invalidez del mismo, se resolvieran amigablemente de acuerdo con lo estipulado en el párrafo precedente a este Artículo dentro de los sesenta (60) días a partir de la recepción por una de las Partes de la solicitud de la otra Parte de resolución amigable, dicha disputa, controversia o reclamo podrá ser presentada por cualquiera de las Partes para la iniciación de un proceso de arbitraje según el Reglamento de



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Arbitraje de la CNUDMI vigente en ese momento, incluidas sus disposiciones sobre las leyes aplicables. Las decisiones del tribunal arbitral estarán basadas en principios generales de Derecho Comercial Internacional. Para todo interrogatorio en busca de evidencia, el tribunal arbitral deberá guiarse por el Reglamento Suplementario que Governa la Presentación y Recepción de la Evidencia en Arbitraje Comercial Internacional de la Asociación Internacional de Abogados, edición 28 de Mayo de 1983. El tribunal arbitral tendrá el derecho de ordenar la devolución o destrucción de los bienes o de cualquier propiedad, ya sea tangible o intangible, o de cualquier información confidencial brindada en virtud del presente Contrato, u ordenar la rescisión del Contrato, u ordenar que se tome cualquier otra medida preventiva con respecto a los bienes, servicios o cualquier otra propiedad, ya sea tangible o intangible, o de cualquier información confidencial brindada en virtud del presente Contrato, en forma adecuada, y de conformidad con la autoridad del tribunal arbitral según lo dispuesto en el Artículo 26 (“Medidas Provisionales de Protección”) y el Artículo 32 (“Forma y Efecto de la Adjudicación”) del Reglamento de Arbitraje de la CNUDMI. El tribunal arbitral no tendrá autoridad para determinar sanciones punitivas. Asimismo, a menos que se exprese de otro modo en el Contrato, el tribunal arbitral no tendrá autoridad alguna para adjudicar intereses que excedan la tasa LIBOR vigente al momento, y cualquier interés deberá ser interés simple únicamente. Las Partes estarán obligadas por el fallo arbitral resultante del citado proceso de arbitraje a modo de resolución final para toda controversia, reclamo o disputa.

17. PRIVILEGIOS E INMUNIDADES

Nada que estuviere estipulado en el presente Contrato o que con el mismo se relacionare, se considerará como renuncia, expresa o implícita, a los Privilegios e Inmunidades de las Naciones Unidas incluyendo a sus órganos subsidiarios.

18. EXENCIÓN IMPOSITIVA

18.1 El Artículo 7 de la Convención sobre Privilegios e Inmunidades de las Naciones Unidas dispone, entre otras cosas, que las Naciones Unidas, incluidos sus órganos subsidiarios, quedarán exentos del pago de todos los impuestos directos, salvo las tasas por servicios públicos; además se exime a las Naciones Unidas de pagar los derechos aduaneros e impuestos similares en relación con los artículos importados o exportados para uso oficial. Si alguna autoridad de gobierno se negase a reconocer la exención impositiva de las Naciones Unidas en relación con dichos impuestos, derechos o cargos, el Contratista consultará de inmediato al PNUD a fin de determinar un procedimiento que resulte aceptable para ambas partes.

18.2 De igual modo, el Contratista autoriza al PNUD a deducir de la facturación del Contratista cualquier monto en concepto de dichos impuestos, derechos o gravámenes, salvo que el Contratista haya consultado al PNUD antes de abonarlos y que el PNUD, en cada instancia, haya autorizado específicamente al Contratista a pagar dichos impuestos, derechos o gravámenes bajo protesta. En ese caso, el Contratista le entregará al PNUD comprobantes



escritos de que el pago de dichos impuestos, derechos o gravámenes se ha realizado con la debida autorización.

19. TRABAJO DE MENORES

19.1 El Contratista declara y garantiza que ni el mismo ni ninguno de sus proveedores se encuentra involucrado en prácticas que violen los derechos estipulados en la Convención de los Derechos del Niño, incluyendo el Artículo 32 de la misma que, entre otras cosas, requiere que se proteja a los menores de la realización de trabajos riesgosos o que interfieran con la educación del menor o sean dañinos para su salud o atenten contra su desarrollo físico, mental, espiritual, moral o social.

19.2 Cualquier violación de esta declaración y garantía permitirá al PNUD rescindir el presente Contrato en forma inmediata, notificando debidamente al Contratista, sin cargo alguno para el PNUD.

20. MINAS

20.1 El Contratista manifiesta y garantiza que ni el mismo ni sus proveedores se encuentran activa y directamente comprometidos en actividades de patentes, desarrollo, ensamblado, producción, comercialización o fabricación de minas o en actividades que se relacionen con los componentes primariamente utilizados para fabricar las Minas. El término “Minas” se refiere a aquellos dispositivos definidos en el Artículo 2, Párrafos 1, 4 y 5 del Protocolo II, adjunto a la Convención de 1980 sobre Prohibiciones y Restricciones del Empleo de Ciertas Armas Convencionales que Puedan Considerarse Excesivamente Nocivas o De Efectos Indiscriminados.

20.2 Ante cualquier violación de esta manifestación o garantía el PNUD tendrá derecho a rescindir el presente Contrato de inmediato mediante notificación enviada al Contratista, sin que esto implique responsabilidad alguna por los gastos de rescisión o cualquier otra responsabilidad por parte del PNUD.

21. CUMPLIMIENTO DE LA LEY

El Contratista cumplirá con todas las leyes, ordenanzas, reglas y reglamentaciones que se relacionen con sus obligaciones conforme al presente Contrato.

22.0 EXPLOTACIÓN SEXUAL:

22.1 El Contratista deberá tomar todas las medidas necesarias para impedir la explotación o abuso sexual de cualquier persona por parte del mismo o por parte de cualquiera de sus empleados o por cualquier otra persona que pueda ser contratada por el Contratista para prestar



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cualquier servicio en virtud del Contrato. Para dicho propósito, toda actividad sexual con cualquier persona menor de dieciocho años, a pesar de cualesquiera leyes con relación a consentimiento, constituirá la explotación o el abuso sexual de dicha persona. Además, el Contratista se abstendrá de y deberá tomar todas las medidas adecuadas para prohibir a sus empleados u otras personas contratadas por él, el intercambio de dinero, bienes, servicios, ofertas de empleo u otros artículos de valor, por favores sexuales o actividades que sean de explotación o degradación a cualquier persona. El Contratista reconoce y acuerda que las disposiciones del presente constituyen una condición esencial del Contrato y que cualquier incumplimiento de la presente representación y garantía le cede el derecho al PNUD de rescindir el Contrato de inmediato mediante notificación al Contratista, sin obligación alguna de incurrir en gastos de rescisión ni obligaciones de ningún otro tipo.

22.2 El PNUD no aplicará la norma que antecede con relación a la edad en ningún caso en que el personal o cualquier otra persona contratada por el Contratista para prestar cualquier servicio en virtud del presente Contrato se encuentre casado con la persona menor de dieciocho años con quien ha mantenido dicha actividad sexual y cuyo matrimonio sea reconocido como válido ante la ley del país de ciudadanía de dichas personas involucradas.

23. FACULTAD PARA INTRODUCIR MODIFICACIONES

Conforme al Reglamento Financiero del PNUD, únicamente el Funcionario Autorizado del PNUD posee autoridad para acordar en nombre del PNUD cualquier modificación o cambio efectuado en el presente, a renunciar a cualquiera de sus disposiciones o a cualquier relación contractual adicional de cualquier tipo con el Contratista. Del mismo modo, ninguna modificación o cambio efectuado en el presente Contrato tendrá validez y será aplicable frente al PNUD salvo que se incluya en una enmienda al presente Contrato que esté debidamente firmada por el Funcionario Autorizado del PNUD y por el Contratista.

ANEXO IV

Formato P11

ANNEX 2 - DOCUMENTS REVIEWED IN THE MTR

Título del documento
PIF – Formulario de información del proyecto
Documento del Proyecto (PRODOC)*
Marco de Resultados Estratégicos*
Matriz de indicadores por resultado (output)
Project Implementation Reports – PIR 2017
Informes trimestrales de progreso*
Informes financieros y CDR, incluyendo datos sobre cofinanciación y presupuestos
<i>Tracking Tool</i> de Efectividad de Manejo del proyecto
<i>Tracking Tool</i> de Capacidades Institucionales del proyecto
Informes anuales de avance de 2015, 2016 y 2017 *
Planes Operativos Anuales (POA) 2014, 2015, 2016, 2017 y 2018
Minutas y decisiones de la Junta de Proyecto (Comité Directivo)
Minutas de los Comités Ejecutivo, Técnico y Científico
Minuta de reunión (2017) de los socios del proyecto
Informes de Auditoría
Documentos que formalizan la extensión del plazo del proyecto
Estrategia Nacional sobre Especies Invasoras
Estrategia Nacional de la Biodiversidad
Estrategia Nacional para la Conservación y el Desarrollo Sustentable del Territorio Insular Mexicano
Estrategia Mexicana para la Conservación Vegetal
Documento de Programa del País del PNUD para México 2014-2018
Lista Nacional de EEI (2016)
Informes parciales / finales de consultorías concluidas y en proceso
Informes anuales de actividades en las islas 2015, 2016, 2017
SNIEEI, Naturalista
Protocolos de análisis de riesgo e informes / análisis realizados
Informes sobre los talleres de Landcare Research sobre evaluaciones económicas (2015, 2016)
Informes del IMTA sobre el mapeo de plantas acuáticas
Informe final sobre modelación de la distribución actual y futura de 60 EEI de alto riesgo para México
Estudio de ámbito jurídico para el fortalecimiento de las capacidades nacionales para la gestión de EEI
Materiales desarrollados en el proceso de desarrollo de la bioseguridad para peces de ornato, incluso el Plan de Certificación
Fichas de EEI (UAM – CONAFOR), mapas de riesgo para plagas forestales y manejo de fuego
Manual de reforestación con especies nativas (CONAFOR)
Informes sobre la experiencia de monitoreo de 5 puertos/aeropuertos
Propuesta de protocolo de alerta para especies acuícolas (UANL)
Oficios por parte de CONAPESCA y SENASICA referentes a la prohibición de importación y cultivo en México de especies del género <i>Pangasius</i> spp.
Propuesta de instrumentos económicos para financiar el manejo de las EEI
Líneas de base para las ANP continentales
Informes de seguimiento de las actividades de DTRR, control y buenas prácticas en las ANP continentales
Autorizaciones para el control químico en las APFF Islas del Golfo de California y PN Archipiélago de Espíritu Santo
Presentaciones diversas del proyecto preparadas para talleres
Materiales de comunicación sobre el proyecto
Guía de Evaluación del PNUD para Proyectos Financiados por el FMAM
Manual de Planificación, Seguimiento y Evaluación de los Resultados de Desarrollo del PNUD
Guía para la Realización del Examen de Mitad de Periodo en proyectos apoyados por el PNUD y financiados por el GEF
Planning Evaluability Assessments. A synthesis of the literature with recommendations. <i>Report of a study commissioned by the department for international development</i>
DFID (Department for International Development), Assessing the Strength of Evidence: How to Note, 2014

Información disponible en la página web del proyecto está marcada con *

<http://www.biodiversidad.gob.mx/especies/Invasoras/productos-gef.html>

ANNEX 3 – MISSION AGENDA AND ITINERARY

Fechas: 9-27 de abril de 2018

HORA	TEMA	PARTICIPANTES
Lunes 9 de abril de 2018, Sala Xitle - CONABIO		
09:00 – 10:30	Entrevista de PNUD	Gerardo Arroyo, PNUD Ariane Hidalgo, PNUD
10:30 – 13:30	Entrevista de la UCP	Patricia Koleff, Directora Georgia Born-Schmidt, Coordinadora Jordi Parpal, Asistente Rodrigo Mejía, Administración
13:30 – 15:00	Comida	
15:00 – 16:30	Entrevista de la CONABIO	Ana Isabel González, Subcoordinadora EEI
16:30- 18:00	Entrevista de la CONANP Central	Eduardo Rendón
Martes 10 de abril, Sala Geomática - CONABIO		
9:00 – 10:00	Entrevista de la PROFEPA	Francisco Navarrete y Lucio Arturo García
10:00 – 11:00	Entrevista de la CONAFOR (por skype)	Mayra Valdez
11:00 – 12:30	Entrevista de la SEMARNAT	Carlos Álvarez
12:30 – 13:30	Entrevista a FCEA	Teresa Gutiérrez
13:30 – 14:30	Comida	
14:30 – 16:00	Entrevista a CONABIO	Patricia Koleff, Directora
16:30	Traslado al aeropuerto vuelo a Tijuana	
19:50	Vuelo a Tijuana luego en Uber a Ensenada	
Miércoles, 11 de abril – Ensenada – Isla Cedros		
08:00 – 10:00	Reunión / desayuno con GECl en Ensenada	Afonso Alguirre, Federico Mendez, Mariam Latofski, Luciana Luna Mendoza, equipo de GECl
10:30 – 14:00	Traslado al aeropuerto / viaje a Isla Cedros / llegada	
16:00 – 19:30	Presentaciones del trabajo de GECl en San Benito Reunión con la Cooperativa de Pescadores Nacionales de Abulón Entrevistas con Cooperados y miembros de GECl	Federico Mendez, Mariam Latofski, Yuliana Bedolla Guzmán
Jueves, 12 de abril – Isla Cedros		
Mañana	Visita de campo - verificación de cámaras trampa	
En la tarde	Entrevista de GECl	Federico Mendez, Mariam Latofski, Javier Gongora, Yuliana Bedolla Guzmán
En la noche	Entrevista del Director de ANP y guarda parques de CONANP	Mário Alberto Guerrero, Director Isaías Francisco José Francisco Bareño Gutiérrez

Viernes, 13 de abril – Isla Guadalupe		
Mañana	Viaje de Isla Cedros a Isla Guadalupe	
Tarde	Entrevista de la Directora de ANP	Marisol Torres Aguiar
Sábado, 14 de abril – Isla Guadalupe		
Todo el día	Salida de campo: control de gatos, colonias de aves	GECI
En la tarde	Entrevista al equipo de GECI en Isla Guadalupe	Luciana Luna Mendoza Julio Cesar Hernández Montoya
Domingo, 15 de abril – Isla Guadalupe - Ensenada		
Mañana	Salida de campo Isla Guadalupe	Julio Cesar Hernández Montoya
Tarde	Regreso a Ensenada	
18:00 – 19:00	Entrevista CONANP Central	Eduardo Rendón (complementación)
Lunes, 16 de abril, oficina de GECI - Ensenada		
10:30 – 12:00	Entrevista de GECI	Federico Mendez, Mariam Latofski
Tarde	Regreso a CDMX	
Martes, 17 de abril, Sala Geomática - CONABIO		
9:00 – 10:30	Entrevista de UAM/UNAM	Jordan Golubov, Oscar Sandino Guerrero, Sarah Sifuentes de la Torre y María Cristina Ramírez Gutiérrez
10:30 – 12:00	Entrevista de CCC	José Juan Flores y Ricardo Rodríguez Medina
12:00- 13:00	Entrevista de IMTA	Maricela Martinez
13:00-13:30	Entrevista a CESAEM & SENASICA	Iliana Cano y Moises Lopez
13:30-14:00	Entrevista a CONAPESCA	Giovanni Fiore
14:00-15:00	Comida	
15:00	Traslado al aeropuerto, vuelo a Ciudad Obregón / Traslado para Álamos	
Miércoles, 18 de abril - Álamos		
06:00 – 13:30	Salida de campo – control de zacate rosado y pino salado en el Arroyo del Mentidero	Consultor Rogélio Molina Brigada de control de EEI
16:00 – 20:00	Reunión con CONANP APFF Sierra de Álamos Río Cuchujaqui Entrevistas	Elvira Rojero Diaz y equipo Consultor Rogélio Molina
Jueves, 19 de abril - Álamos		
06:00 – 13:30	Salida de campo – control de zacate rosado en la parte alta de la sierra	Consultor Rogélio Molina Brigada de control de EEI
Tarde	Regreso a Ciudad Obregón - CDMX	

Viernes, 20 de abril – Cuernavaca, Morelos		
14:00 – 16:00	Entrevistas INAPESCA	Juan Carlos la Puente Oliver Zarazua Renato Ramírez María Eugenia Lara
18:00 – 20:00	Reunión sobre análisis de riesgo	Jordan Golubov (UAM)
Sábado, 21 de abril, auditorio Viveros INAPESCA CDMX		
13:00 – 14:00	Entrevista de UANL	Roberto Mendoza
Domingo, 22 de abril, CDMX		
	Reunión de las evaluadoras de la EMT	
Noche	Viaje a Tuxtla, Chiapas	
Lunes, 23 de abril, PN Cañón del Sumidero		
09:00 – 13:00	Reunión CONANP ANP PN Cañón del Sumidero	Pedro Hernández, Subdirector ANP Edith Belen Jimenez Díaz, ANP Benjamin Gomez, Brigada de incendios Salvador Lopez, Consultor
15:00 – 18:00	Visita a los mirantes del ANP	
Martes, 24 de abril, PN Cañón del Sumidero		
09:00 – 13:00	Salida de campo – área de control de pasto jaragua en el PN Cañón del Sumidero	Equipo de CONANP Consultor Salvador Lopez
Tarde	Regreso a CDMX	
Miércoles, 25 de abril, CONABIO		
10:00 – 12:00	Reunión sobre protocolos de análisis de riesgo	Ana Isabel González Yolanda Barrios Caballero Silvia de Jesús Zenía Ruiz Silvia R. Ziller
16:00 – 16:30	Entrevista al Comité Científico (por skype)	Michael Ielmini, US Forest Service
Jueves, 26 de abril - Desayuno		
08:00 – 09:30	Entrevista a CONABIO	Patricia Koleff, Directora
10:-00 – 10:30	Entrevista Asesor Técnico Regional - PNUD	Lyes Ferroukhi (ATR) - Panamá Arianne Hidalgo Gerardo Arroyo
Viernes, 27 de abril, CONABIO		
09:00 – 12:00	Presentación de primeros hallazgos	Gerardo Arroyo, PNUD Arianne Hidalgo, PNUD Patricia Koleff, CONABIO Eduardo Rendón, CONANP UCP
13:00	Cierre de la misión	

ANNEX 4 – LIST OF PERSONS INTERVIEWED

NOMBRE	INSTITUCIÓN
Lunes 9 de abril, CONABIO CDMX	
Gerardo Arroyo, PNUD Arianne Hidalgo, PNUD	PNUD
Patricia Koleff, Directora General de Análisis y Prioridades CONABIO Georgia Born-Schmidt, Coordinadora del proyecto FMAM - UCP Jordi Parpal Servole, Asistente UCP Viviana Patricia Reyes Gomez UCP Rodrigo Mejía, Administración UCP	UCP - CONABIO
Ana Isabel González	CONABIO
Eduardo Rendón	CONANP - Oficinas Centrales
Martes 10 de abril, CONABIO CDMX	
Francisco Navarrete y Lucio Arturo García	PROFEPA
Mayra Valdez	CONAFOR
Alejandra Barrios y Carlos Álvarez	SEMARNAT
Teresa Gutierrez, Directora	FCEA
Viernes, 13 de abril, Ensenada, Baja California	
Federico Mendez Mariam Latofski Yuliana Rocío Bedolla Guzmán Javier Alejandro Góngora Salinas	GECI A.C.
Martes, 17 de abril, CONABIO CDMX	
Jordan Golubov	UAM/UNAM
José Juan Flores y Ricardo Rodríguez Medina	CCC
Maricela Martinez	IMTA
Iliana Cano Arellano y Moisés López	CESAEM & SENASICA
Giovanni Fiore Amaral, Subdirector de Ordenamiento Acuícola	CONAPESCA / Comité Ejecutivo
Viernes, 20 de abril, Cuernavaca, Morelos	
Juán Carlos la Puente Landero, Director General Adjunto de Investigación en Acuicultura	INAPESCA
Oliver Zarazua, Coordinador para Peces de Águas Interiores / Proyecto FMAM	INAPESCA
Maria Eugenia Lara, Coordinadora de Proyectos Transversales	INAPESCA
Renato Ramírez, Administración Financiera	INAPESCA
Sábado, 21 de abril, INAPESCA CDMX	
Roberto Mendoza	UANL
Miércoles, 25 de abril, CDMX – por skype	
Michael Ielmini, US Forest Service, National IAS Coordinator	Comité Científico
Jueves, 26 de abril, CDMX – por teléfono	
Lyes Ferroukhi, Asesor Técnico Regional	PNUD Panamá

ÁREAS PROTEGIDAS EN ISLAS

RB ISLAS DEL PACÍFICO DE BAJA CALIFORNIA - ISLA CEDROS	
Instalaciones de la Cooperativa de los Productores Nacionales de Abulón, 11/04/2018	
NOMBRE	INSTITUCIÓN
Mariam Latofski Robles	GECI A.C.
Isaías Benitez Castro	CONANP - RBIPBC
Francisco Javier Correa E.	Comunidad: Productores Nacionales de Abulón
José Luis Viscaíno Martínez	Comunidad: Productores Nacionales de Abulón
José Arce S.	Comunidad: Productores Nacionales de Abulón
Juan I. Vazquez Varela	Comunidad: Productores Nacionales de Abulón
Jorge Castro V.	Comunidad: Productores Nacionales de Abulón
Federico Alfonso Méndez Sánchez	GECI A.C.
Yuliana Rocío Bedolla Guzmán	GECI A.C.
José Francisco Bareño Gutiérrez	CONANP - RBIPBC
Javier Alejandro Gongora Salinas	GECI A.C.
Mario Guerrero Madriles	CONANP - RBIPBC
ISLA GUADALUPE, 14/04/2018	
NOMBRE	INSTITUCIÓN
Luciana Luna Mendoza	GECI A.C.
Julio César Hernández Montoya	GECI A.C.

ÁREAS PROTEGIDAS CONTINENTALES

ÁREA DE PROTECCIÓN DE FLORA Y FAUNA SIERRA DE ÁLAMOS RÍO CUCHUJAQUI	
Ciudad de Álamos, Sonora, 18/04/2018	
NOMBRE	INSTITUCIÓN
Blanca Xóchitl Acosta	CONANP - APFFSARC
Elvira Rojero Díaz, Directora ANP	CONANP - APFFSARC
Ana Hilda Ramírez C.	CONANP - APFFSARC
Juan Ramón Mendoza C.	CONANP - APFFSARC
Rogelio Molina Freaner	AMIGOS DEL CENTRO ECOLOGICO DE SONORA, A.C.
René Rosario Cruz	Brigadista CONANP
José Gerardo G.M.	Brigadista CONANP
José Efrén G. Z.	Brigadista CONANP
Amado Gutiérrez Monroy	Brigadista CONANP
PARQUE NACIONAL CAÑÓN DEL SUMIDERO. Tuxtla Gutiérrez, Chiapas, 23/04/2018	
NOMBRE	INSTITUCIÓN
Salvador López Gutiérrez	AMPFAC
Pedro Javier Hernández Martínez, Jefe Depto.	CONANP - PNCS
Eduardo Rendón Hernández	CONANP - Oficinas centrales
Edith Belén Jiménez Díaz	CONANP - PNCS
Benjamín Entsin Guzmán	Brigadista CONANP
Benjamín G. Gómez	Brigadista CONANP

Entrevistas vía llamada telefónica. Direcciones de ANP – CONANP 30/04/2018 – 04/05/2018	
Celerino Montes, Subdirector	Reserva de la Biosfera El Vizcaino
Sadot Edgardo Ortiz Hernández, Director	Parque Nacional Cumbres de Monterrey
Victor Hugo Vázquez Moran, Director	Reserva de la Biosfera Marismas Nacionales
Jaime Baray Terrazas, Director	Área de Protección de Flora y Fauna Tutuaca
Hugo Enrique González Castillo No se concretó la comunicación	Área de Protección de los Recursos Naturales Valle de Bravo, cuencas de los ríos Valle de Bravo, Malacatepec, Tilostoc y Temascaltepec
Marco Aurelio Pérez Mendoza, Jefe de Departamento	Reserva de la Biosfera Los Tuxtlas
Ángel Omar Ortiz Moreno, Director, y Oscar Guzmán, Subdirector No se concretó la comunicación por teléfono, pero se la logró por correo electrónico	Reserva de la Biosfera Sian Ka'an
Entrevista vía skype. Consultores de ANP – CONANP 09/05/2018	
José Alfredo Mendez, Líderes Socialmente Ambientales – Consultor, control de <i>Ligustrum lucidum</i> y <i>Koelreuteria paniculata</i> – por skype	Parque Nacional Cumbres de Monterrey

ANNEX 5 – SUMMARY OF FIELD VISITS

Del martes 10 al 24 de abril de 2018 se llevó a cabo la misión de campo. Esta misión se realizó con la finalidad de visitar los sitios de intervención del proyecto para evaluar el componente 2, correspondiente a ANPs, visitando tanto ANP insulares (para evaluar componente 2.1) como ANP continentales (componente 2.2). Se visitaron 2 islas (de 3 programadas) y 2 ANP continentales.

La misión permitió realizar entrevistas a los involucrados, incluidas las direcciones de las ANP, coordinadores y actores principales y beneficiarios de cada proyecto en campo, así como una inspección visual para observar directamente las actividades finalizadas y en curso del proyecto y medir su impacto en términos de cumplimiento de resultados. A su vez, tener una idea clara de las limitaciones, problemas y retos, a los que este tipo de proyectos se pueden enfrentar cuando se trabaja en campo y que distan muchas veces de ser lo que se conoce en la literatura.

En todas las visitas de campo participó el equipo de la EMT y se llevaron a cabo en colaboración con personal de la UCP y la Coordinación de EEI de oficinas centrales de la CONANP. Las entrevistas fueron estructuradas de acuerdo a las necesidades identificadas pudiendo realizarse entrevistas semi-estructuradas, discusiones de grupo, cuestionarios (batería de preguntas) y otras técnicas participativas útiles para recopilar y analizar datos, previamente consensuadas con la CONABIO, CONANP, PNUD y UCP.

La misión de campo inició el 10 de abril con la llegada a la Cd. de Tijuana, para de ahí trasladarse a la Cd. de Ensenada, Baja California y realizar la visita a las ANP insulares. El 11 de abril, el equipo de la EMT, UCP y CONANP (equipo visitante), se reunió por la mañana con el equipo de GECl y se revisó con más detalle la agenda para las siguientes subsecuentes.

El primer destino fue visitar la Isla Cedros perteneciente a la RB Islas del Pacífico de la Península de Baja California de la CONANP. Por la tarde, se llevó a cabo una reunión en las instalaciones de la Cooperativa de Pescadores Nacionales de Abulón en I. Cedros en la que participaron los socios del proyecto: GECl AC, representantes de la Cooperativa de Pescadores Nacionales de Abulón, personal del ANP y el equipo visitante. En dicha sesión, GECl presentó avances de los trabajos realizados en I. Cedros (afectada por perros ferales) y San Benito Oeste (en la que se logró la erradicación del ratón casero) y posteriormente hubo una mesa de discusión sobre los resultados del proyecto y la importancia de la participación de todos los socios. Fue interesante escuchar las inquietudes de los socios de la cooperativa, así como ver su motivación para participar en las acciones de restauración insular.

El jueves 12 de abril, se tenía programada la visita a Isla San Benito, para corroborar las acciones de erradicación de roedores, lo que no fue posible por las malas condiciones del clima que impedía la navegación. En su lugar, se realizó la actividad de verificación de cámaras trampa para detección de perros ferales y de venado Bura (*Odocoileus hemionus*) en I. Cedros. Por la tarde se llevaron a cabo entrevistas a personal de GECl AC y del ANP.

Por la mañana del viernes 13 de abril el equipo visitante, junto con GECl y la Directora del ANP viajaron a la RB Isla Guadalupe. Por la tarde se visitó el vivero a cargo de GECl para conocer el programa de restauración con especies nativas en la isla y se llevó a cabo la entrevista con la Directora del ANP.

El sábado 14 se visitaron algunos sitios de intervención del proyecto, en esta actividad se visitó la Punta Sur de la Isla donde se tiene colocado un cerco exclusorio para gatos, para protección de aves marinas en particular mérgulos y albatros de Laysan (áreas sin presencia de gatos). También hubo una demostración en campo de perros entrenados para localizar nidos de aves, así como para detectar rastros de gato feral. Finalmente, se dio una demostración del uso de trampas tipo cebo para la captura de gatos ferales y se llevaron a cabo más entrevistas con personal de GECl.

El domingo 15 de abril se regresó a Ensenada y se dio espacio para continuar con la entrevista al Coordinador de EEI de la CONANP. El lunes 16 de abril fue dedicado a resolver dudas con el equipo de GECl, además que fueron presentados otros videos sobre los proyectos de restauración insular que ejecuta GECl. Por la tarde el equipo visitante regreso a la CDMX.

El martes 17 de abril por la mañana se siguió con el proceso de entrevistas con otros socios del proyecto (Universidades, ONGs, IMTA, CESAEM y SENASICA y CONAPESCA). Por la tarde, el equipo visitante viajó a Cd. Obregón para visitar el APFF Sierra de Álamos Río Cuchujaqui.

El miércoles 18 por la mañana se realizó una visita de campo para conocer el trabajo de control de pino salado y zacate rosado en la región de El Mentidero, Sierra de Álamos. Por la tarde hubo una reunión con los socios-participantes del Proyecto. En dicha reunión se dieron presentaciones sobre las acciones realizadas por parte del ANP y posteriormente por parte del consultor. Posteriormente, se realizaron las entrevistas: al personal del ANP, a la gente de la comunidad que trabaja en las brigadas de control de EEI y finalmente al consultor responsable del proyecto de control de zacate rosado.

El jueves 19 de abril se visitaron otros sitios donde se lleva a cabo el control de zacate rosado, que corresponde a la parte alta de la Sierra y que es donde se presenta el mayor problema de invasión. Durante estas salidas hubo retroalimentación entre los participantes (equipo visitante, brigadas, consultor) sobre diversos métodos de control y sus ventajas y desventajas, así como recomendaciones puntuales para mejorar los resultados de implementación. Por la tarde, el equipo visitante regresó a la CDMX.

Los días viernes 20 y sábado 21 de abril siguió el proceso de entrevistas (INAPESCA y UANL) y la sistematización de información de los hallazgos obtenidos al momento.

El domingo 22 de abril por la noche el equipo visitante viajó a Tuxtla Gutiérrez, Chiapas. El lunes 23 de abril por la mañana iniciaron las actividades en el PN Cañón del Sumidero (PNCS). Se inició con varias presentaciones, una por parte del personal del PNCS sobre las acciones que se realizan en el marco del proyecto GEF-EEI en el ANP y la segunda, sobre los resultados del proyecto para el control del pasto jaragua, por parte del consultor encargado. Posteriormente se llevaron a cabo una serie de entrevistas en privado al: equipo CONANP, gente de las comunidades que participa en las acciones de control de pasto jaragua y al consultor de AMPF A.C. Por la tarde se realizó una visita a los miradores del ANP para conocer la estrategia de señalización sobre especies invasoras del parque y se realizó una revisión de cámaras trampa utilizadas para el monitoreo de perros y gatos ferales.

El martes 24 de abril se visitó el sitio donde se llevó a cabo el control de pasto jaragua en los márgenes del humedal (Recorrido fluvial por el Cañón). A esta salida asistieron el equipo visitante, personal del ANP PNCS y el consultor encargado. Durante estos espacios se aprovechó

para la retroalimentación y discusión de resultados. Por la tarde, el equipo visitante regresó a la CDMX.

El tiempo de la misión fue bien planificado y aprovechado. Las visitas a algunos de los sitios de intervención fueron muy importantes para la comprensión del contexto de la implementación de las acciones realizadas y del grado de involucramiento de instituciones de gobierno, organizaciones y las comunidades. Los directores y personal de las ANP fueron particularmente buenos indicadores del nivel de compromiso logrado en estos sitios. Las horas de viaje entre los distintos sitios fueron útiles para el aporte de más información y aclaraciones por parte del equipo del proyecto, que en mucho contribuyó para la comprensión de detalles. El tiempo planificado para la misión fue suficiente. Los intercambios posteriores a la distancia, a través de correo electrónico y llamadas telefónicas fueron fundamentales para la aclaración de dudas y el intercambio de información y materiales complementarios.

ANNEX 6 - INTERVIEW MATRICES USED AND SUMMARY OF RESULTS

Se ha utilizado como base para las entrevistas dos matrices de preguntas preparadas en la fase inicial de la EMT. La primera se fundamenta en las preguntas de evaluación sugeridas en los TdR. La segunda fue desarrollada más específicamente para las instituciones socias del proyecto. Se presentan abajo esas dos tablas seguidas de un resumen de los resultados. El lenguaje de las preguntas fue adaptado conforme el público.

Leyenda para las columnas: a) Tipo de pregunta: IP – investigación primaria; ER – estudio de revisión secundaria (incluyendo entrevistas); ETC – estudios teóricos o conceptuales; b) Indicador: R – relaciones establecidas; N – nivel de coherencia diseño / implementación; A – actividades realizadas; C – calificación; c) Fuente: D – discusión en grupo; E – entrevista; O – observación directa; M – documentación; R – revisión de texto informe; C – comparación pre-proyecto / ahora; d) Diseño de investigación:) – observacional utilizando la colección de datos cuantitativos y cualitativos; R – revisión de la documentación; C – *cross-checking* por revisión de texto; e) Método de análisis de datos: N – cuantitativo; L – cualitativo; f) Instrumentos de recopilación de datos: F – fichas de documentos; N – notas de discusiones en grupo, entrevistas u observaciones directas; C – correcciones y observaciones en la revisión de textos.

Criteria	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
Relevancia	¿De qué manera el proyecto es relevante en términos de las prioridades y necesidades del país para hacer frente a los posibles impactos derivados de las especies exóticas invasoras?		ER	N – El proyecto está en línea con prioridades nacionales e internacionales	M – Estrategias nacionales, Objetivos del Milenio, Programa de País del PNUD	R – Verificación de alineamiento del proyecto con documentos nacionales e internacionales	L – Comparación entre documentos y objetivos del proyecto	F, N
	¿De qué manera el proyecto o su seguimiento pueden cambiar la realidad de manejo de EEI en México?		IP, ER	A – Evidencias de cambios de visión, inclusión institucional del tema y marcos normativos	E, M (PIRs, METT)	C – Entrevistas cerradas y revisión de documentos del proyecto	L – Comparación entre documentos e información de entrevistas	F, N
	¿Hay algún avance en el acuerdo secretarial entre SAGARPA y SEMARNAT para prohibiciones, restricciones y planes de manejo de EEI?	¿Qué medidas legales se están tomando para facilitar la prevención y el manejo de EEI?		ER	R – Acuerdo establecido	E, M (PIRs; informes anuales y trimestrales)	C – Entrevistas cerradas y revisión de documentos del proyecto	L – Comparación entre documentos e información de entrevistas y de visitas a campo

Criterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
Eficacia	¿En qué medida los componentes del proyecto, así como sus otras características – elección de socios, estructura de la unidad coordinadora, mecanismos de implementación, alcance, presupuesto, procesos administrativos, uso de recursos – permiten el alcance de los objetivos?		IP, ER	A, C – Marco de resultados del proyecto – resultados están siendo alcanzados	E, M (PIRs; METT; informes anuales y trimestrales)	O, R, C (Entrevistas cerradas y revisión de documentos del proyecto)	L, N – Verificación de resultados en documentos y en campo; consideración de calidad y eficiencia	F, N
	¿De qué manera han los actores clave se apropiado del proyecto?	¿Cuáles son los actores clave más relevantes para continuar las actividades iniciadas?	IP	A, C – Los actores clave conocen el proyecto, participan en la implementación y tienen una visión para la sostenibilidad del proyecto	E, O, M (lista de actores clave involucrados – PRODOC y PIRs)	O, R, C (Entrevistas cerradas, observaciones de campo, revisión de documentos del proyecto)	L – Comparación entre documentos e información de entrevistas y visitas a campo	N
	¿Qué factores han contribuido a lograr o no alcanzar los efectos buscados?	¿Cuáles son las dificultades y obstáculos más graves? ¿Cómo se están trabajando?	ER	A, C – Acciones de manejo adaptativo; soluciones para problemas no previstos	E, O, M (actores clave; PIRs y informes del proyecto)	O, R, C (Entrevistas cerradas y revisión de documentos del proyecto)	L – Comparación entre documentos e información de entrevistas y visitas a campo	N
	¿Han sido utilizados como herramientas de gestión el marco de resultados, los planes de trabajo o cualquier cambio realizado a estos?	¿Cuál es el documento más importante?	IP, ER	N, A – Actualización de los documentos del proyecto y otros cambios registrados	E, O, M, C (PIRs y informes del proyecto; consultas a la UCP y al PNUD)	R (Revisión de documentos del proyecto; METT)	L, N – Comparación entre versiones distintas de los documentos, especialmente el Marco de Resultados; análisis de METT	F, N

Crterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
Eficiencia	¿Cómo le parece el desempeño del PNUD como Agencia de Implementación?	¿Han sido eficientes y adecuados los procesos de gobernanza del proyecto o requieren ajustes?	ER	R, N, A – Evidencias de resolución de conflictos y problemas a lo largo del proyecto; manejo adaptativo	E, M (actores clave)	C (Recolección de evidencias por entrevistas y PIRs)	L – Verificación de respuestas a problemas de implementación por entrevistas e informes	N
	¿Los arreglos administrativos consideran y son los adecuados para las características de dispersión geográfica y de heterogeneidad de condiciones que requiere el proyecto?	¿Con qué grado de efectividad?	IP, ER	R, N, A, C – Grado de desarrollo de las actividades previstas en los 15 sitios piloto	E, M (actores clave; PIRs; QPRs)	C (Recolección de evidencias por entrevistas y documentos del proyecto)	L, N – Verificación de progreso en los sitios de intervención	N
	¿Las agencias de gestión del proyecto respondieron adecuadamente a problemas significativos de implementación (en su caso)?	¿Por qué se retrasó el proyecto y se ha extendido hasta 2019?	ER	R, N, A, C – Evidencias de resolución de conflictos y problemas a lo largo del proyecto	E, M (actores clave; PIRs; QPRs)	C (Recolección de evidencias por entrevistas y documentos PIR, informes coordinador, QPRs)	L – Verificación de respuestas a problemas de implementación por entrevistas e informes	F, N
	¿Se ha tenido la participación de los socios (cash & in-kind) como fue prevista? Sino, por qué? y qué medidas se han tomado al respecto?		ER	A – Monto de cofinanciamien-to aportado por los socios	E, M (Informes financieros y de auditorías)	R (Recolección de datos de cofinanciamiento)	N – Comparación entre montos comprometidos y aportados	F, N
	¿Fue adecuada la definición de la CONABIO como agencia ejecutora del proyecto?	¿Han sido eficientes y adecuados los procesos de gobernanza del proyecto o requieren ajustes?	ER	R, N, A, C – Evidencias de resolución de conflictos y problemas a lo largo del proyecto	E, O, M (Documentos: PRODOC, PIR, QPR, otros informes)	O, R (Recolección de evidencias en base a los documentos revisados)	L, N – Comparación de progreso en los productos del marco de resultados; valoración por la escala de calificaciones FMAM	F, N

Crterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
	¿Existen diferencias en el avance a nivel de las 9 ANP continentales y 6 grupos de islas de intervención directa del proyecto?	¿Por qué, y cómo se está trabajando para vencer las dificultades?	IP, ER	R, N, A, C – Grado de desarrollo de las actividades previstas en los 15 sitios piloto	E, O, M (actores clave; PIRs; QPRs)	O, R, C (Recolección de evidencias por entrevistas y documentos – PIR, informes, coordinadora, QPR)	L, N – Verificación de los indicadores del Marco de resultados e de productos	N
	¿Se presupuestó y financió adecuadamente el Plan de MyE durante la ejecución del proyecto?		ER	N, A – Evidencias que el plan de MyE fue seguido y tuvo respuestas adecuadas	E, M (alcance del cofinanciamiento; cambios de manejo adaptativo)	O, R (Evaluación de respuestas y cambios a hallazgos de MyE)	L – Verificación de respuestas a problemas de implementación por entrevistas e informes	N
	¿Se tomaron acciones de seguimiento y / o gestión adaptativa en respuesta a los informes de seguimiento (PIRs)?	¿Cuáles son las más importantes?	ER	A – Indicaciones de necesidad de adaptación	E, O, M (respuestas y cambios a partir de informes, PIR y entrevistas)	R, C (Evaluación de documentos que documentan los cambios (PIR, registro de respuestas)	L – Verificación de respuestas a problemas de implementación por entrevistas e informes	F, N
	¿Qué tan efectivo es el Comité Directivo en seguir los avances del proyecto y mantener el proyecto en marcha?		ER	R, N, A, C - Evidencias de participación y actividad del CD	E, M (Documentos del proyecto)	R (Recolección de evidencias de acción del CD)	L – Verificación de respuestas por entrevistas e informes	F, N
Sostenibilidad	¿Existen riesgos sociales o políticos que puedan poner en peligro la sostenibilidad de los resultados del proyecto?	¿El análisis de riesgo hecho inicialmente fue realista y útil?	ER	A, C - Evidencias de inestabilidad política o financiera	E, M (Documentos del proyecto PIR, QPR)	R, C (Entrevistas cerradas, análisis de documentos)	L - Verificación de respuestas por entrevistas e informes sobre análisis de riesgo	N, F
	¿Que otras instituciones o divisiones dentro de una misma institución (p. ej. Subsecretaría de Planeación y Política Ambiental de la SEMARNAT encargada de la ENCC) considera debe integrarse a este proyecto y por qué?	¿Será viable su integración hasta la fecha de término del proyecto?	ER	R, C - Instituciones involucradas	E, M (Documentos del proyecto PIR, QPR)	R, C (Entrevistas cerradas, análisis de documentos y relatos de cambios)	L - Verificación de involucramiento por entrevistas y documentos	N, F

Criterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
	¿Existen aspectos financieros que puedan poner en riesgo la sostenibilidad de los resultados del proyecto?	¿Se ha instalado un mecanismo para asegurar la sostenibilidad financiera y económica al final del proyecto?	ER	N, A - Evidencias de inestabilidad política o financiera o insuficiente apropiación del proyecto de parte del gobierno	D, M, O (Documentos del proyecto PIR, QPR)	R, C, O (Entrevistas cerradas, análisis de documentos, visitas a AP y relatos de cambios)	L - Comparación entre documentos e información de entrevistas y visitas a campo	N, F
	¿Los marcos jurídicos, las políticas y las estructuras y procesos de gobernabilidad en el que opera el proyecto pueden poner en riesgo la sostenibilidad de las acciones del proyecto?	¿Cuáles marcos normativos han sido publicados para asegurar la sostenibilidad?	ER	N, A - Evidencias de inestabilidad política o financiera o insuficiente apropiación	D, M, O (Documentos del proyecto PIR, QPR)	R, C, O (Entrevistas cerradas, análisis de documentos, visitas a AP y relatos de cambios)	L - Comparación entre documentos e información de entrevistas y visitas a campo	N, F
	¿Existe evidencia de que las instituciones colaboradoras están institucionalizando la gestión de especies exóticas invasoras?	¿Existen instituciones/ personas que empezaron en los Comités (ejecutivo, científico y técnico) y que ya no continúan? ¿Cuáles?	ER	R, N, A - Evidencias de cambios institucionales, marcos regulatorios y prácticas a campo	D, M, O (Productos del proyecto e informes - PIR, QPR)	R, C, O (Entrevistas cerradas, relatos de cambios y documentación)	N, L - Verificación a través de visitas a sitios de intervención; revisión de informes sobre gobernanza	N, F
Impacto	¿Cuáles son los principales logros del proyecto?	¿Si el proyecto no existiera, cómo se estaría implementando la Estrategia Nacional?	IP, ER	N, A, C - Evidencias de cambios positivos de visión, actitud y resultados de marco de resultados	E, O, M (Marco de resultados)	O, R, C (Comparación de indicaciones de entrevistas con resultados esperados del proyecto y lecciones recolectadas)	N, L - Verificación a través de visitas a sitios de intervención y productos del proyecto	N, F

Criterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
	¿Cuáles han sido las principales limitaciones del proyecto?		IP, ER	N, A, C - Dificultades encontradas y cómo afectan los resultados y la sostenibilidad del proyecto	D, E, O, M (Marco de resultados)	O, R, C (Comparación de informaciones de entrevistas con resultados esperados del proyecto y lecciones recolectadas)	N, L Verificación a través de visitas a sitios de intervención y productos del proyecto	N, F
	¿El proyecto tuvo impactos positivos o negativos en las poblaciones locales y en los medios de vida hasta la fecha?	¿De qué manera?	IP, ER	R, N, A - Evidencias de cambios en la visión y cambios efectivos en los sitios de intervención	E, O (Visitas a sitios de intervención)	O, C (Documentación de cambios)	N, L Verificación a través de visitas a sitios de intervención e informes del proyecto	N, F
Cobertura y targeting	¿Cuáles procesos han requerido de la implementación un enfoque participativo?	¿Fue adecuada la estrategia implementada? ¿Qué resultados se lograron?	IP, ER	N, A - Lista de participantes de actividades del proyecto	E, O, M (Documentos del proyecto)	O, R, C (Comparación de informaciones de entrevistas con informes del proyecto y visitas a campo)	N, L Verificación a través de visitas a sitios de intervención e informes del proyecto	N, F
	¿Se están llevando a cabo acciones de prevención, control y erradicación en zonas de influencia de las ANP?	¿En qué actividades productivas o áreas privadas?	IP, ER	A - Evidencias de actividades en desarrollo	E, O, M (Observación de campo, productos del proyecto)	O, R, C (Revisión de informaciones en productos del proyecto, visitas a campo)	L Verificación a través de visitas a sitios de intervención y productos del proyecto	N, F

Crterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
Participación	¿Ha habido resistencia en el cumplimiento del acuerdo secretarial del listado de EEI o se han visto resultados positivos? ¿En qué sectores?		ER	N, A - Evidencias de cambios positivos en el manejo de EEI.	E, M (Informes del proyecto, METT, lista de marcos legales publicados)	R, C (Comparación de informaciones de entrevistas con resultados esperados del proyecto)	L - Verificación de documentos y marcos normativos publicados	N, F
	En general para los actores involucrados incluidas comunidades y personal operativo de ANP e Islas, ¿que proporción de mandos altos, medios y personal operativo, así como comunidades son hombres y cuantas mujeres?		IP, ER	R, A - Porcentaje de hombres y mujeres involucrados y beneficiados por el proyecto	D, E, O, M (Participantes en talleres, ejerciendo funciones en el proyecto e involucrados en actividades)	O, R, C (Verificación de porcentaje en informes de talleres y actividades; visitas a sitios de intervención)	N, L - Verificación a través de visitas a sitios de intervención e informes del proyecto	N, F
Escala y ampliación	¿Existen estrategias y experiencias desarrolladas por el proyecto que tengan potencial de replicación?	¿Cuáles, y para qué sitios o ámbito?	IP, ER	A - Recopilación de experiencias replicables	E, O, M (Metodologías consolidadas y registradas)	O, R, C (Verificación de documentación y de eficiencia)	L - Revisión de documentos y visitas a campo	N, F
	¿Qué prácticas de sistematización de experiencias se están llevando a cabo?	¿Cómo se pretende divulgar esas prácticas?	ER	A - Evidencias de experiencias recopiladas	E, M (Experiencias consolidadas y registradas)	R, C (Verificación de documentación y aplicación práctica)	L - Revisión de documentos y visita a campo	N, F
	¿Se tuvieron en cuenta otros proyectos regionales y sus lecciones aprendidas?		ER	A - Evidencias de proyectos considerados	E, M (Lista de proyectos considerados)	R, C (Verificación de documentación y aplicación práctica)	L - Revisión de documentos y visitas a campo	N, F
Cooperación Sur-Sur	¿Qué otros proyectos con financiamiento nacional y/o internacional se están ejecutando en los mismos territorios y cómo se vinculan con este proyecto?		ER	R, A - Evidencias de proyectos considerados	E, M (Lista de proyectos considerados)	R, C (Verificación de documentación y aplicación práctica)	L - Revisión de documentos y visitas a campo	N, F

Criterios	Preguntas	Subpreguntas	Tipo de pregunta	Indicador	Fuente	Diseño de investigación	Métodos de análisis de datos	Instrumentos de recopilación de datos
	¿Se tuvieron en cuenta otros proyectos regionales y sus lecciones aprendidas?		ER	R, A - Evidencias de proyectos considerados	E, M (Lista de proyectos considerados)	R, C (Verificación de documentación y aplicación práctica)	L - Revisión de documentos y visitas a campo	N, F

PREGUNTAS COMPLEMENTARIAS DIRECCIONADAS A LOS SOCIOS DEL PROYECTO

Pregunta n.	Instituciones / personas	Criterios	Preguntas	Subpreguntas
1	PNUD, CONABIO, CONANP, Asesor Técnico Regional PNUD	Relevancia	¿De qué manera el proyecto es relevante en términos de las prioridades y necesidades del país para hacer frente a los posibles impactos derivados de las especies exóticas invasoras?	
2	PNUD, CONABIO, CONANP, GECI, UCP PROFEPA		¿De qué manera el proyecto o su seguimiento pueden cambiar la realidad de manejo de EEI en México?	
3	PNUD, UCP, CONABIO, SEMARNAT		¿Hay algún avance en el acuerdo secretarial entre SAGARPA y SEMARNAT para prohibiciones, restricciones y planes de manejo de EEI?	¿Qué medidas legales se están tomando para facilitar la prevención y el manejo de EEI?
4	CONANP, GECI, CONAFOR, PROFEPA INAPESCA, CONAPESCA, IMTA, CESAEM, Universidades	Eficacia	¿En qué medida los componentes del proyecto, así como sus otras características -- elección de socios, estructura de la unidad coordinadora, mecanismos de implementación, alcance, presupuesto, procesos administrativos, uso de recursos – permiten el alcance de los objetivos?	
5	UCP, PNUD, CONABIO, CONANP, GECI, Universidades, PROFEPA, CONAFOR, SEMARNAT		¿De qué manera los actores clave se han apropiado del proyecto?	¿Cuáles son los actores clave más relevantes para continuar las actividades iniciadas?
6	Todos		¿Qué factores han contribuido a lograr o no alcanzar los efectos buscados?	¿Cuáles son las dificultades y obstáculos más graves? ¿Cómo se están trabajando?
7	UCP, PNUD, CONABIO, CONANP, GECI		¿Han sido utilizados como herramientas de gestión el marco lógico, los planes de trabajo o cualquier cambio realizado a estos?	¿Cuál es el documento más importante?
8	UCP, CONABIO	Eficiencia	¿Cómo le parece el desempeño del PNUD como Agencia de Implementación?	¿Han sido eficientes y adecuados los procesos de gobernanza del proyecto o requieren ajustes?
9	PNUD, CONABIO, UCP		¿Los arreglos administrativos consideran y son los adecuados para las características de dispersión geográfica y de heterogeneidad de condiciones que requiere el proyecto?	¿Con qué grado de efectividad?

10	CONANP, GECI, CONAFOR, INAPESCA, CONAPESCA, IMTA, CESAEM, PROFEPA, SENASICA, SEMARNAT Universidades		¿Las agencias de gestión del proyecto respondieron adecuadamente a problemas significativos de implementación (en su caso)?	¿Por qué se retrasó el proyecto y se ha extendido hasta 2019?
11	PNUD, CONABIO, UCP		¿Se ha tenido la participación de los socios (cash & in-kind) como fue prevista? Sino, por qué? y qué medidas se han tomado al respecto?	
12	PNUD		¿Fue adecuada la definición de la CONABIO como agencia ejecutora del proyecto?	¿Han sido eficientes y adecuados los procesos de gobernanza del proyecto o requieren ajustes?
13	UCP, CONABIO, CONANP, GECI		¿Existen diferencias en el avance a nivel de las 9 ANP continentales y 6 grupos de islas de intervención directa del proyecto?	¿Por qué, y cómo se está trabajando para vencer las dificultades?
14	PNUD, CONABIO, UCP		¿Se presupuestó y financió adecuadamente el Plan de MyE durante la ejecución del proyecto?	
15	PNUD, CONABIO, UCP		¿Se tomaron acciones de seguimiento y / o gestión adaptativa en respuesta a los informes de seguimiento (PIRs)?	¿Cuáles son las más importantes?
16	PNUD, CONABIO, UCP		¿Qué tan efectivo es el Comité Directivo en seguir los avances del proyecto y mantener el proyecto en marcha?	
17	Todos	Sostenibilidad	¿Existen riesgos sociales o políticos que puedan poner en peligro la sostenibilidad de los resultados del proyecto?	¿El análisis de riesgo hecho inicialmente fue realista y útil?
18	UCP, CONABIO, CONANP, GECI		¿Que otras instituciones o divisiones dentro de una misma institución (p. ej. Subsecretaría de Planeación y Política Ambiental de la SEMARNAT encargada de la ENCC) considera debe integrarse a este proyecto y por qué?	¿Será viable su integración hasta la fecha de término del proyecto?
19	Todos		¿Existen aspectos financieros que puedan poner en riesgo la sostenibilidad de los resultados del proyecto?	¿Se ha instalado un mecanismo para asegurar la sostenibilidad financiera y económica al final del proyecto?
20	Todos		¿Los marcos jurídicos, las políticas y las estructuras y procesos de gobernabilidad en el que opera el proyecto pueden poner en riesgo la sostenibilidad de las acciones del proyecto?	¿Cuáles marcos normativos han sido publicados para asegurar la sostenibilidad de las acciones del proyecto?
21	UCP, CONABIO, CONANP, GECI		¿Existe evidencia de que las instituciones colaboradoras están institucionalizando la gestión de especies exóticas invasoras?	¿Existen instituciones/ personas que empezaron en los Comités (ejecutivo, científico y técnico) y que ya no continúan?

				¿Cuáles?
22	Todos	Impacto	¿Cuáles son los principales logros del proyecto?	¿Si el proyecto no existiera, cómo se estaría implementando la Estrategia Nacional?
23	Todos		¿Cuáles han sido las principales limitaciones del proyecto?	
24	GECI, CONANP, UCP, CONABIO, PNUD, PROFEPA, CESAEM		¿El proyecto tuvo impactos positivos o negativos en las poblaciones locales y en los medios de vida hasta la fecha?	¿De qué manera?
25	UCP, CONABIO, CONANP, GECI	Cobertura y targeting	¿Cuáles procesos han requerido de la implementación un enfoque participativo?	¿Fue adecuada la estrategia implementada? ¿Qué resultados se lograron?
26	UCP, CONANP, GECI		¿Se están llevando a cabo acciones de prevención, control y erradicación en zonas de influencia de las ANP?	¿En qué actividades productivas o áreas privadas?
27	PNUD, CONABIO, CONANP, GECI, UCP, SENASICA, INAPESCA, CONAPESCA, SEMARNAT, PROFEPA, CONAFOR,	Participación	¿Ha habido resistencia en el cumplimiento del acuerdo secretarial del listado de EEI o se han visto resultados positivos? ¿En qué sectores?	Las instituciones y sus áreas conocen la existencia de este acuerdo secretarial?
28	UCP, TODOS		En general para los actores involucrados incluidas comunidades y personal operativo de ANP e Islas, ¿que proporción de mandos altos, medios y personal operativo, así como comunidades son hombres y cuantas mujeres?	
29	PNUD, CONABIO, CONANP, GECI, UCP, PROFEPA, CESAEM, CONAFOR, universidades	Escala y ampliación	¿Existen estrategias y experiencias desarrolladas por el proyecto que tengan potencial de replicación?	¿Cuáles, y para qué sitios o ámbito?
30	UCP		¿Qué prácticas de sistematización de experiencias se están llevando a cabo?	¿Cómo se pretende divulgar esas prácticas?
31	PNUD, CONABIO, UCP		¿Se tuvieron en cuenta otros proyectos regionales y sus lecciones aprendidas?	
32	PNUD, CONABIO, UCP, CONANP	Cooperación Sur-Sur	¿Qué otros proyectos con financiamiento nacional y/o internacional se están ejecutando en los mismos territorios y cómo se vinculan con este proyecto?	
33	PNUD, CONABIO, UCP, CONANP		¿Se tuvieron en cuenta otros proyectos regionales y sus lecciones aprendidas?	

RESUMEN DE RESULTADOS DE LA APLICACIÓN DE LOS CUESTIONARIOS

Diseño del proyecto

El diseño del proyecto ha sido deficitario en la elaboración de indicadores de progreso y de resultado consistentes y coherentes con las 36 actividades comprometidas. El contexto político de apoyo al sector ambiental ha cambiado fuertemente desde la fase de diseño, dificultando la implementación de algunas actividades especialmente dependientes de apoyo político. Por la amplitud de inclusión de instituciones de distintas áreas, incluso los sectores productivos, ONGs y la academia, se considera que el proyecto fue bien elaborado, aunque algunas de las actividades son demasiado optimistas, en especial la perspectiva de cambiar leyes nacionales. La principal deficiencia está en que los indicadores no son suficientes y ni siempre adecuados para permitir un seguimiento adecuado de todas las actividades. El Plan de Monitoreo y Evaluación fue presupuestado adecuadamente.

Relevancia

El proyecto es considerado altamente relevante por los actores involucrados, que en su mayoría consideran el tema de las EEI nuevo e importante. Las capacitaciones ofrecidas por el proyecto, así como las herramientas de gestión y materiales técnicos y de difusión elaborados son referencia que no había anteriormente, en especial para aplicación práctica en el manejo de áreas naturales. Además, está alineado con los principales marcos nacionales e internacionales de biodiversidad y por incluir, por primera vez en el país, públicos muy diversos en el ámbito nacional, así como por equipar a las instituciones asociadas al tema con herramientas, modelos, guías e información para la gestión de las EEI.

Eficacia

Las partes involucradas consideran de mucha utilidad los productos y herramientas desarrollados y en proceso de elaboración y es muy reconocido el valor de las capacitaciones sobre el tema de las EEI. El involucramiento activo de los sectores productivos es estratégico. Hubo dificultades en cuanto a recortes presupuestarios del gobierno federal y falta de profesionales cualificados para muchas de las tareas asumidas, pero el proyecto ha sido satisfactoriamente eficaz en la implementación y los compromisos más relevantes en términos de recursos de cofinanciamiento han sido respetados. La gestión financiera del proyecto ha sido impecable, así como la capacidad de cumplir los planes operativos.

Eficiencia

De manera general, se ha cumplido con los planes de trabajo y con la implementación de las actividades de manera eficiente. El costo administrativo del proyecto es de solo 8%, lo que asegura que los recursos sean destinados al cumplimiento de los objetivos. En las auditorías realizadas no hubo cualquier comentario, lo que es un hecho respetable de la gestión financiera. Las instituciones socias no tenían organizados los valores de cofinanciamiento aportados. Las actividades referentes al manejo de plantas invasoras han hecho reducir la eficiencia, lo que se justifica por la falta de profesionales habilitados para la tarea y por falta de conocimiento de parte de los tomadores de decisiones en las ANP.

Sostenibilidad

Marco institucional y gobernanza: Desde el cambio de gobierno nacional en 2015 ha disminuido el apoyo al sector ambiental y sectores vinculados. Los socios del proyecto consideran que es esencial que la UCP busque renovar y extender la coordinación interinstitucional alcanzada por el proyecto. Se deberá planificar con prioridad la presentación e integración de los conceptos y actividades iniciadas por el proyecto en la agenda del nuevo gobierno y, si posible, organizar talleres de integración y capacitación para el personal que venga a sustituir los que están comprometidos con el tema de EEI en este momento. Para lograr renovar los compromisos con nuevos actores se ve muy favorable la extensión de plazo del proyecto hasta fines de 2019.

Recursos financieros: las personas entrevistadas han expresado dudas sobre la capacidad de las instituciones de gobierno de sostener las actividades iniciadas, por falta de recursos. No se sabe qué gobierno será instaurado por las nuevas elecciones, ni tampoco qué apoyo y presupuesto será destinado a esas instituciones y a las ANP. Aun así, muchos son optimistas y creen que se logrará sostener muchas de las actividades una vez que tienen conocimiento, han sido capacitados y algunas instituciones han sido equipadas para seguir trabajando.

Socioeconómica: Porque se ha alcanzado una diversidad importante de públicos y actores por diversos medios, desde funcionarios de las ANP, comunidades, periodistas, legisladores, aficionados de plantas ornamentales, maestros y niños en escuelas, además de una variedad de materiales de difusión, se ve como positiva la perspectiva de sostenibilidad en términos sociales. El diálogo fue abierto con inúmeras partes que antes no conocían o no trabajaban en el tema, lo que tiende a ser replicado y continuado.

Ambiental: De manera general, se ve que la sostenibilidad ambiental depende de la continuidad de las acciones iniciadas y que su replicación a otras áreas naturales es altamente deseable. El trabajo de erradicación de vertebrados terrestres en las islas tiene la más alta probabilidad de sostenibilidad, especialmente con la consolidación de los protocolos de bioseguridad para las islas, lo que debe ser prioridad en el tiempo de implementación que queda al proyecto. Asimismo, la consolidación de las medidas de prevención, DTRR, erradicación y control en las ANP continentales, utilizando métodos eficientes, es clave para mejorar las perspectivas ambientales. Se ha comentado sobre la relevancia de la coordinación interinstitucional para lograr sostener esas acciones y ampliarlas.

Impacto

El objetivo del proyecto es salvaguardar la biodiversidad de importancia global en ecosistemas vulnerables, mediante la creación de capacidades para prevenir, detectar, controlar y manejar las EEI en México. Se ha logrado erradicar vertebrados exóticos invasores en islas y permitido la repoblación por especies nativas, así como promover la producción de especies nativas como alternativas a exóticas. Esos logros son iniciales, resultado de tres años de trabajo, pero con más tiempo se podrá medir otros cambios. Sin embargo, el aumento de las capacidades nacionales es notable, especialmente por haberse logrado la integración de instituciones ambientales con aquellas del sector agropecuario, así como con los propios sectores, para desarrollar buenas prácticas que tengan en cuenta la conservación de la diversidad biológica. La apertura de diálogo aliada a todas las capacitaciones realizadas y al involucramiento de la sociedad en el diálogo sobre las EEI y la conservación, así como la publicación de una Lista Nacional de referencia, son impactos considerables.

Cobertura y targeting

El proyecto ha establecido intervenciones de manejo de las EEI en 15 ANP, de las cuales seis son islas. Esa cobertura es importante por incluir distintos tipos de ecosistemas, así como de ANP (Reservas de Biósfera, Parques Nacionales, Áreas de Protección de Flora y Fauna, xxx).

Participación

La participación de las instituciones es desigual, lo que se considera normal para un proyecto de esta amplitud y número de socios. Se ha remarcado que la SEMARNAT necesita estar más involucrada, así como más capacitada para ejercer su rol de implementación de la Estrategia Nacional sobre EEI. Las instituciones ambientales clave participan fuertemente en el proyecto, así como las agencias vinculadas a los sectores productivos y a inspecciones de puntos de ingreso, lo que es un logro importante. Se reconoce la mejora en la coordinación institucional a partir de los esfuerzos del proyecto, así como las oportunidades creadas para la participación de representantes de las comunidades cercanas o viviendo en las ANP en los subconsejos formados para apoyar el manejo de las EEI.

Escala y ampliación

Buena parte de las herramientas y sistemas generados, una vez consolidados y aplicados en la práctica, serán modelos para la replicación a otras áreas y a otros proyectos. En esos tres años de implementación se ha producido un caudal importante de información de base técnica, herramientas para la gestión ambiental, protocolos de prevención y DTRR y guías de buenas prácticas. Para lograr consolidarlos, es fundamental que en el tiempo que queda de la implementación la UCP e instituciones socias enfoquen en la aplicación práctica y la consolidación de esos modelos y herramientas, incluso con la aplicación de simulacros para DTRR y la calificación de las técnicas de control de plantas invasoras.

Cooperación sur-sur

El proyecto ha establecido cooperación con otros proyectos del FMAM – PNUD desde su fase de diseño. Durante la implementación se ha aprovechado lecciones de otros proyectos, así como servido de guía sobre el desarrollo de bases de datos de EEI para el proyecto GEF desarrollado en Cuba sobre las EEI. Es importante que el PNUD promueva reuniones de intercambio de experiencias entre las UCP de los diversos proyectos del FMAM en implementación, especialmente entre áreas afines, así como haga la difusión de los resultados y de las lecciones aprendidas.

ANEXO 7 TRACKING TOOLS



Tracking Tool for Biodiversity Projects in GEF-3, GEF-4, and GEF-5

Objective 2: Mainstreaming Biodiversity Conservation in Production Landscapes/Seascapes and Sectors

Objective: To measure progress in achieving the impacts and outcomes established at the portfolio level under the biodiversity focal area.
Rationale: Project data from the GEF-3, GEF-4, and GEF-5 project cohort will be aggregated for analysis of directional trends and patterns at a portfolio-wide level to inform the development of future GEF strategies and to report to GEF Council on portfolio-level performance in the biodiversity focal area.
Structure of Tracking Tool: Each tracking tool requests background and coverage information on the project and specific information required to track portfolio level indicators in the GEF-3, GEF-4, and GEF-5 strategy.
Guidance in Applying GEF Tracking Tools: GEF tracking tools are applied three times: at CEO endorsement, at project mid-term, and at
Important: Please read the Guidelines posted on the GEF website before entering your data

I. General Data	Please indicate your answer here	Notes
Project Title	Enhancing National Capacities to manage Invasive Alien Species (IAS) by implementing the National Strategy on IAS	
GEF Project ID	89333	
Agency Project ID	4714	
Implementing Agency	UNDP	
Project Type	FSP	
Country	Mexico	
Region	LCR	
Date of submission of the tracking tool	01/11/13	
Name of reviewers completing tracking tool and completion date	Georgia Born Schmidt 10/31/2013	
Planned project duration	4	
Actual project duration	0	
Lead Project Executing Agency (ies)	National Commission for Knowledge and Use of Biodiversity (CONABIO)	
Date of Council/CEO Approval	17-Feb-12	
GEF Grant (US\$)	5,354,545	
Cofinancing expected (US\$)	26,133,760	
Please identify production sectors and/or ecosystem services directly targeted by project:		
Agriculture	2	1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Fisheries	1	1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Forestry	1	1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Tourism	2	1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Mining		1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Oil		1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Transportation		1: Primarily and directly targeted by the project 2: Secondary or incidentally affected by the project
Other (please specify)	Wildlife Trade (1)	

II. Project Landscape/Seascape Coverage

1. What is the extent (in hectares) of the landscape or seascape where the project will directly or indirectly contribute to biodiversity conservation or sustainable use of its components? An example is provided in the table below.

Foreseen at project start (to be completed at CEO approval or endorsement)		
Landscape/seascape ^[1] area <u>directly</u> ^[2] covered by the project (ha)	412861769	This is the total area of the 6 island and 9 mainland PA sites targeted by the project; since these sites will benefit from overall IAS management, the entire area of all of the sites has been included.
Landscape/seascape area indirectly ^[3] covered by the project (ha)	n/a	
Explanation for indirect coverage numbers:	n/a	Please indicate reasons
Actual at mid-term		
Landscape/seascape ^[1] area <u>directly</u> ^[2] covered by the project (ha)	412861769	
Landscape/seascape area indirectly ^[3] covered by the project (ha)	412621598	
Explanation for indirect coverage numbers:		Please indicate reasons
Actual at project closure		
Landscape/seascape ^[1] area <u>directly</u> ^[2] covered by the project (ha)	412411020	
Landscape/seascape area indirectly ^[3] covered by the project (ha)		
Explanation for indirect coverage numbers:		Please indicate reasons
[1] For projects working in seascapes (large marine ecosystems, fisheries etc.) please provide coverage figures and include explanatory text as necessary if reporting in hectares is not applicable or feasible.		
[2] Direct coverage refers to the area that is targeted by the project's site intervention. For example, a project may be mainstreaming biodiversity into floodplain management in a pilot area of 1,000 hectares that is part of a much larger floodplain of 10,000 hectares.		
[3] Using the example in footnote 2 above, the same project may, for example, "indirectly" cover or influence the remaining 9,000 hectares of the floodplain through promoting learning exchanges and training at the project site as part of an awareness raising and capacity building strategy for the rest of the floodplain. Please explain the basis for extrapolation of indirect coverage when completing this part of the table.		

2. Are there Protected Areas within the landscape/seascape covered by the project? If so, names these PAs, their IUCN or national PA category, and their extent in hectares

Name of Protected Areas	IUCN and/or national category of PA	Extent in hectares of PA
Isla Guadalupe	Biosphere Reserve	24171
Archipiélago San Benito	Important Bird Area	554
Isla Espíritu Santo	Flora and Fauna Protected Area	71991
Isla Socorro	Biosphere Reserve	131033
Arrecife Alacranes	National Park	65
Banco Chinchorro	Biosphere Reserve	606
Sierra de Álamos - Río Cuchujaqui	Flora and Fauna Protected Area	921890
Tutuaca	Flora and Fauna Protected Area	4441489
Valle de Bravo	Natural Resources Protected Area	1391871
Cañón del Sumidero	National Park	211789
Cumbres de Monterrey	National Park	1771396
El Vizcaíno	Biosphere Reserve	215461790
Los Tuxtlas	Biosphere Reserve	1551122
Marismas Nacionales	Biosphere Reserve	1331854
Sian Ka'an	Biosphere Reserve	5281148

3. Within the landscape/seascape covered by the project, is the project implementing payment for environmental service schemes? If so, please complete the table below. Example is provided.

Foreseen at project start (to be completed at CEO approval or endorsement)	n/a	Please Indicate Environmental Service
	n/a	Extent in hectares
	n/a	Payments generated (US\$)/ha/yr
Actual at mid-term	n/a	Please Indicate Environmental Service
	n/a	Extent in hectares
	n/a	Payments generated (US\$)/ha/yr
Actual at project closure	n/a	Please Indicate Environmental Service
	n/a	Extent in hectares
	n/a	Payments generated (US\$)/ha/yr

Part III. Management Practices Applied

4. Within the scope and objectives of the project, please identify in the table below the management practices employed by project beneficiaries that integrate biodiversity considerations and the area of coverage of these management practices. Please also note if a certification system is being applied and identify the certification system being used. Note: this could range from farmers applying organic agricultural practices, forest management agencies managing forests per Forest Stewardship Council (FSC) guidelines or other forest certification schemes, artisanal fisherfolk practicing sustainable fisheries management, or industries satisfying other similar agreed international standards, etc.

Foreseen at project start (to be completed at CEO approval or endorsement)	<p>1) At Island sites, transport, tourism and fishing sectors will adopt new IAS protocols (biosecurity inspections; early detection and rapid response - EDRR) that reduce the risk of IAS entry and spread; 2) at mainland PA sites, controls and biosecurity for oyster production; EDRR and controls on trade in non-native birds; controls and biosecurity / EDRR for aquaculture with non-native species; replacement of non-native species with native species in aquaculture operations; controls on planting of non-native grasses for animal forage; controls on livestock grazing; replacement of non-native tree species with native tree species in reforestation activities.</p> <p>The targets for management practices will be further defined in the first two years of project implementation.</p>	Please indicate specific management practices that integrate BD
	N/A	Name of certification system being used (insert NA if no certification system is being applied)
	1407461	Area of coverage (hectares)
Actual at mid-term	<p>1) At Island sites: stakeholders in transport, tourism and fishing sectors are involved in developing and implementing IAS biosecurity protocols (biosecurity inspections; early detection and rapid response - EDRR) that reduce the risk of IAS entry and spread; 2) at mainland PA sites, study whether controls and biosecurity for oyster production is necessary; EDRR for aquaculture (ICS system) with non-native species; replacement of non-native species with native species in aquaculture operations (Sian Kaan Tenguayaca instead of Tilapia); controls on planting of non-native grasses for animal forage not yet started; controls on livestock grazing (RB Marismas Nacionales, Valle de Bravo y Vizcaino all in progress); replacement of non-native tree species with native tree species in reforestation activities (in progress at pilot site).</p>	Please indicate specific management practices that integrate BD
	N/A	Name of certification system being used (insert NA if no certification system is being applied)
	N/A	Area of coverage
Actual at project closure		Please indicate specific management practices that integrate BD
		Name of certification system being used (insert NA if no certification system is being applied)
		Area of coverage

Part IV. Market Transformation

5. For those projects that have identified market transformation as a project objective, please describe the project's ability to integrate biodiversity considerations into the mainstream economy by measuring the market changes to which the project contributed. The sectors and subsectors and measures of impact in the table below are illustrative examples, only. Please complete per the objectives and specifics of the project.

Foreseen at project start		
		Unit of measure of market impact
Name of the market that the project seeks to affect (sector and sub-sector)	<i>E.g., Sustainable agriculture (Fruit production: apples)</i>	<i>E.g., US\$ of sales of certified apple products / year</i>
	<i>E.g., Sustainable forestry (timber processing)</i>	<i>E.g., cubic meters of sustainably produced wood processed per year</i>
	n/a	
Name of the market that the project seeks to affect (sector and sub-sector)		
Actual at mid-term		
Name of the market that the project seeks to affect (sector and sub-sector)		
Actual at project closure		
Name of the market that the project seeks to affect (sector and sub-sector)		

Part V. Policy and Regulatory frameworks

6. For those projects that have identified addressing policy, legislation, regulations, and their implementation as project objectives, Please complete these tables for each sector that is a primary or a secondary focus of the project. Please answer (1 for YES or 0 for NO) to each statement under the sectors that are a focus of the project.

Biodiversity considerations are mentioned in sector policy

Commitment adopted during the COP 13 in 2016 related to mainstreaming Conservation and sustainable use of Biodiversity in agriculture, fisheries, forestry and tourism sectors. Based on this commitment, SEMARNAT and SAGARPA signed an agreement to collaborate to preserve forests and strengthen food sustainability in the country and a Center for Integration of Biodiversity in the agricultural sector was created.

Agriculture	1	Yes = 1, No = 0
Fisheries	1	Yes = 1, No = 0
Forestry	1	Yes = 1, No = 0
Tourism	1	Yes = 1, No = 0
Other (Wildlife)	1	Yes = 1, No = 0

Biodiversity considerations are mentioned in sector policy through specific legislation

For agriculture, the phytosanitary laws do not mention biodiversity but the Ley de Desarrollo Rural Sustentable does. Biodiversity and ecosystems are mentioned briefly in laws for fisheries and aquaculture. Mexico has his first official IAS list but it is not legally binding. The new biodiversity law is not approved yet, the law for tourism is being updated (see line 179 below).

Agriculture	1	Yes = 1, No = 0
Fisheries	1	Yes = 1, No = 0
Forestry	1	Yes = 1, No = 0
Tourism	1	Yes = 1, No = 0
Other (Wildlife)	1	Yes = 1, No = 0

Regulations are in place to implement the legislation

Agriculture	1	Yes = 1, No = 0
Fisheries	0	Yes = 1, No = 0
Forestry	1	Yes = 1, No = 0
Tourism	0	Yes = 1, No = 0
Other (Wildlife)	1	Yes = 1, No = 0

The regulations are under implementation

There are agricultural regulations for plants, but they do not deal with biodiversity, as the law doesn't. With fisheries and tourism, the only regulations technically in force today are regulations of previous, outdated laws, which are not applied on a daily basis.

Agriculture	1	Yes = 1, No = 0
Fisheries	1	Yes = 1, No = 0
Forestry	1	Yes = 1, No = 0
Tourism	0	Yes = 1, No = 0
Other (wildlife)	1	Yes = 1, No = 0

The implementation of regulations is enforced

Agriculture	1	Yes = 1, No = 0
Fisheries	1	Yes = 1, No = 0
Forestry	1	Yes = 1, No = 0
Tourism	0	Yes = 1, No = 0
Other (wildlife)	1	Yes = 1, No = 0

Enforcement of regulations is monitored

Agriculture	1	Yes = 1, No = 0
Fisheries	1	Yes = 1, No = 0
Forestry	1	Yes = 1, No = 0
Tourism	0	Yes = 1, No = 0
Other (wildlife)	1	Yes = 1, No = 0

All projects please complete this question at the project mid-term evaluation and at the final evaluation, if relevant:

7. Within the scope and objectives of the project, has the private sector undertaken voluntary measures to incorporate biodiversity considerations in production? If yes, please provide brief explanation and specifically mention the sectors involved. An example of this could be a mining company minimizing the impacts on biodiversity by using low-impact exploration techniques and by developing plans for restoration of biodiversity after exploration as part of the site management plan.

The aquaculture sector in the state of Morelos, involved in breeding ornamental fishes, has been a relevant collaborator in defining and implementing biosecurity measures to prevent escapes and in providing training for producers. Furthermore, the Association of ornamental fish producers of Mexico City designed a poster to raise awareness among producers and consumers about the dangers of escapes and releases of fish to the natural environment and promotes it in fairs. The replacement of invasive fishes in aquaculture by a native species is being promoted by a Mayan community in Quintana Roo. A voluntary certification system is being developed for the ornamental fish sector. Best practices manuals have been developed for trout farming and the grazing sectors (cattle and goats) and shall be implemented by producers in 2018-2019. Educational activities have been carried out with Botanical Gardens as a means to address the public keen on ornamental plants on problems of IAS. As a result of an event carried out at the 13th International Day of Botanical Gardens, the UNAM Botanical Garden asked to have continuous events throughout the year. The palm oil sector is collaborating in an effort to receive international RSPO certification, for which small producers are involved in developing a national certification scheme.

Part VI. Tracking Tool for Invasive Alien Species Projects in GEF 4 and GEF 5

Objective: The Invasive Alien Species Tracking Tool has been developed to help track and monitor progress in the achievement of outcome 2.3 in the GEF-5 biodiversity strategy: "improved management frameworks to prevent, control, and manage invasive alien species" and for Strategic Program 7 in the GEF-4 strategy.

Structure of Tracking Tool: The Tracking Tool addresses four main issues in one assessment form:

- 1) National Coordination Mechanism;
- 2) IAS National Strategy Development and Implementation;
- 3) Policy Framework to Support IAS Management; and
- 4) IAS Strategy Implementation: Prevention, Early Detection, Assessment and Management.

Assessment Form: The assessment is structured around six questions presented in table format which includes three columns for recording details of the assessment, all of which should be completed.

Next Steps: For each question respondents are also asked to identify any intended actions that will improve performance of the IAS management framework.

Prevention, control, and management of invasive alien species (IAS) Tracking Tool

Issue	Please select your score from drop down menu	Scoring Criteria		
<p>National Coordination Mechanism</p> <p><i>1) Is there a National Coordination Mechanism to assist with the design and implementation of a national IAS strategy? (This could be a single "biosecurity" agency or an interagency committee).</i></p>	<p align="center">3</p>	<p>0: National Coordination Mechanism does not exist 1: A national coordination mechanism has been established 2: The national coordination mechanism has legal character and responsibility for development of a national strategy 3: The national coordination mechanism oversees implementation of IAS National Strategy</p>	<p>Comment: See separate worksheet "Stakeholder Comments" Institutional and coordination capacity have improved due to the following committees, which have been established and are working: High level committee & Technical Committee, both Committees meet on a regular basis 2-3 times per year. However, the committees have no legal character. A third Committee, the Scientific Committee has been established and is equally meeting on a regular basis overseeing implementation of the IAS National Strategy. Financial resources for effectively fulfilling coordination are secured.</p>	<p>Next Steps: See separate worksheet "Stakeholder Comments" In the strict sense the Coordination Committees would need to be formalized (legal mandate) to achieve 3 points, however as the committees are already overseeing the implementation and therefore serving their purpose without the legal backing, we consider that 3 points are justified.</p>
	<p align="center">0</p>	<p>Bonus point: Contingency plans for IAS emergencies exist and are well coordinated 0: NO 1: Yes</p>	<p>A first capacity building event regarding an Incident Command System (ICS) has been carried out in 2016, with focus on aquatic invasive species and a protocol prototype exists. A second event took place in April 2018, including a practical exercise in the field.</p>	<p>Additional meetings and exercises to put them into practice need to be executed in coordination with SAGARPA, CONAGUA and other relevant institutions (depending on the species) and responsibilities have to be agreed on to achieve adequate level of coordination.</p>
<p>IAS National Strategy Development and Implementation</p> <p><i>2) Is there a National IAS strategy and is it being implemented?</i></p>	<p align="center">2</p>	<p>0: IAS strategy has not been developed 1: IAS strategy is under preparation or has been prepared and is not being implemented 2: IAS strategy exists but is only partially implemented due to lack of funding or other problems 3: IAS strategy exists, and is being fully implemented</p>	<p>Comment: See separate worksheet "Stakeholder Comments" There is a national IAS strategy published in 2010; the GEF project focussing on its implementation started in 2014. Top priority objectives of the National strategy are being implemented since then and the implementation shows significant progress.</p>	<p>Next Steps: See separate worksheet "Stakeholder Comments" Continuing with the Implementation, Target year is 2020, Strategy and progress will be reviewed at the end of the project (at the beginning of 2019).</p>

Policy Framework to Support IAS Management				
<p>3) <i>Has the national IAS strategy led to the development and adoption of a comprehensive framework of policies, legislation, and regulations across sectors?</i></p>	3	<p>0: IAS policy does not exist 1: Policy on invasive alien species exists (Specify sectors in comment box if applicable) 2: Principle IAS legislation is approved (Specify sectors in comment box if applicable. It may be that harmonization of relevant laws and regulations to ensure more uniform and consistent practice is most realistic result.) 3: Subsidiary regulations are in place to implement the legislation (Specify sectors in comment box if applicable) 4: The regulations are under implementation and enforced for some of the main priority pathways for IAS (Specify sectors in comment box if applicable) 5: The regulations are under implementation and enforced for all of the main priority pathways for IAS (Specify sectors in comment box if applicable) 6: Enforcement of regulations is monitored (Specify sectors in comment box if applicable)</p>	<p>Comment: See separate worksheet "Stakeholder Comments" The term of IAS is included in legislation but policies, legislation and regulation are in some parts contradictory and need to be harmonized. A correspondent study has been completed, presented to and discussed within the different Committees as well as during a workshop with legislators and will be further promoted. A first official list containing 349 species was published at the end of 2016. For each species a rapid risk evaluation has been done. New laws are underway in which the IAS subject is addressed such as the "General Law for Biodiversity", "General Law for Sustainable Forest Development" and the "General Law for sustainable fisheries and aquaculture". Nevertheless, whether those laws will be approved is uncertain. Sectorial regulations for high risk species are in place: at the end of 2016 the importation of all live organisms of the Pangasius family was prohibited. SEMARNAT and other institutions are working on a Draft for an Official Mexican Norm NOM-XXX-SEMARNAT-2017, which defines non-native forest species, which due to their biological characteristics, affect the processes or patterns of distribution of native forest vegetation in forests.</p>	<p>Next Steps: See separate worksheet "Stakeholder Comments" Adoption and implementation of the recommendations made in the legal study. Follow up on the initiative for the law for biodiversity as well as the other laws under way. Furthermore develop new transport and tourism practices and regulations for movements towards vulnerable areas (eg islands and NPA) to reduce the risk of IAS introductions; provide stakeholder and tourist information and develop best practices for tourism in vulnerable areas.</p>

<p>Prevention</p> <p>4) Have priority pathways for invasions been identified and actively managed and monitored?</p>	1	<p>0: Priority pathways for invasions have not been identified.</p> <p>1: Priority pathways for invasions have been identified using risk assessment procedures as appropriate</p> <p>2: Priority pathways for invasions are being actively managed and monitored to prevent invasions (In comment section please specify methods for prevention of entry: quarantine laws and regulation, database establishment, public education, inspection, treatment technologies (fumigation, etc) in the comment box.)</p> <p>3: System established to use monitoring results from the methods employed to manage priority pathways in the development of new and improved policies, regulations and management approaches for IAS</p>	<p>Comment: See separate worksheet "Stakeholder Comments"</p> <p>1) Some pathways have been identified, prioritized and are managed through inspections for agricultural products (SAGARPA) and wildlife & forest products by PROFEPA.</p> <p>2) Pathways for islands have been identified and management has initiated. Inspections with trained dogs are applied at boats of SEMAR. Due to the project there are efforts undertaken to establish biosecurity plans for another island, which is densely populated and used for tourism (Cozumel), which will help to identify pathways.</p> <p>3) Priority pathways for IAS with impact on biodiversity into continental National Protected Areas (NPA) are being identified. 4) CONABIO has analyzed pathways for 291 EEI.</p> <p>Methods for prevention of entry: quarantine laws and regulations, consolidation of a database, public education, inspection, treatment technologies (fumigation, etc.) are applied by SENASICA-SAGARPA (agricultural products) and PROFEPA (forest and wildlife products). Regarding NPA since May 2013, the last section of article 46 prohibits the introduction of IAS into NPA, the same is true for marine protected areas (last section of article 52). NPA must provide public education for stakeholders (communities and visitors). A process to better monitor IAS imports and movements is being developed.</p>	<p>Next Steps: See separate worksheet "Stakeholder Comments"</p> <p>All identified pathways at pilot sites are being managed and replicated at other NPA.</p>
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Early Detection				
5) Are detection, delimiting and monitoring surveys conducted on a regular basis?	1	<p>0: Detection surveys[1] of aggressively invasive species (either species specific or sites) are not regularly conducted due to lack of capacity, resources, planning, etc</p> <p>1: Detection surveys (observational) are conducted on a regular basis</p> <p>2: Detection and delimiting surveys[2] (focusing on key sites: high risk entry points or high biodiversity value sites) are conducted on a regular basis</p> <p>3: Detection, delimiting and monitoring surveys[3] focusing on specific aggressively invasive plants, insects, mammals, etc are conducted on a regular basis</p>	<p>Comment: See separate worksheet "Stakeholder Comments" There is an early detection system for monitoring agricultural pests (SAGARPA), it identifies risk areas and establishes measures to control and/or eradicate in areas of economic importance. However, there is no EDRR system or regular monitoring specifically developed for IAS relevant to the environment in general and biodiversity in NPA specifically. In the meantime, "The National Monitoring System for Biodiversity" at the national level, as well as in NPA, and "Naturalista" serve for IAS early detection purposes. Nevertheless, there are no rapid response systems established yet, and actions are primarily reactive once a species has entered and established. EDRR concepts are in process and will have been developed for pilot areas (islands and NPA on the mainland) by the end of the GEF project. A concept for an EDRR system in Cañon de Sumidero national park has been drafted/generated. Also in Marismas Nacionales BR it is already in place for three species. On the other hand, an EDRR system is planned to function at the national scale for an invasive species of starfish, <i>Luidia magnifica</i>.</p>	<p>Next Steps: See separate worksheet "Stakeholder Comments"</p> <p>EDRR systems implemented on pilot areas (islands and NPA on the mainland) until the end of the project. Draft for an EDRR system in Cañon de Sumidero national park has to be implemented and capacity building has to be undertaken with NPA personal. EDRR systems are developed at local level for several species (two marine species (sea stars & tunicates)), which can be upscaled later on.</p>
	1	<p>Bonus point: Data from surveys is collected in accordance with international standards and stored in a national database.</p> <p>0: NO</p> <p>1: Yes</p>	<p>There are over 222.000 invasive specimen records on the National Invasive Species Information System, which are sorted according to international standards and come from different surveys in the field across the country. Data for initially 23 now 46 selected invasive alien species (IAS) within the "National Monitoring system for Biodiversity" is collected in 8000 points during a period of 5 years. Each year 5 other IAS will be added. Data is stored in a common database of CONAFOR and CONABIO. Naturalista is a platform that allows the public and professionals to record and share observations, contains a general project for IAS and a specific project for the European Wildboar. To date, Naturalista has gathered over 26150 observations for 626 alien species by 4345 observers and led to the detection of 3 new IAS. Furthermore, monitoring is done for high risk species in National Protected Areas e.g. lion fish. IMTA has carried out a survey of aquatic invasive plants in the main 54 waterbodies of the country.</p>	
	0	<p>Bonus point: Detection surveys rank IAS in terms of their potential damage and detection systems target the IAS that are potentially the most damaging to globally significant biodiversity</p> <p>0: NO</p> <p>1: Yes</p>	<p>High risk species are monitored in National Protected Areas e.g. lion fish. Detection surveys rank IAS in terms of their potential damage on islands.</p>	

Assessment and Management: Best practice applied				
6) Are best management practices being applied in project target areas?	2	<p>0: Management goal and target area undefined, no acceptable threshold of population level established</p> <p>1: Management goal and target area has been defined and acceptable threshold of population level of the species established</p> <p>2: Four criteria are applied to prioritize species and infestations for control in the target areas: a) current and potential extent of the species; b) current and potential impact of the species; c) global value of the habitat the species actually or potentially infests; and d) difficulty of control and establishing replacement strategies.</p> <p>3: Eradication, containment, control and management strategies are considered, and the most appropriate management strategy is applied to achieve the management goal and the appropriate level of protection in the target areas (Please discuss briefly rationale for the management strategy employed.)</p>		<p>Next Steps: See separate worksheet "Stakeholder Comments"</p> <p>There are at least another 40 biodiversity rich islands with invasive mammals.</p> <p>* Current and potential impacts determined for more species necessary</p> <p>* Regarding containment: Certification scheme for ornamental fish is being developed at the moment and has to be approved and implemented.</p> <p>* International certification scheme (RSPO) and national certification scheme for small products for the oil palm (invasive palm) is in development and has to be approved.</p>
	1	<p>Bonus point: Monitoring system (ongoing surveys) established to determine characteristics of the IAS population, and the condition of the target area.</p> <p>0: NO 1: Yes</p>	<p>Monitoring system (ongoing surveys) established to determine characteristics of the IAS population, and the condition of the target area at the 6 island NPA. Additionally there are monitoring systems established for some high impact species such as lion fish by CONANP. INAPESCA is collecting data on the number of lion fish and Loricaridae captured, which could be used to estimate their population in certain regions, catchment areas and waterbodies.</p>	
	0	<p>Bonus points: Funding for sustained and ongoing management and monitoring of the target area is secured.</p> <p>0: NO 3: Yes</p>	<p>Funding for the management and monitoring in island is secured, however, funding in continental NPA depends very much on the outcome of the elections in July 2018.</p>	
	1	<p>Bonus point: Objective measures indicate that the restoration of habitat is likely to occur in the target area.</p> <p>0: NO 1: Yes</p>	<p>Habitat restoration takes place on some islands (for example very successful reforestation efforts on isla Guadalupe) and in some continental NPA.</p>	<p>Habitat restoration takes place in all NPA conducting plant control activities, where necessary.</p>
	15	TOTAL SCORE		
	29	TOTAL POSSIBLE		

TRACKING TOOLS – INSTITUTIONAL CAPACITY SCORECARD

UNDP Capacity Development Scorecard for Invasive Species Management Projects

Legenda: Color gris: valores de 2013; color naranja: valores de 2017 (solo se los incluyó cuando hubo cambios de puntaje; color rosado: valores atribuidos en la EMT)

Strategic Area of Support	Issue	Scorecard	Avg. GEF 2013		Avg. GEF		EMT FINAL
			Start	End	2017	End	
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes	The invasive species agenda is being effectively championed / driven forward	0 -- There is essentially no invasive species agenda;	2,3		2		2
		1 -- There are some persons or institutions actively pursuing a invasive species agenda but they have little effect or influence;					
		2 -- There are a number of invasive species champions that drive the invasive species agenda, but more is needed;					
		3 -- There are an adequate number of able "champions" and "leaders" effectively driving forwards a invasive species agenda					
	There is a strong and clear legal mandate for the establishment and management of invasive species	0 -- There is no legal framework for invasive species;	1,9		1		1
		1 -- There is a partial legal framework for invasive species but it has many					
		2 -- There is a reasonable legal framework for invasive species but it has a few weaknesses and gaps;					
		3 -- There is a strong and clear legal mandate for the establishment and management of invasive species					
	There is an institution or institutions responsible for invasive species able to strategize and plan	0 -- Invasive species institutions have no plans or strategies;	2,5		2		2
1 -- Invasive species institutions do have strategies and plans, but these are old and no longer up to date or were prepared in a totally top-down fashion;							
2 -- Invasive species institutions have some sort of mechanism to update their strategies and plans, but this is irregular or is done in a largely top-down fashion without proper consultation;							
3 -- Invasive species institutions have relevant, participatorially prepared, regularly updated strategies and plans							
		Sub-Total	5,0	8,00	5	8	5
	There are adequate skills for invasive species planning and management	0 -- There is a general lack of planning and management skills;	2,1		1		1
		1-- Some skills exist but in largely insufficient quantities to guarantee effective planning and management;					
		2 -- Necessary skills for effective invasive species management and planning do exist but are stretched and not easily available;					
		3 -- Adequate quantities of the full range of skills necessary for effective invasive species planning and management are easily available					
	There is a fully transparent oversight authority (there are fully transparent oversight authorities)	0 -- There is no oversight at all of invasive species institutions;	2,1		2		2
		1 -- There is some oversight, but only indirectly and in a non-transparent manner;					
		2 -- There is a reasonable oversight mechanism in place providing for regular review but lacks in transparency (e.g. is not independent, or is internalized) ;					
Invasive species management	0 -- Invasive species institutions have a total lack of leadership;						
	1 -- Invasive species institutions exist but leadership is weak and provides little						

2. Capacity to implement policies, legislation, strategies and programmes	management institutions are effectively led	2 -- Some invasive species institutions have reasonably strong leadership but there is still need for improvement; 3 -- Invasive species institutions are effectively led	2,3		2		2
	Human resources for invasive species management are well qualified and motivated	0 -- Human resources are poorly qualified and unmotivated; 1 -- Human resources qualification is spotty, with some well qualified, but many only poorly and in general unmotivated; 2 -- HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified; 3 -- Human resources are well qualified and motivated.	2,1		2		2
	Invasive species institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	0 -- Invasive species institutions typically are severely underfunded and have no capacity to mobilize sufficient resources; 1 -- Invasive species institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement 2 -- Invasive species institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for fully effective implementation of their mandate; 3 -- Invasive species institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their	1,9		1,0		1,0
	Invasive species institutions are effectively managed, efficiently deploying their human, financial and other resources to the best effect	0 -- While the invasive species institution exists it has no management; 1 -- Institutional management is largely ineffective and does not deploy efficiently the resources at its disposal; 2 -- The institution(s) is (are) reasonably managed, but not always in a fully effective manner and at times does not deploy its resources in the most efficient 3 -- The invasive species institution is effectively managed, efficiently deploying its human, financial and other resources to the best effect	2,1		2		2
	Invasive species institutions are highly transparent, fully audited, and publicly accountable	0 -- Invasive species institutions totally untransparent, not being held accountable and not audited; 1 -- Invasive species institutions are not transparent but are occasionally audited without being held publicly accountable; 2 -- Invasive species institutions are regularly audited and there is a fair degree of public accountability but the system is not fully transparent; 3 -- The Invasive species institutions are highly transparent, fully audited, and publicly accountable	2,0		2		2
	There are legally designated invasive species institutions with the authority to carry out their mandate	0 -- There is no lead institution or agency with a clear mandate or responsibility for invasive species; 1 -- There are one or more institutions or agencies dealing with invasive species but roles and responsibilities are unclear and there are gaps and overlaps in the 2 -- There are one or more institutions or agencies dealing with invasive species, the responsibilities of each are fairly clearly defined, but there are still some gaps 3 -- Invasive species institutions have clear legal and institutional mandates and the necessary authority to carry this out	2,0		2		2

Legal mechanisms on invasive species	0 -- No enforcement of regulations is taking place;	1,9		1		1
	1 -- Some enforcement of regulations but largely ineffective and external threats remain active;					
	2 -- Invasive species regulations are regularly enforced but are not fully effective and external threats are reduced but not eliminated;					
	3 -- Invasive species regulations are highly effectively enforced and all external threats are negated					
Individuals are able to advance and develop professionally	0 -- No career tracks are developed and no training opportunities are provided;	2,2		2		2
	1 -- Career tracks are weak and training possibilities are few and not managed					
	2 -- Clear career tracks developed and training available; HR management however has inadequate performance measurement system;					
	3 -- Individuals are able to advance and develop professionally					
Individuals are appropriately skilled for their jobs	0 -- Skills of individuals do not match job requirements;	2,5		2		2
	1 -- Individuals have some or poor skills for their jobs;					
	2 -- Individuals are reasonably skilled but could further improve for optimum match with job requirement;					
	3 -- Individuals are appropriately skilled for their jobs					
Individuals are highly motivated	0 -- No motivation at all;	2,2		2		2
	1 -- Motivation uneven, some are but most are not;					
	2 -- Many individuals are motivated but not all;					
	3 -- Individuals are highly motivated					
There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff	0 -- No mechanisms exist;	2,0		2		2
	1 -- Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed;					
	2 -- Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required;					
	3 -- There are mechanisms for developing adequate numbers of the full range of highly skilled invasive species professionals					
	Sub-Total	20,0	34	23	34	23
Invasive species management has the political commitment	0 -- There is no political will at all, or worse, the prevailing political will runs counter to the interests of invasive species;	2,2		2		2
	1 -- Some political will exists, but is not strong enough to make a difference;					
	2 -- Reasonable political will exists, but is not always strong enough to fully support invasive species;					
	3 -- There are very high levels of political will to support invasive species					
Invasive species management has the public support they require	0 -- The public has little interest in invasive species and there is no significant lobby for invasive species;	1,7		1		1
	1 -- There is limited support for invasive species;					
	2 -- There is general public support for invasive species and there are various lobby groups such as environmental NGO's strongly pushing them;					
	3 -- There is tremendous public support in the country for invasive species					

3. Capacity to engage and build consensus among all stakeholders	Invasive species management institutions are mission oriented	0 -- Institutional mission not defined;	2,2		2		2
		1 -- Institutional mission poorly defined and generally not known and internalized at all levels;					
		2 -- Institutional mission well defined and internalized but not fully embraced;					
		3 -- Institutional missions are fully internalized and embraced					
	Invasive species management institutions can establish the partnerships needed to achieve their objectives	0 -- Invasive species institutions operate in isolation;	2,2		2		2
		1 -- Some partnerships in place but significant gaps and existing partnerships					
		2 -- Many partnerships in place with a wide range of agencies, NGOs etc, but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of objectives;					
		3 -- Invasive species institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of objectives in an efficient and					
	Individuals carry appropriate values, integrity and attitudes	0 -- Individuals carry negative attitude;	2,2		2		2
		1 -- Some individuals have notion of appropriate attitudes and display integrity, but most don't;					
		2 -- Many individuals carry appropriate values and integrity, but not all;					
		3 -- Individuals carry appropriate values, integrity and attitudes					
		Sub-Total	8,0	13	9	13	9
4. Capacity to mobilize information and knowledge	Invasive species management institutions have the information they need to develop and monitor strategies and action plans for the	0 -- Information is virtually lacking;	2,1		1		2
		1 -- Some information exists, but is of poor quality, is of limited usefulness, or is very difficult to access;					
		2 -- Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability;					
		3 -- Invasive species institutions have the information they need to develop and monitor strategies and action plans for the management of the invasive species					
	Invasive species management institutions have the information needed to do their work	0 -- Information is virtually lacking;	2,0		1		2
		1 -- Some information exists, but is of poor quality and of limited usefulness and difficult to access;					
		2 -- Much information is readily available, mostly of good quality, but there remain some gaps both in quality and quantity;					
		3 -- Adequate quantities of high quality up to date information for invasive species planning, management and monitoring is widely and easily available					
	Individuals working with invasive species, work effectively together as a team	0 -- Individuals work in isolation and don't interact;	2,4		2		2
		1 -- Individuals interact in limited way and sometimes in teams but this is rarely effective and functional;					
		2 -- Individuals interact regularly and form teams, but this is not always fully effective or functional;					
		3 -- Individuals interact effectively and form functional teams					
		Sub-Total	4,0	8	4	8	6
	Invasive species policy	0 -- There is no policy or it is old and not reviewed regularly;					

5. Capacity to monitor, evaluate, report and learn	invasive species policy is continually reviewed and updated	1 -- Policy is only reviewed at irregular intervals;	1,9		2		2
		2 -- Policy is reviewed regularly but not annually;					
		3 -- National invasive species policy is reviewed annually					
	Society monitors the state of invasive species	0 -- There is no dialogue at all;	1,9		1		2
		1 -- There is some dialogue going on, but not in the wider public and restricted to specialized circles;					
		2 -- There is a reasonably open public dialogue going on but certain issues remain					
	Institutions are highly adaptive, responding effectively and immediately to change	3 -- There is an open and transparent public dialogue about the state of the	1,9		1		2
		0 -- Institutions resist change;					
		1 -- Institutions do change but only very slowly;					
		2 -- Institutions tend to adapt in response to change but not always very effectively or with some delay;					
	Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	3 -- Institutions are highly adaptive, responding effectively and immediately to	2,0		1		1
		0 -- There are no mechanisms for monitoring, evaluation, reporting or learning;					
		1 -- There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak;					
		2 -- Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be;					
	Individuals are adaptive and continue to learn	3 -- Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	1,8		1		1
0 -- There is no measurement of performance or adaptive feedback;							
1 -- Performance is irregularly and poorly measured and there is little use of							
2 -- There is significant measurement of performance and some feedback but this is not as thorough or comprehensive as it might be;							
		3 -- Performance is effectively measured and adaptive feedback utilized					
		Sub-Total	6,0	13	6	13	8
		TOTAL	43,0	76	47	76	51



Instituto Hórus
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ANNEX 8

CONTROL OF INVASIVE ALIEN PLANTS IN NATURAL PROTECTED AREAS IN MEXICO



Invasión de pasto jaragua (*Hyparrhenia rufa*) en el Cañón del Sumidero.

SÍLVIA R. ZILLER

ING. FLORESTAL, M.SC., DR.

MAYO 2018

TABLA DE CONTENIDOS

1 Objetivo del documento	1
2 Marco teórico	2
2.1 Secuencia de oportunidades para el manejo de las EEI	2
2.1.1 Prevención.....	2
2.1.2 Detección temprana y respuesta rápida	2
2.1.3 Erradicación.....	3
2.1.4 Control permanente.....	3
2.2 Criterios para la definición de prioridades	4
2.3 Métodos de control de plantas exóticas invasoras	4
2.3.1 Control mecánico o manual	4
2.3.2 Control químico.....	5
2.4 Preparación para el control químico	6
2.4.1 Cuidados.....	6
Equipos de protección personal	8
2.4.2 Tipos de herbicidas.....	8
2.4.3. Preparación de los herbicidas	10
Dilución	10
Aspersores	11
2.4.4 Aplicación	12
Rociado foliar	12
Tratamiento de tocones	13
Anillamiento.....	14
Inyección en el tallo (monocotiledóneas).....	16
2.4.5 Seguimiento y repase	17
3 Indicaciones de control mecánico y químico para plantas exóticas invasoras	19

ÍNDICE DE FIGURAS

Figura 1 – Aspersor manual.....	7
Figura 2 – Aspersores de espaldas	7
Figura 3 - Pipeta plástica	7
Figura 4 - Colorante para la mezcla de herbicida.....	7
Figura 5 - Cajas plásticas para transporte	7
Figura 6 - EPP para aplicación de herbicida.....	8
Figura 7 - EPP para operación de motosierra.....	8
Figura 8 - Protección contra deriva del aspersión foliar.....	12
Figura 9 - Tala ideal de tronco de árbol con motosierra, horizontal y al ras del suelo.....	13
Figura 10 - Tocón 30 días después de la aplicación de herbicida	14
Figura 11 - Anillamiento con aplicación de mezcla de herbicida en la base del anillo.....	15
Figura 12 - Método de descortezado irregular aplicado al trueno chino en el P.N. Cumbres de Monterrey	16
Figura 13 - Adaptación de taladro en motosierra e inyección de herbicida con jeringa adaptada a un aspersor de espaldas.....	17

CONTROL DE PLANTAS EXÓTICAS INVASORAS EN LAS ÁREAS NATURALES PROTEGIDAS DE MÉXICO

Sílvia R. Ziller, Ing. Florestal, M.Sc., Dr.

1 OBJETIVO DEL DOCUMENTO

El objetivo de este documento es proveer orientación técnica sobre métodos costo-efectivos para el control de las plantas exóticas invasoras en las ANP consideradas como sitios de intervención del proyecto FMAM – PNUD para fortalecer las capacidades nacionales para el manejo de las especies exóticas invasoras a través de la implementación de la Estrategia Nacional sobre Especies Exóticas Invasoras.

El control de especies exóticas invasoras es siempre más efectivo cuando la invasión biológica está en fase inicial, pues se maximiza la oportunidad para la erradicación de especies. En las ANP de México, donde existen distintas situaciones de invasión biológica, el control de especies invasoras incipientes es de gran importancia porque ofrece las mejores posibilidades para la erradicación. La consolidación de los sistemas de Detección Temprana y Respuesta Rápida puede proveer indicadores importantes de especies para control, a fin de evitar su establecimiento o dispersión como invasoras. Lo mismo se aplica a plantas aisladas y poblaciones pequeñas de cualquier planta exótica invasora, especialmente cuando todavía no han producido semillas y existe la oportunidad de evitar su reproducción.

Ante una realidad de especies de amplia distribución para las cuales la erradicación no es factible por el momento, es de gran relevancia que el control sea realizado con alta efectividad y un costo-beneficio favorable. Las condiciones climáticas de diversas de las ANP refuerzan esta necesidad de solo permitir que el trabajo de control se realice durante la estación húmeda, que es de 2-3 meses o poco más. Aunque los esfuerzos puntuales de control, o sea, intervenciones únicas, sean insuficientes para lograr la erradicación de plantas exóticas invasoras, las acciones posteriores a un primero esfuerzo de control deben encontrar porcentajes más bajos de infestación, idealmente entre 10 y 20% de las poblaciones inicialmente existentes, especialmente en el caso de plantas leñosas. Pueden existir excepciones para el segundo esfuerzo de control para los pastos, pues el banco de semillas tiende a ser muy vigoroso, pero con el trabajo de control sostenido la densidad de invasión disminuye gradualmente. En el caso de especies formadoras de bancos de semillas persistentes, los disturbios periódicos en el suelo pueden agravar la invasión hasta el agotamiento del mismo, lo que puede tomar muchos años. Por eso, en el caso de pastos, se suele evitar el arranque manual. En sitios donde la regeneración natural no se activa con la remoción de especies exóticas invasoras es necesario sembrar o plantar especies nativas, aportar hojarasca de sitios bien conservados u otras técnicas que permitan ocupar el espacio libre y mejoren la resiliencia del medio a la invasión biológica.

2 MARCO TEÓRICO

2.1 SECUENCIA DE OPORTUNIDADES PARA EL MANEJO DE LAS EEI

Se considera que el manejo de plantas invasoras es gradualmente más difícil y más caro a la medida que avanzan las invasiones biológicas. Se suele considerar la prevención como la mejor oportunidad de manejo, seguida de la detección temprana y respuesta rápida, que suele llevar a la erradicación de las especies detectadas, y por fin el control sostenido.

2.1.1 PREVENCIÓN

Las medidas preventivas se refieren a todas las acciones que tienen por objetivo impedir la llegada de nuevas especies o poblaciones de especies exóticas invasoras al país o a un área protegida. Barreras de seguridad e inspecciones de cargas son muy importantes en este contexto para viabilizar la eliminación de plantas, animales y otros propágulos que puedan ser introducidas. Las introducciones de especies pueden ser voluntarias, como en el caso de plantas aportadas por las personas para fines ornamentales o de otro uso, o involuntarias, como en el caso de insectos, patógenos u organismos marinos adheridos en cascos de embarcaciones o en el agua de lastre de buques.

Hacen parte de las herramientas de prevención los análisis de riesgo aplicados a especies o vectores y vías de dispersión con fines de evaluar la probabilidad de invasión biológica en caso de introducción. Los análisis son de gran utilidad para fundamentar la toma de decisiones en permitir o prohibir la introducción voluntaria de especies exóticas. Con este sistema en uso, solamente especies con bajo riesgo de invasión serían permitidas para ingreso en las ANP que permiten el uso o residencia de personas, mientras que especies con antecedentes de invasión en otras partes y con características de especies invasoras no serían permitidas. Este sistema puede ser aplicado a las plantas ornamentales y otras ya existentes en las ANP para establecer prioridades para erradicación o contención. Protocolos de análisis de riesgo están en desarrollo por la CONABIO para diversos grupos de especies, [con diversas especies ya evaluadas](#). Otros ejemplos están disponibles en el [sitio web del Instituto Hórus de Brasil](#).

2.1.2 DETECCIÓN TEMPRANA Y RESPUESTA RÁPIDA

La detección temprana es la segunda alternativa de mejor oportunidad para detener problemas de invasión biológica. La formación de redes para informar sobre la presencia de especies no nativas, así como para identificarlas y para realizar acciones de erradicación o control es parte de la formación de sistemas de detección temprana. Personas involucradas en trabajos en el campo, sea de mantenimiento, restauración o investigación científica deben ser entrenadas para estar atentas a nuevas especies exóticas en las áreas protegidas, para reportar los hallazgos a la Dirección. En este sistema es fundamental que, una vez detectada una nueva especie o individuos de una especie en un nuevo sitio, se tome una acción inmediata para eliminarlas,

especialmente cuando esas plantas todavía no han producido semillas. El sistema de detección temprana funciona bien solo si se asegura la respuesta rápida.

2.1.3 ERRADICACIÓN

La erradicación es la alternativa preferencial en el manejo de especies exóticas invasoras, pues permite solucionar de una vez los problemas y suele ser más costo-efectiva, aunque requiera de una inversión de recursos más fuerte en menos tiempo. La erradicación es siempre más factible en procesos iniciales de invasión y favorecida en islas oceánicas por su aislamiento. La detección temprana favorece la erradicación por tratar de eliminar poblaciones pequeñas todavía en la etapa de establecimiento. Erradicar especies requiere persistencia y estrategia en el trabajo de control, así como técnicas combinadas entre los diversos métodos posibles. Una vez lograda, es muy importante que se mantenga un sistema de monitoreo y de prevención para evitar la reintroducción o nueva llegada de individuos o propágulos.

Muchas veces la erradicación de una especie no es viable en un ANP, pero la erradicación de focos de invasión de ciertas áreas sí. Por eso, la consolidación de sistemas de DTRR es muy importante como estrategia de ubicación de plantas aisladas y pequeñas poblaciones que se pueden erradicar para impedir el establecimiento de nuevas áreas de invasión. A partir de eso, se puede trabajar en áreas gradualmente más grandes para reducir paulatinamente la presencia de una especie en un ANP. La comprensión de las vías y vectores de dispersión de las EEI es igualmente importante para identificar estrategias de trabajo más eficientes que corten esas vías e impidan la llegada de las EEI a nuevas áreas.

2.1.4 CONTROL PERMANENTE

El control permanente es la alternativa de manejo remanente para especies de amplia distribución. Las técnicas de manejo son clasificadas en control mecánico (con herramientas, arranque manual), químico (con uso de herbicidas y adyuvantes), biológico (por la introducción de agentes específicos que afectan una especie) y medidas complementarias como la plantación o siembra de especies nativas en sitios bajo control, el aporte de hojarasca o suelo de áreas sin invasión biológica para contribuir al banco de semillas y otras técnicas que permitan ocupar el espacio libre y mejoren la resiliencia del medio a la invasión biológica.

Para especies de muy amplia distribución, de acceso restringido y de difícil control, como las plantas acuáticas, el control biológico es una opción muy relevante. El control biológico suele requerir años de investigación, pero cuando funciona es efectivo en alcanzar esos sitios muy difíciles y mantener la invasión bajo control. Es la mejor alternativa para reducir y mantener bajo control la invasión biológica. El Instituto Mexicano de Tecnología del Agua (IMTA) ha definido los agentes de control biológico para el lirio acuático (*Eichhornia crassipes*) y el carrizo gigante (*Arundo donax*), dos especies de difícil control que suelen ocupar ambientes acuáticos, humedales y cauces de ríos. Es una ventaja para México tener experticia en esa área para solucionar esos problemas.

2.2 CRITERIOS PARA LA DEFINICIÓN DE PRIORIDADES

Considerando la secuencia presentada previamente para el manejo de especies invasoras, se puede concluir que las **prioridades para erradicación y/o control** deben considerar especies con alto riesgo de invasión en caso de:

- individuos aislados o recién llegados, especialmente si todavía no lograron reproducirse;
- poblaciones pequeñas o pequeñas áreas invadidas que requieren de bajo esfuerzo de eliminación (pocas horas a pocos días);
- plantas que empiezan a diseminarse en bordes de caminos que llevan a áreas de interés para la conservación de la diversidad biológica o senderos dentro de las ANP;
- áreas importantes para la conservación de la biodiversidad, que albergan especies amenazadas y endémicas, áreas donde todavía hay cobertura de suelo por plantas nativas, áreas de alta fragilidad ambiental (p.ej. de alta declividad, sujeta a derrumbes, áreas inundables, manglares, humedales);
- áreas que, si restauradas, restablecen conexiones entre fragmentos aislados de las formaciones vegetales nativas. La conectividad ambiental es un factor de fuerte preocupación porque es fundamental para viabilizar el tránsito génico de especies frente a los impactos del cambio climático;
- sitios que aumentan áreas núcleo y reducen áreas de borde, en lo que se considera el formato de los remanentes de vegetación natural para que no sean muy estrechos, pero si incluyan áreas cuyos bordes estén lejos y más conservados, lo que permite albergar especies más exigentes de seres vivos.

2.3 MÉTODOS DE CONTROL DE PLANTAS EXÓTICAS INVASORAS

Las técnicas de control de plantas son generalmente divididas en control mecánico o manual, control químico y control biológico, que pueden ser complementados por acciones de restauración ambiental.

2.3.1 CONTROL MECÁNICO O MANUAL

El control mecánico o manual es hecho por arranque, con herramientas de corte, por cobertura y otros. Esos métodos son muy importantes en determinadas situaciones, especialmente cuando hay pocas plantas que son fácilmente arrancadas de raíz, por lo que no vuelven a brotar, y cuando no existe un banco de semillas establecido en el suelo.

La limitación de los métodos mecánicos está en que casi la totalidad de las plantas exóticas invasoras logra rebrotar, sea cuando cortadas o cuando arrancadas, porque se suelen romper en el tallo y preservar las raíces. Eso implica repetir la acción de control muchas veces, incluso durante años, hasta que las plantas pierdan vigor y se mueran. Repetir la acción de control implica aumentar los costos y bajar la efectividad, además de no lograr avanzar con el trabajo

para nuevas áreas. Invasiones biológicas pueden ocurrir en sitios de difícil acceso, donde es muy difícil mantener esa repetición del control, y a que cada vez que no se cumple lo planeado, las plantas logran reproducirse y renovar el banco de semillas en el suelo, volviendo el trabajo al inicio.

En las ANP donde se han involucrado trabajadores que viven en las comunidades cercanas es importante asimismo considerar que el trabajo manual es muy difícil y duro, y que la baja eficiencia genera un nivel alto de frustración, así como la noción de que no vale la pena hacerlo. Eso puede ser un resultado muy negativo que conlleve al abandono de las iniciativas de control, así como al apoyo de las poblaciones locales al manejo de las EEI.

Por estas razones el control químico, que utiliza herbicidas para detener el rebrote de las plantas, es comúnmente utilizado en el manejo de plantas exóticas invasoras en combinación con el control mecánico.

2.3.2 CONTROL QUÍMICO

El control químico aumenta la efectividad del control, baja costos, mejora las oportunidades de regeneración natural, permite eliminar con precisión las plantas exóticas invasoras en áreas donde se mezclan con especies nativas y facilita el trabajo a ser realizado para los trabajadores. Para muchas especies no es necesario hacer aplicaciones repetidas, aunque algunas sean más persistentes o no cuenten, todavía, con la definición exacta de métodos altamente eficientes. Plantas leñosas son generalmente controladas más fácilmente que pastos y hierbas, que suelen ser más persistentes.

El control químico suele ser polémico por la aprensión de causar impactos ambientales y a la salud humana. Hay que considerar que son muchos los herbicidas disponibles en el mercado y que estos son indicados para ambientes, especies y objetivos distintos. La mala impresión que genera el uso de herbicidas se debe al histórico de uso agrícola, así como al volumen que se utiliza en cultivos tradicionales, a la mala destinación de los envases y a la falta de uso de equipos de protección personal (EPP) durante las aplicaciones. El uso de herbicidas para el control de plantas invasoras no puede ser comparado al uso agrícola porque el volumen de solución utilizado es muy pequeño, las aplicaciones son muy puntuales en términos de localización, además de no haber repeticiones frecuentes o por ser aplicado una sola o muy pocas veces en un sitio. El criterio técnico también respeta el uso de EPP y todos los cuidados posibles para evitar cualquier accidente con personas o derrame de herbicidas en el medio natural.

La otra ventaja es que la tecnología de producción de herbicidas ha mejorado significativamente desde su desarrollo inicial y que se puede optar por productos de baja persistencia ambiental y que no sean exudados por las raíces o móviles en el suelo. Los herbicidas están compuestos por moléculas que efectivamente afectan a las plantas blanco, llamados principios activos. Esos principios activos afectan generalmente vías metabólicas específicas de las plantas, causando su muerte. Por esa especificidad es que funcionan mejor para algunas especies que para otras.

Además del herbicida utilizado para el control, el procedimiento de ejecución influye en la efectividad de los resultados. La necesidad de utilización de un herbicida sistémico indica que la intención es hacerlo circular en los sistemas vasculares de las plantas de manera que alcance las raíces y la elimine completamente. Para que eso sea posible, cuanto más corto el tiempo entre la tala y la aplicación en el tocón, mejor es la posibilidad de circulación del producto en la planta antes que colapsen los vasos. En segundos después de la tala, los vasos se cierran y no dejan pasar el producto, perdiéndose efectividad y aumentando la probabilidad de rebrote de las plantas. Más que diez segundos de demora en la aplicación bajan la efectividad (McCaffery *et al.*, 2009). Para eso, el operador de motosierra o quien va a cortar las plantas y el aplicador de herbicida deben trabajar en conjunto, de manera que el tratamiento químico de cada tocón sea hecho inmediatamente después del corte. Esta es la única manera de asegurar el mejor resultado del control por tala de árboles y aplicación de herbicida.

Es importante, especialmente en climas semi-áridos y áridos, considerar la época del año en que el control es viable. Las plantas deben estar con las hojas verdes, en caso contrario los tratamientos no serán efectivos. Los herbicidas penetran por las hojas verdes, son absorbidos y trasladados al sistema circulatorio de las plantas, proceso que no funciona cuando están secos.

El control químico también trae ventajas respecto a la alelopatía, una característica común de las plantas invasoras. Esas plantas logran eliminar fitoquímicos por sus raíces que inhiben la germinación de semillas de otras especies, lo que les da ventaja competitiva. Con el control mecánico, las raíces siguen vivas, pero con el uso de control químico las plantas se mueren enteras y para la acción alelopática. Eso permite la germinación del banco de semillas de otras especies, facilitando la regeneración natural y la recuperación del ambiente.

2.4 PREPARACIÓN PARA EL CONTROL QUÍMICO

2.4.1 CUIDADOS

Nunca utilizar diésel, porque es un producto cuyos residuos persisten en el ambiente durante muchísimos años y puede causar contaminación en suelos y agua mucho más fuerte que los herbicidas indicados, que se degradan entre 20 y 45 días en promedio.

Los recipientes donde se transportan los herbicidas o soluciones preparadas deben ser cerrados y seguros para evitar derrames y escurrimientos (Figuras 1 y 2). Por esa razón, no se recomienda utilizar brochas o pinceles para aplicación de herbicidas, pues el riesgo de caminar con un recipiente abierto es muy alto por la posibilidad de contaminación del ambiente y del suelo en caso de accidente. Además, muchos herbicidas son relativamente volátiles y los recipientes abiertos aumentan la probabilidad de que los aplicadores y el equipo de trabajo inhalen el producto durante el tiempo de trabajo. En el caso de pequeños tocones, como de *Hedychium coronarium*, se puede utilizar una pipeta plástica cerrada (Figura 5) para aplicar gotas del herbicida con precisión sobre los tallos cortados o los rizomas para que no haya riesgo de verter la solución al suelo.

Se debe tener máximo cuidado con especies no blanco para maximizar el potencial de restauración. Si se aplica con cuidado, los herbicidas son muy precisos y el daño a otras plantas es prácticamente nulo. Para eliminar una planta por aspersión es necesario rociar herbicida en gran parte de sus hojas, como 70-80%. El eventual contacto del herbicida con plantas próximas no es suficiente para eliminarlas y el impacto paralelo es muchas veces imperceptible o inexistente.



Figura 1 – Aspersor manual.



Figura 2 - Aspersores de espaldas.



Figura 3 – Pipeta plástica.

El rociado foliar debe ser realizado para salpicar las hojas con la solución, pero no mojarlas hasta el punto de escurrimiento. Para lograr hacerlo bien, es importante que los aspersores tengan buena presión y chorreen gotas finas, así como **no** asperjar más de una vez las mismas hojas. Con el colorante y un poco de práctica se logra ajustar el nivel suficiente de aspersión y es importante que personas sin experiencia hagan una práctica con agua y colorante para comprender como funciona el equipo antes de utilizarlo con herbicida. Puede ocurrir la eventualidad de que plantas que no son blanco sean alcanzadas y sequen, pero no es común. De toda manera, puede haber pequeños daños que son parte del proceso hasta que se logre eliminar el banco de semillas y mantener las especies exóticas invasoras bajo control. La regeneración de especies nativas entonces es viable y puede ocurrir sin fuertes interferencias, manteniéndose el control puntual de las invasoras que logran persistir.

El transporte de los herbicidas, aspersores, colorantes (Figura 4), emulsionantes y otros adyuvantes al terreno debe ser hecho en recipientes plásticos (Figura 5) para impedir vaciamiento. Se recomienda poner al fondo de la caja plástica una cama de aserrín o de vermiculita para absorber pequeños vaciamientos o escurrimientos de los equipos durante el transporte.



Figura 4 - Colorante para la mezcla de herbicida.



Figura 5 - Cajas plásticas para transporte.



Equipos de protección personal

El equipo de protección personal es clave para todo trabajo de riesgo. Equipos específicamente diseñados para la aplicación de herbicidas (Figura 6) y el uso de motosierra (Figura 7) deben ser utilizados por el equipo de control durante todo el tiempo de trabajo para garantizar la seguridad personal, así como la seguridad del trabajo, pues un accidente grave puede poner en riesgo la continuidad de las actividades así como de aportes de recursos.



Figura 6 - EPP para aplicación de herbicida.



Figura 7 - EPP para operación de motosierra.

Las ANP suelen ser sitios de interés internacional por sus especies endémicas y belleza natural. El registro de imágenes de personas trabajando sin la protección adecuada por fotógrafos de revistas internacionales puede ser muy perjudicial al trabajo de restauración ambiental y llevar a pérdidas de oportunidades de financiación importante. La seguridad es un tema fundamental y sirve como indicador de calidad del trabajo en ejecución. Además, la intoxicación de personas es un proceso a largo plazo, por lo cual no se sienten los efectos de inmediato, lo que hace que la protección de trabajadores sea sumamente importante.

2.4.2 TIPOS DE HERBICIDAS

Los herbicidas son muy variables y diseñados para distintos tipos de plantas. Son soluciones compuestas por ingredientes activos, que efectivamente eliminan plantas, y diluyentes diversos.

Los herbicidas más utilizados en el control de plantas exóticas invasoras alrededor del mundo son los a base del principio activo Triclopyr (nombre comercial Garlon) para plantas leñosas y los a base de Glifosato (hay muchas marcas comerciales) para pastos y hierbas. Afectan a vías metabólicas de las plantas y son herbicidas sistémicos, lo que quiere decir que son absorbidos y trasladados por el sistema vascular, alcanzando toda la planta, hasta las raíces, eliminándola. Esa es una diferencia importante de cuando se trabaja con el control mecánico, en que solo se logra eliminar la parte aérea de las plantas, que siguen vivas y es una cuestión de tiempo hasta que se recuperen. Como las especies tienen metabolismos distintos, los ingredientes activos son más

efectivos para unas especies que para otras. Afortunadamente, los dos principios activos mencionados afectan una gran gama de especies.

Esos principios activos no son exudados por las raíces de las plantas, portanto, una vez aplicados correctamente sobre tocones, no pueden causar impacto en el medio circundante. La molécula de Glifosato, si se cae al suelo se separa en tres partes, es adsorbida por partículas minerales del suelo, y queda inerte. Su tiempo de degradación en el ambiente es estimado entre 20 y 45 días, y ocurre más rápidamente en condiciones de alta humedad (Flórido, 2015). Para mejorar la efectividad y la seguridad de la aplicación de herbicidas es de utilidad agregar a las soluciones un colorante para marcar las plantas y áreas alcanzadas. El colorante es un producto líquido, no tóxico, fabricado específicamente para esta finalidad. No se debe experimentar con alternativas no técnicas como colorantes utilizados para efectos culinarios u otros. El colorante ayuda a reducir el volumen de herbicida utilizado por aplicación porque el producto queda visible y evita que el aplicador pase dos o tres veces sobre el área blanco. Con eso se logra bajar los costos de control y asegurar la efectividad de los tratamientos.

El Triclopyr suele ser diluido en aceite vegetal para mejorar la eficiencia de la penetración en los tocones y reducir el escurrimiento, pero puede igualmente ser diluido en agua. Es importante destacar que **el diésel no debe ser utilizado en áreas naturales**, pues su proceso de degradación es muy lento, mucho más que el de los herbicidas, y es otro potencial contaminante del medio, mientras que el aceite vegetal es inofensivo. Un emulsionante es necesario para diluir el colorante en aceite vegetal (5ml por litro). Si es difícil adquirir el emulsionante, se recomienda trabajar con dilución en agua con colorante. Para plantas con espinas o con hojas con pelos se puede agregar también un surfactante para reducir el escurrimiento y mejorar la absorción, pero este aditivo no es necesario para todas las especies.

Otros herbicidas están disponibles y pueden ser utilizados en acuerdo a su especificidad. Se recomienda evitar el uso de Picloram y de Imazapyr porque esos principios activos son exudados por las raíces de las plantas, logrando contaminar el suelo en el sitio donde se hace la aplicación. Además, el picloram puede persistir en el suelo hasta dos o tres años después de la aplicación y es móvil en el suelo.

La cantidad de herbicida a agregar a una solución también afecta la eficiencia del control, aunque si el ingrediente activo es adecuado esa cantidad suele no ser mayor al 2-4%. En el caso de pastos y hierbas, el principio activo Glifosato es más comúnmente utilizado. El Glifosato suele ser efectivo desde 0,5% hasta 3% para pastos más rústicos y de mayor porte. En los procedimientos de rociado foliar, por lo menos 80% de la planta tiene que ser alcanzada por el herbicida para que el resultado sea efectivo. Eso es positivo porque, en el caso de haber otras plantas que no se quiera eliminar alrededor, se puede tener un excelente nivel de control y no hacer daños a plantas nativas. El Triclopyr se usa en tocones en diluciones similares, en general desde 0,5% hasta 2% con dilución en aceite vegetal o en agua. Definir la mejor dilución para cada especie puede ser resultado de pruebas de eficacia, pero hay muchas referencias de control que pueden servir de base en nivel global.

2.4.3. PREPARACIÓN DE LOS HERBICIDAS

La preparación de herbicidas debe tener en cuenta que las marcas comerciales tienen concentraciones distintas de los ingredientes activos. Así, para llegar a la dilución deseada del ingrediente activo, suele ser necesario calcular la cantidad de herbicida a incluir en la mezcla de herbicida. Por ejemplo, muchas marcas comerciales usan una concentración de 480g/litro de Glifosato. Para las mezclas, es importante considerar el porcentaje indicado del principio activo, no de las marcas comerciales, que suelen variar las concentraciones.

Así, para preparar una solución de 1% de Glifosato (480g/l), tendríamos:

$$1000\text{ml} \text{ -- } 48\%$$

$$x \quad \text{-- } 2\%$$

$$x = 2 \times 1000 / 48 = 41,67\text{ml} (\sim 42\text{ml/l})$$

De manera general se puede considerar que, si 1% corresponde a 10ml/litro, cuando la concentración del ingrediente activo es la mitad (480g/l) se debe doblar la cantidad, o sea, usar 20ml/litro para 1%, 30ml para 1,5%, 40ml para 2% y así sucesivamente.

Si el Garlon 667g/litro de Triclopyr, entonces la relación es menos directa:

$$1000\text{ml} \text{ -- } 67\%$$

$$x \quad \text{-- } 2\%$$

$$x = 2 \times 1000 / 67 = 29,85\text{ml} (\sim 30\text{ml/l})$$

Entonces para el Garlon tenemos 10ml correspondientes a 0,67% de Triclopyr (la dilución en uso y comprobadamente eficiente para mora y maqui), 20ml correspondientes a 1,34% y 30ml correspondientes a 2% de Triclopyr. Otras formulaciones de Garlon son de 480g/l.

Dilución

La dilución de los herbicidas depende de la especie blanco, pues puede variar entre distintas plantas y también entre distintos tipos de aplicación.

La preparación con aceite vegetal es generalmente utilizada para aplicación sobre tocones en el momento del corte para aumentar la absorción y asegurar que no broten, siempre con Triclopyr, aunque el producto pueda igualmente ser preparado con dilución en agua. Para el aspersion foliar se suele utilizar la dilución en agua, sea con Triclopyr o Glifosato. El Glifosato no es un ingrediente activo de alta eficiencia para el tratamiento de tocones, aunque pueda haber especies sensibles. Es un producto diseñado para pastos, principalmente.

Cuando se prepara un litro de solución todos los componentes hacen parte de este litro, entonces se comienza por las partes más pequeñas y se completa con agua o aceite hasta 1 litro, o la cantidad final deseada (2l, 5l, 10l, etc.). O sea, el preparado **no es** un litro de agua o aceite

vegetal **más** herbicida, colorante, etc. sino al contrario, **1 litro de solución en que todos los componentes están contenidos.**

El preparado se hace de la siguiente manera:

- a) En un vaso medidor poner primero la cantidad de herbicida necesaria en acuerdo a la dilución deseada (ex. 40ml para un litro). Pasarla al aspersor.
- b) Adicionar 5ml de colorante por litro de solución final (al aspersor).
- c) Agregar agua hasta completar el volúmen final (+ 955ml para 1 litro).
- d) Si el preparado es con aceite vegetal en vez de agua, agregar el aceite (+ 945ml) y **por último, agregar 5-10ml de emulsionante por litro de solución (completando 1 litro).** El emulsionante tiene por función permitir que el colorante, que es fabricado para dilución en agua, se pueda diluir en el aceite vegetal.

Si el preparado es en agua, usar siempre agua limpia sin sedimentos y el colorante; en ese caso no incluir el emulsionante.

Un surfactante puede ser adicionado (ver cantidad recomendada en la etiqueta del producto) para aspersión de plantas con muchas espinas (ej. *Ulex europaeus*) o con hojas con muchos pelos (como el pasto miel *Melinis minutiflora* y el zacate rosado *Melinis repens*).

El vaso medidor debe ser lavado 3-5 veces con el aceite o el agua que se agrega a la solución, para que quede menos contaminado por el herbicida. Poner el aceite poco a poco y lavar el recipiente cada vez un poco más, siempre agregando a la mezcla en el aspersor. Los aspersores no deben ser lavados. Con el tiempo y la práctica, se prepara la cantidad de solución para el día o para unos días de trabajo, idealmente logrando usarla toda. Cuando termine un envase de herbicida, hay que lavarlo tres veces, echando un poco de agua a cada vez. El agua usada se guarda en el aspersor para el próximo uso con herbicida y nunca se desecha en el ambiente.

Separar un vaso medidor para aceite vegetal y otro para agua, para así evitar la mezcla de los dos líquidos que no son compatibles. Marcar con plumón los vasos medidores para ACEITE y para AGUA. Idealmente deben tener 3 vasos medidores: GARLON + ACEITE, GARLON + ÁGUA y GLIFOSATO + ÁGUA para evitar la mezcla de herbicidas.

Aspersores

Los aspersores deben ser bien sellados y no pueden gotear, debiendo parar el rociado así que se suelte el gatillo.

Aspersores de 1-2 litros son buenos para invasiones iniciales y trabajo de aplicación sobre tocones de árboles o arbustos talados, pues utilizan pequeños volúmenes de producto. Aspersores de espaldas son buenos para áreas más extensas con cobertura de pastos o hierbas, pues requieren de volúmenes más grandes. Es importante que los aspersores logren tener buena presión para que las gotas salgan muy pequeñas, pues con eso el chorreo es más homogéneo y se logra ahorrar solución para obtener la misma eficacia.

Para muchos aspersores se puede cambiar las boquillas, así es importante experimentarlas para ver cuáles son más eficientes para las especies bajo control y para el rociado foliar o sobre tocones. Para hacer esas verificaciones se recomienda experimentar con agua y colorante.

Cuando la mezcla está hecha con aceite vegetal, queda más densa, por eso suele ocurrir que el chorreo salga más direccionado. Es importante probar el aspersor solamente con aceite antes de preparar la mezcla a ver si el resultado es satisfactorio, pues dependiendo de la boquilla puede no ser satisfactorio por la densidad de la mezcla. Igualmente, los aspersores deben ser probados con agua y colorante para permitir ajustar la boquilla al chorreo antes de llenarlo con la mezcla de herbicida. Esas pruebas sirven también para verificar si no hay goteo o cualquier otro problema con los aspersores y asegurar que no haya problemas durante la aplicación con las soluciones preparadas con herbicidas. Esta verificación se debe hacer con suficiente frecuencia para asegurar que no haya problemas en el terreno y especialmente con equipos nuevos, pues una vez contaminados es difícil pasarlos a otros y no se puede echar la solución.

2.4.4 APLICACIÓN

La aplicación de herbicidas nunca debe realizarse en días de lluvia o cuando la lluvia es inminente, pues la mezcla puede ser lavada y perder su eficiencia, además de contaminar el suelo o fuentes de agua por escurrimiento. En áreas abiertas se debe evitar el aspersión en días de viento fuerte. En caso de áreas donde los vientos son frecuentes, se puede emplear una

protección para direccionar el aspersión sin deriva (Figura 8).



Figura 8 - Protección contra deriva del rociado foliar.

Rociado foliar

El aplicador debe posicionarse siempre a favor del viento para asegurar que, en caso haya deriva, el herbicida no caiga sobre su persona, pero sí sea llevado adelante sobre las plantas que son objeto del control. Se debe evitar el aspersión en sitios abiertos en días de viento fuerte para que no haya pérdida ni efectos en otras plantas. El aplicador de herbicida no debe jamás caminar por dentro del área donde ha aplicado el rociado foliar, debiendo siempre definir, antes de empezar, una ruta de aplicación que le permita salir del área bajo control sin pasar por plantas mojadas con la mezcla de herbicida.

El rociado foliar debe tener en cuenta:

- la intensidad del viento: no trabajar en días de vientos fuertes para evitar deriva;
- la dirección del viento, para evitar exponer al aplicador a posible contaminación;
- un rociado direccionado y equilibrado para no alcanzar el punto de escurrimiento de la mezcla de herbicida, reduciendo al máximo el contacto de la mezcla con el suelo;

- el uso de colorante para marcar las áreas rociadas y mejorar la eficiencia de aplicación. Aun con colorante es difícil lograr la cobertura de 100% de plantas invasoras de distribución continua como pastos invasores dominantes. Por eso, es necesario siempre volver al sitio en un plazo de 15-20 días, cuando las plantas ya estarán secas, para repetir el rociado sobre las plantas que no fueron alcanzadas, hasta lograr 100% de efectividad.

El rociado foliar es comúnmente hecho con soluciones preparadas en agua, especialmente cuando las boquillas de los equipos disponibles no chorrean bien los preparados en aceite vegetal.

Tratamiento de tocones

El tratamiento de tocones es en general realizado con una solución preparada a base del ingrediente activo Triclopyr con colorante. El uso de aceite vegetal (con emulsionante para dilución del colorante) facilita la penetración de la mezcla y reduce el escurrimiento, pero igualmente se puede trabajar con dilución en agua. Si los equipos disponibles no funcionan bien con aceite vegetal, la dilución en agua es la mejor solución.

Para facilitar el tratamiento de tocones es importante que el corte de los tallos sea hecho en posición horizontal siempre que sea posible, sin partir o romper la cáscara o los tocones. Cuando hay rasgos o quiebras, se requiere cantidades más grandes de herbicida porque es necesario rociar todo el tejido expuesto de la planta, lo que hace aumentar la posibilidad de contacto de la mezcla con el suelo. Por eso, el corte con motosierra es preferible (Figura 9), así como con serrucho manual cuando son tallos de pequeños diámetros. Para evitar romper la corteza se suele hacer un primer corte en un lado para después completarlo del otro.



Figura 9 - Control de *Ligustrum lucidum*, Parque Estadual de Vila Velha, Brasil. Tala ideal de tronco de árbol con motosierra, horizontal y al ras del suelo, sin afectar a otras plantas cercanas.



Figura 10 - Control de *Ligustrum lucidum*, Parque Estadual de Vila Velha, Brasil. Foto sacada 30 días después de la tala (Foto 9), donde se ve que el colorante se degradó por la luz y que la especie nativa creciendo muy cerca del tocón no fue afectada.

Los machetes cortan en diagonal y suelen quebrar los tallos, lo que dificulta la aplicación de herbicida y facilita el escurrimiento al suelo, lo que debe ser evitado. En el caso de plantas dicotiledóneas, solamente es necesario aplicar el herbicida sobre la parte exterior del tocón o tallo, pues el sistema circulatorio de esas plantas es periférico. En esos casos, la aplicación de herbicida en la parte central de los tocones no hace diferencia (son células muertas) y sólo aumenta el consumo de herbicidas sin aumentar la efectividad del tratamiento.

Anillamiento

La técnica de anillamiento es utilizada como método de excepción porque es muy cara y suele ser de bajo rendimiento y resultados. Los troncos de los árboles suelen no ser cilíndricos, lo que hace difícil lograr la remoción de la corteza alrededor de todo el tronco. Cuando aplicado, el anillamiento debe ser hecho al ras del suelo; si se descortezaba alto, hay mucha probabilidad de rebrote abajo del anillo. Ese método sirve para eliminar árboles cuando se busca evitar el impacto de su caída sobre vegetación nativa. No puede ser utilizado donde haya caminos donde pasen personas, ni cerca de estructuras físicas como casas, por el riesgo de que las ramas, a la medida que se sequen, caigan y causen daños. En los casos en que se aplica ese método, se

recomienda aplicar la misma mezcla de herbicida que se aplicaría al tocón sobre la base del anillo, para acelerar la muerte del árbol (Figura 11).



Figura 11 – Anillamiento con aplicación de mezcla de herbicida en la base del anillo. Control de *Hovenia dulcis*, Parque Estadual Fritz Plaumann, Brasil.

El método de descortezado irregular, con cortes en la corteza donde se aplica una mezcla de herbicida, suele ser de muy baja eficiencia. Las razones son que, como en el caso del anillamiento, los troncos tienen entradas y es difícil lograr alcanzar todo el tejido que debe recibir el tratamiento de herbicida, así como porque es necesario alcanzar todo el perímetro del árbol y se suele aplicar el herbicida en algunos cortes, no alrededor de todo el tronco. También no se logra alcanzar el espesor del tejido vivo de la corteza que necesita ser tratado, pues a veces se corta más fondo, o a veces el tejido es más espeso. Con eso, la aplicación es muy irregular y no se tiene realmente el control de lo que se está haciendo, lo que conlleva a resultados irregulares y de baja eficiencia (Figura 12). El uso de ese método no es recomendado.



Figura 12 – Método de descortezado irregular aplicado al trueno chino en el P.N. Cumbres de Monterrey con resultados de baja eficacia. Se puso estopa en cada corte para entonces mojarla con herbicida, lo que también disminuye la eficacia porque los vasos conductores se bloquean en segundos y no dejan penetrar el herbicida.

Inyección en el tallo (monocotiledóneas)

Plantas monocotiledóneas como muchas hierbas y las palmeras tienen el sistema circulatorio disperso en todo el tallo o tronco. Para esas plantas, el método de inyección de herbicida suele funcionar bien. Ese método requiere hacer agujeros a cada 10-15cm alrededor de todo el tronco, con leve inclinación para abajo (ángulo de 10-20°) de manera a facilitar la penetración del herbicida, que es insertado con una jeringa. Los agujeros son más fácilmente hechos con un taladro adaptado a la motosierra cuando los troncos son grandes o muy rígidos, como en el caso de palmeras (Figura 13).

La inyección en los tallos puede ser la una solución de control para plantas como *Hedychium coronarium*, pues evitan el contacto del producto con el suelo y con el agua cuando las plantas están ubicadas cerca de fuentes de agua o en humedales. Sería necesario hacer un agujero en el caule con alguna herramienta puntiaguda y entonces aplicar la mezcla de herbicida con una jeringa, con mucho cuidado para que no escurra ni se la derrame al suelo.



Figura 12 - Adaptación de taladro en motosierra e inyección de herbicida con jeringa adaptada a un aspersor de espaldas (control de palma africana *Elaeis guineensis*, Bahia, Brasil).

2.4.5 SEGUIMIENTO Y REPASE

Es fundamental que toda acción de control sea sostenida de manera a planearse acciones de seguimiento. Es casi imposible lograr la erradicación de poblaciones de plantas exóticas invasoras con una única intervención de control, sea porque no se ubican todas las plantas, porque ya está establecido un banco de semillas o porque vuelven a llegar propágulos de otras partes. El monitoreo de resultados es tan importante como las acciones de control, pues en caso que no se haga, la tendencia es perder el trabajo y la inversión realizados.

Pastos africanos suelen secar en el plazo de dos semanas después del control. Su recuperación, sea por rebrote o, más comúnmente, por la germinación de nuevas plantas del banco de semillas, depende mucho de las condiciones iniciales de las plantas, del banco de semillas y de las condiciones climáticas del área bajo control. Así, cuando se inicie el proceso de control, es muy importante planear el monitoreo mensual para pastos e hierbas con el objetivo de repetir el control de rebrotes antes que logren desarrollarse y producir nuevas semillas. Con eso, se va manteniendo el control y se permite la regeneración de plantas nativas. En áreas muy degradadas donde no se observe regeneración natural de especies nativas es deseable echar semillas, hojarasca de áreas sin especies exóticas o plantar especies nativas para aumentar la resiliencia ambiental y ocupar los espacios antes dominados por las invasoras.

Aunque el desarrollo de arbustos y árboles es más lento y que se tenga más tiempo para repetir el control en caso de rebrote, es más costo-efectivo controlar los rebrotes mientras sean pequeños. Cuando tienen 20-40cm de altura se puede trabajar con rociado foliar. Una vez que crezcan más, el rociado deja de ser viable y se requiere cortar los brotes en la base y repetir el tratamiento inicial aplicado a los tocones.

El control es logrado una vez que no se permita que la especie vuelva a producir semillas, pues así la población se va agotando. Por eso, la viabilidad del banco de semillas en el suelo es una



información muy deseable como base para la planificación del monitoreo. El problema es que no siempre es fácil de encontrar o no está disponible para especies poco estudiadas. Otra información de mucha utilidad para el monitoreo es el tiempo que toma una especie, desde la germinación de la semilla o desde el rebrote, para alcanzar la madurez y lograr producir semillas. Ese es también el tiempo límite para repetir la intervención en el área bajo control, evitándose la renovación del banco de semillas en el suelo.

Así, el monitoreo es una parte esencial del plan de control, así como la repetición del control, aunque pueda ser realizado con métodos distintos de lo inicial. Plantas invasoras son agresivas y persistentes. Aunque no tengamos disponible toda la información deseada, tenemos información y herramientas suficientes para lograr el control, en especial aplicando el concepto de manejo adaptativo, por lo cual se va mejorando el nivel de conocimiento y el logro de resultados a la medida que se trabaja con medidas aplicadas y se registran los resultados.

3 INDICACIONES DE CONTROL MECÁNICO Y QUÍMICO PARA PLANTAS EXÓTICAS INVASORAS

En la tabla abajo se presentan indicaciones de control para las especies priorizadas en el proyecto “Fortalecer las capacidades nacionales para el manejo de las especies exóticas invasoras a través de la implementación de la Estrategia Nacional sobre Especies Exóticas Invasoras”. Las formas de aplicación están indicadas de forma abreviada, con explicaciones detalladas en la sección anterior. Estas indicaciones deben ser aplicadas por personal con capacitación técnica para el control químico, respetando todos los criterios de seguridad personal y ambiental.

Espece	Nombre común	Control mecánico	Control mecánico + químico
<i>Arundo donax</i>	Carrizo gigante	Arranque manual de plantas jóvenes y pequeñas poblaciones, desde que sea viable sacarlas con los rizomas, o arranque con azadón o pala para remoción de los rizomas.	Se considera que el Glifosato sea el principio activo más eficiente. Talar al ras del suelo y aplicar Glifosato sobre los tocones en dilución de 40% en agua limpia hasta sin diluir. o Talar al ras del suelo, esperar que brote. Realizar rociado foliar con Glifosato en dilución de 4-8% en agua limpia con colorante cuando las plantas tengan 20-50cm y hojas verdes que puedan absorber el herbicida.
<i>Casuarina equisetifolia</i>	Pino australiano	Arranque de plantas jóvenes que salgan con las raíces.	Tala con motosierra y aplicación inmediata de Triclopyr 2% en aceite vegetal con emulsionante + colorante sobre el tocón; o Triclopyr 2% en agua con colorante.
<i>Cassythia filiformis</i>	Vid	Remoción manual.	El uso de 2,4D es eficiente, pero no se menciona la dilución (CABI https://www.cabi.org/isc/datasheet/11493).
<i>Cenchrus ciliaris</i> <i>Cenchrus echinatus</i>	Zacate buffel Zacate cadillo	No se recomienda el arranque manual para evitar disturbar el suelo, lo que suele activar el banco de semillas. Se puede utilizar el arranque para plantas aisladas e invasión inicial sin reproducción.	Si las plantas tienen más que 60cm de altura, talar con desbrozadora lo más bajo posible (al ras del suelo). Esperar el rebrote. Hacer rociado foliar sobre los rebrotes con 20-30cm de altura con Glifosato en dilución de 2% en agua limpia con colorante + surfactante.
<i>Cissus verticillata</i>	Tripa de zopilote	Remoción manual.	Cuando sea viable ubicar los tocones de las plantas, talar con serrucho al ras del suelo y aplicar inmediatamente Triclopyr 2% en aceite vegetal con emulsionante + colorante sobre el tocón; o Triclopyr 2% en agua con colorante.
<i>Cocos nucifera</i>	Cocotero	Talar al ras del suelo.	En caso de rebrote: Rociado foliar sobre los rebrotes con Glifosato 2% en agua limpia con colorante.

Especie	Nombre común	Control mecánico	Control mecánico + químico
<i>Cynodon nlemfuensis</i>	Zacate	No se recomienda el arranque manual para evitar disturbar el suelo, lo que suele activar el banco de semillas. Se puede utilizar el arranque para plantas aisladas e invasión inicial sin reproducción.	Si las plantas tienen más que 60cm de altura, talar con desbrozadora lo más bajo posible (al ras del suelo). Esperar el rebrote. Hacer rociado foliar sobre los rebrotes con 20-30cm de altura con Glifosato en dilución de 2% en agua limpia con colorante.
<i>Elaeis guineensis</i>	Palma africana	Arranque manual de plantas pequeñas en regeneración. Arranque de plantas medianas que todavía no tienen tronco con azadón.	Abertura de agujeros a cada 10-15cm alrededor del tronco seguida de inyección de Triclopyr 4% en agua, 10-15ml por agujero, con jeringa acoplada a un aspersor de espaldas.
<i>Eucalyptus spp.</i>	Eucalipto	Arranque de plantas jóvenes que salgan con las raíces.	Tala con motosierra y aplicación inmediata de Triclopyr 2% en aceite vegetal con emulsionante + colorante sobre el tocón; ● Triclopyr 2% en agua con colorante. En caso de rebrote: Rociado foliar sobre los rebrotes con Glifosato 2% en agua limpia con colorante.
<i>Hedychium coronarium</i>	Mariposita blanca	Arranque de plantas con todos los rizomas cuando hubiera plantas aisladas o poblaciones muy pequeñas. Arranque manual en áreas húmedas o cuando en contacto con agua.	Rociado foliar con Glifosato 2% en agua limpia con colorante sobre las hojas cuando las plantas son pequeñas y cuando lejos del agua o en la estación seca. Talar con desbrozadora o machete, esperar el rebrote y usar rociado foliar con Glifosato 2% en agua con colorante en rebrotes de 20-30cm de altura. <i>Cuando en humedales y sitios donde está en contacto con agua, solo es viable el control químico si hubiera una formulación de Glifosato para uso acuático, como es el Rodeo, o se trabaja con arranque manual.</i> <i>Se puede intentar desarrollar una técnica para inyección de herbicida en los tallos, haciendo un agujero con un objeto puntiagudo donde se inyecta el herbicida con una jeringa.</i>
<i>Hyparrhenia rufa</i>	Pasto jaragua Zacate jaragua	No se recomienda el arranque manual para evitar disturbar el suelo, lo que suele activar el banco de semillas.	Talar con desbrozadora lo más bajo posible (al ras del suelo). Dejar secar, y realizar quema controlada. Hacer rociado foliar sobre los rebrotes con 20-30cm de altura con Glifosato en dilución de 3% en agua limpia con colorante.

Especie	Nombre común	Control mecánico	Control mecánico + químico
		Se puede utilizar el arranque manual para plantas aisladas e invasión inicial sin reproducción.	
<i>Kalanchoe x houghttoni</i>	Kalanchoe	Arranque manual de plantas con las raíces: plantas aisladas o pequeñas poblaciones.	Rociado con 2,4D en dilución de 5ml/l de Esteron 47M (contiene 400g del ingrediente activo por litro) (Guerra-García et al. 2018: efectividad 99% para <i>Kalanchoe delagoensis</i>).
<i>Koelreuteria paniculata</i>	Sombrilla japonesa	Arranque manual de plantas jóvenes que salgan con las raíces. Tener cuidado porque el trueno chino puede rebrotar de las raíces; en esos casos, no arrancar porque brotan.	Tala con motosierra y aplicación inmediata de Triclopyr 2% en aceite vegetal con emulsionante + colorante sobre el tocón. ● Triclopyr 2% en agua con colorante En caso de rebrote: Rociado foliar sobre los rebrotes con Glifosato 2% en agua limpia con colorante.
<i>Ligustrum lucidum</i> <i>Ligustrum spp.</i>	Trueno chino	Arranque de plantas jóvenes que salgan con las raíces. Tener cuidado porque el trueno chino puede rebrotar de las raíces; en esos casos, no arrancar porque brotan.	Tala con motosierra y aplicación inmediata de Triclopyr 2% en aceite vegetal con emulsionante + colorante sobre el tocón; ● Triclopyr 2% en agua con colorante.
<i>Melinis minutiflora</i> <i>Melinis repens</i>	Zacate miel Pasto miel Zacate rosado	No se recomienda el arranque manual para evitar disturbar el suelo, lo que suele activar el banco de semillas. Se puede utilizar el arranque manual para plantas aisladas e invasión inicial sin reproducción.	Si las plantas tienen más que 60cm de altura, talar con desbrozadora lo más bajo posible (al ras del suelo). Esperar el rebrote. Hacer rociado foliar sobre los rebrotes con 20-30cm de altura con Glifosato en dilución de 2% en agua limpia con colorante + surfactante.
<i>Mesembryanthemum crystallinum</i>	Vidrillo	La remoción manual con las raíces es favorable por removerse también la sal acumulada en las hojas. Es necesario remover del ambiente y amontonar para secar.	Rociado foliar con el ingrediente activo Triasulfuron en dilución de 1.25g/10 litros de agua con penetrante + colorante (FloraBase Australia, https://florabase.dpaw.wa.gov.au/browse/profile.php/2813).

Especie	Nombre común	Control mecánico	Control mecánico + químico
<i>Nicotiana glauca</i>	Tabaquillo	Arranque manual de plantas de pequeño porte.	Tala al ras del suelo con serrucho o motosierra y aplicación inmediata de Triclopyr 2% en aceite vegetal con emulsionante + colorante sobre el tocón; <ul style="list-style-type: none"> o Triclopyr 2% en agua con colorante. Rociado foliar de Glifosato 3% en agua con colorante.
<i>Oeceoclades maculata</i>	Orquidea africana	Remoción manual con las raíces para evitar que vuelva a brotar.	Se puede experimentar con Glifosato 3% + 10g/litro de urea + colorante en agua limpia. En CABI ISC dicen que no hay un método de control químico definido para esta especie (https://www.cabi.org/isc/datasheet/115853).
<i>Opuntia spp.</i>	Nopal	Arranque con azadón en caso de ser pocas plantas. Recoger cladodeos que estén en el suelo y amontar para pudrir o para quema.	Hacer agujeros en las plantas de grande porte con una herramienta puntiaguda. Inyectar herbicida MSMA en dilución de 50% en agua con colorante (partes iguales de herbicida y de agua) (Lotter, Hoffmann 1998 sobre control de <i>Opuntia stricta</i> en Sudáfrica).
<i>Psittacanthus calyculatus</i>	Muérdago	Remoción manual.	Rociado foliar con herbicida Esterón 47M en la época de primavera en dilución de 300ml en agua con colorante hasta 700ml (Ignacio, 1974).
<i>Ricinus communis</i>	Higuerillo	Arranque manual de plantas pequeñas. El banco de semillas es vigoroso y persiste ~ 5 años.	Tala y aplicación inmediata de Triclopyr 2% en aceite vegetal con emulsionante y colorante en el tocón o Tala y aplicación inmediata de Triclopyr 2% en agua con colorante en el tocón o Rociado foliar con Glifosato 2-3% en agua limpia con colorante.
<i>Schinus molle</i>	Pirul	Arranque manual de pequeñas plantas.	Tala y aplicación inmediata de Triclopyr 2% en aceite vegetal al tocón con emulsionante y colorante.
<i>Struthanthus sp.</i>	Muérdago	Remoción manual.	Rociado foliar con herbicida Esterón 47M en la época de primavera en dilución de 300ml en agua con colorante hasta 700ml (Ignacio, 1974).

ANNEX 9 – MISSION PHOTOGRAPHIC REGISTER

ENTREVISTAS CDMX



Reunión con UCP, CONABIO y PNUD/ 09-04-2018 Sala Xitle, CONABIO

VISITAS A CAMPO



ANP insulares. Equipo utilizado para medidas de bioseguridad insular.
GECI. Ensenada. 11-04-2018



Cedros Reunión en las Instalaciones de la Cooperativa de Pescadores Nacionales de Abulón 11-04-2018



Difusión de Información sobre especies exóticas y revisión de cámaras trampa en Isla Cedros 12-04-2108



Entrevistas al Grupo de Ecología y Conservación, Islas en I. Cedros 12-04-2018



Vivero con especies de plantas nativas en RB Isla Guadalupe 13-04-2018



Vivero con especies de plantas nativas en RB Isla Guadalupe 13-04-2018



Acciones de reforestación con especies nativas en I. Guadalupe 13-04-2018



Cerco exclusorio para gatos en Punta Sur, RB Isla Guadalupe, Proyecto de control de gato feral 14-04-2018



Cerco exclusivo para gatos en Punta Sur, RB Isla Guadalupe, Proyecto de control de gato feral 14-04-2018



Aves beneficiadas por la erradicación de gato feral en la RB Isla Guadalupe.
Albatros de Laysan (*Phoebastria immutabilis*) 14-04-2018



Perros entrenados para acciones de bioseguridad insular. RB Isla Guadalupe. 14-04-2018



Trampa de cebo para captura de gatos y disposición de la trampa RB Isla Guadalupe. 14-04-2018



Disposición de la trampa y uso de carnada. RB Isla Guadalupe. 14-04-2018



Restauración de bosque de pino. Equipo visitante (CONANP, UCP, EMT) y GECCI AC. en RB Isla Guadalupe. 15-04-2018



Gato feral en la RB Isla Guadalupe. 15-04-2018



APFF Sierra de Álamos Río Cuchujaqui (SARC). Presencia de ganado el ANP. 18-04-2018



Rebrote de zacate rosado (*Melinis repens*), posterior a las acciones control. Arroyo "El Mentidero" APFF SARC 18-04-2018



Restos de zacate rosado seco sobre el Arroyo El Mentidero. APFF SARC 18-04-2018



Equipo visitante (CONANP, UCP, EMT), brigada responsable de las acciones de control de zacate rosado y consultor en el APFF SARC 18-04-2018



Reunión para presentación de avances y entrevistas. Equipo visitante (CONANP, UCP, EMT), brigada responsable de las acciones de control de zacate rosado y consultor en el APFF SARC 18-04-2018



Material de difusión sobre especies exóticas invasoras y presentaciones de avances APFF SARC 18-04-2018



Regiones altas de la Sierra invadidas por zacate rosado (*Melinis repens*)
APFF SARC 19-04-2018



Presentación de avances del proyecto FMAM-EEI y Proceso de Entrevistas.
Parque Nacional Cañón del Sumidero 23-04-2018



Señalética en los miradores del PNCS sobre el problema de las EEI. 23-04-2018



Zonas donde se llevó a cabo el control de pasto jaragua (*H. rufa*) dentro del PNCS
y observación de re infestación. 24-04-2018



Pasto jaragua (*H. rufa*). Retroalimentación sobre acciones futuras. PNCS 24-04-2018



Primera presentación de hallazgos post-misión de campo. Sala Xitle, CONABIO 27-04-2014
UCP, CONABIO, PNUD

ANEXO 10 - REGISTRO DE LOS PRINCIPALES COMENTARIOS DE LA REVISIÓN DE LA VERSIÓN BORRADOR DEL INFORME Y RESPUESTAS DEL EQUIPO DE LA EMT

Comentario	Fuente	Comentarios y respuestas de la EMT
<p>Con referencia al punto 1.3 “En este punto los 3 comités son los más importante y se llevan a cabo las reuniones y se da seguimiento a los temas, aunque no de manera altamente satisfactorio, ¿pero podría ser satisfactorio?”</p>	UCP	Se consideró no solamente lo que está en el texto, sino también el contenido de cada subcomponente con todas sus actividades. Por eso el punto 1.3 sigue como MS, ya que buena parte de las acciones no están muy desarrolladas
<p>Con referencia al punto 1.1.1</p> <p>1) “Si se puede hacer la búsqueda por Estados y Municipios, mediante Enciclovida, también se pueden bajar todos los datos en Excel”.</p> <p>2) “Junto al campo para ingresar el nombre hay como un embudo donde dice búsqueda avanzada, ahí se puede seleccionar por especies exóticas o invasoras, además de otros filtros como grupo taxonómico desde reino”.</p> <p>3) “Sobre detalles de la invasión, tipos de uso, impactos cuando conocidos, métodos de control, medidas de prevención, esto se encuentra en las fichas descargables en pdf. Está pendiente que se incorporen a las páginas individuales de la especie donde actualmente aparecen las de Wikipedia y EOL”.</p> <p>4) “Ya se puede hacer la exportación de datos”</p> <p>5) “Entrando por Enciclovida no se limita a grupos taxonómicos, se comentó que esto se va a homologar en este año para que esto también se pueda hacer entrando por la página de Especies invasoras”</p>	CONABIO	En la sección 1.1, aunque la actividad ya se cumplió y es altamente satisfactoria por la cantidad de información generada, se hizo el comentario sobre complejidad que como usuario se tiene para encontrar la información en el SIEI en referencia a varios campos. La intención fue proveer referencias para que se comprenda el punto de vista de un usuario y se pueda mejorar la flexibilidad y el contenido del SIEI. Comprendemos que está en desarrollo. Las respuestas por parte de la CONABIO se muestran en la primera columna.
<p>Con referencia al punto 1.1.2</p> <p>“Hay una página por separado, por lo que no se quiso duplicar”.</p>	UCP - CONABIO	Se comentó que en la página del proyecto debe haber referencia / liga para donde está el sistema e información de la Estrategia Nacional de Especies Invasoras sobre el estado de desarrollo. Las respuestas por parte de la UCP - CONABIO se muestran en la primera columna.
<p>1.1.3 “Los tipos de redes y foros en las que SEI CONABIO está participando activamente son la Red mesoamericana, el trabajo que se hace con NAISN, con la CCA, con los que era WAB y ahora es IAB, GIAIPPartnership, ISSG, CABI en las que si se está promoviendo el intercambio de conocimiento y experiencias para el manejo de especies invasoras”.</p>	UCP – CONABIO	Nos referimos al desarrollo de redes locales (en México) de expertos para apoyo al manejo de EEI, como está previsto en el PRODOC. Las redes internacionales son importantes, falta desarrollo al nivel de país. Sin información de acuerdo a los informes anuales /trimestrales.
<p>1.1.6 Sobre que no se ha desarrollado un AR para vías de introducción.</p> <p>“Se trabajó en el marco de la NAPPO desde 2008 en una norma regional para AR de vías de introducción, por lo que la herramienta si está, sin embargo, en este momento (y con base en los cambios propuestos por el CBD) se está re-trabajando la parte de vías de introducción con la nueva clasificación para poder retomarlo”.</p>	UCP – CONABIO	En la página faltan las AR desarrolladas para plantas, así como el MERI, que todavía requiere de ajustes. El vínculo para la página de CEFAS - peces (“La versión en español puede bajarse siguiente este link, www.cefas.co.uk/projects/risks-and-impacts-of-non-native-species/decision-support-tools.aspx ”) no funciona. No existe análisis de vías de introducción no hay herramienta o existe en la página web, ni donde debería estar (estaba en 1.7).
<p>1.1.7</p> <p>1) “Desde la fase piloto del sistema en 2015 el proyecto elaboró un catálogo de 23 EEI, al que CONAFOR añade continuamente fichas nuevas ya existen 5”.</p> <p>2) “Esta información no corresponde a este punto, lo que se ha hecho no es un estudio, se está haciendo el análisis de reportes de vías de introducción. La información que se ha colectado en este sistema no está incluida en el SIEI”.</p>	UCP – CONABIO	Se refiere a que en el proyecto se consideró desarrollar fichas técnicas con información y fotos para identificación de EEI; información respecto a vías de introducción y vectores; métodos de identificación; y procedimientos para cuarentena/disposición. La información reportada en el informe anual de 2016 es que se previó la realización de fichas de identificación de plagas para

Comentario	Fuente	Comentarios y respuestas de la EMT
<p>3) "En el PRODOC dice: Estos materiales incluirán fichas técnicas con información y fotos para su identificación; información respecto a vías de introducción y vectores; La CONABIO colaboró con CABI haciendo una inversión fuerte financiero a este sistema además proporcionó información para que se pueden usar las fichas de CABI para este propósito, además la CONABIO desarrollo MERIS y fichas que contienen este tipo de información que están disponible en la página de invasoras y en Enciclovida. Gracias al aporte de la CONABIO y otras instituciones la información de CABI está disponible en internet (acceso libre) para las instituciones y se comparte la información en los cursos de capacitación de PROFEPA".</p>		<p>realizarse en 2017; y en el 2017 se reporta que se hicieron trámites necesarios para contratación de los servicios para el desarrollo e implementación del Sistema Institucional del Registro de Verificación de la PROFEPA. Las respuestas por parte de la UCP - CONABIO se muestran en la primera columna.</p>
<p>1.1.9 "Se han llevado capacitaciones con las brigadas que realizan el trabajo de campo para el INFyS. En el PRODOC dice que se realizarán 5 fichas por año".</p>	UCP	<p>Pasar lo del punto 1.1.7. (CONAFOR) pero en éste no hay información. De acuerdo al PRODOC, la CONAFOR está desarrollando material y están implementando programas de capacitación para las brigadas que realizan la recolección de datos y medidas en los sitios, para que el INFyS incluya los indicadores de salud forestal, basados en el riesgo y el impacto de EEI, que guiará la toma de decisiones de CONAFOR en el manejo de los bosques y el desarrollo de un sistema de Detección Temprana y de Respuesta Rápida (DTRR) para limitar la entrada y propagación de EEI de alta prioridad que impacten los ecosistemas forestales. Se hace referencia al número de fichas que se han elaborado hasta el momento para apoyar las acciones de las brigadas en campo.</p>
<p>1.2.1 /1.3.1 "El estudio cubre los aspectos diferentes de los dos puntos así estaba previsto desde que se redactó el PRODOC y se refleja también el presupuesto inicial"</p>	UCP	<p>En el PRODOC se especifican las acciones relacionadas con el punto 1.2.1 a diferencia del 1.3.1., sin embargo, en la implementación del proyecto no hay una clara diferenciación. En los informes anuales se reporta lo mismo para los tres años, para las dos actividades. En la página sólo hay información para los puntos 1.3.5 y 1.3.8.</p>
<p>1.3.3 Sin comentarios</p>	UCP	<p>Saber, si por la similitud de los temas está más relacionado a la actividad 1.2.4. Se resolvió vía skype con la UCP.</p>
<p>1.3.5 "Además están disponible todas las minutas de las reuniones para su consulta"</p>	UCP	<p>No están las minutas disponibles en la página del proyecto, pero si para su consulta por solicitud.</p>
<p>2.2.1 "Aquí me gustaría saber el criterio para definir MS, En el Plan de indicadores tenemos la obligación de cumplir LÍNEAS BASE en CUATRO ÁREAS PROTEGIDAS. Como ustedes lo mencionan ya se han hecho acciones en Álamos, Tutuaca, Cañón del Sumidero, Cumbres de Monterrey, El Vizcaíno y Los Tuxtlas. SEIS ÁREAS. Considero que la evaluación debería ser AS, al haberse cumplido y superado el número de líneas base".</p>	CONANP Oficinas Centrales	<p>No hay información sobre el número de líneas base que deben elaborarse. De acuerdo a CONANP, en el Plan de indicadores se tiene la obligación de cumplir líneas de base en 4 ANP. Esa información no se encuentra en el plan de indicadores.</p>
<p>2.2.2 "Nuevamente quisiera saber porque S, se han logrado constituir seis Subconsejos, tres financiados con el GEF y tres con recursos de las ANP (Por lo tanto, son procesos internos de las áreas y no del Proyecto). Los otros tres están en proceso de adjudicación y este año se logrará el 100%. Esto además del respectivo seguimiento en cada uno de ellos. Considero que la evaluación debería ser AS porque refleja un buen avance y una proyección de cumplimiento 100%".</p>	CONANP Oficinas Centrales	<p>El indicador se refiere a que al final del año 1 se tendrían estos subconsejos, aunque lleva avance considerable, no se cumplió la meta en el tiempo programado.</p>

Comentario	Fuente	Comentarios y respuestas de la EMT
<p>2.2.4</p> <p><i>“Uno de los principales subcomponentes que se han visto presentes en prácticamente todas las Consultorías es el de socialización de la problemática de las EEI. A continuación, algunos datos concretos:</i></p> <p><i>Se han realizado aproximadamente 30 Talleres en las diferentes consultorías, con una participación aproximada de 627 personas, 188 mujeres y 439 hombres. Una infografía sobre la problemática de EEI en Álamos.</i></p> <p><i>Una Infografía para la identificación y atención de EEI en Valle de Bravo.</i></p> <p><i>Una Estrategia de comunicación para prevenir, controlar y erradicar EEI en el Parque Nacional Cumbres de Monterrey, lo anterior incluyó material impreso de divulgación, dos videos y dos spots de audio.</i></p> <p><i>Una infografía para Cañón del Sumidero que incluyó materiales para talleres locales y letreros para embarcaderos y miradores. Además de material de difusión.</i></p> <p><i>Un Foro de atención a EEI para la conservación de la biodiversidad en Cañón del Sumidero.</i></p> <p><i>Aproximadamente se han pagado para este tema siete consultorías por un recurso aproximado de 100,000 USD.</i></p> <p><i>Por los avances considero que la evaluación en este aspecto debería ser AS”.</i></p>	<p>CONANP Oficinas Centrales</p>	<p>Hay avances destacables, sin embargo, aún no se contemplan acciones en todas las ANP, por lo anterior se considera “S”.</p>
<p>2.2.5</p> <p><i>“En este caso se tienen dos Protocolos como bien se menciona, también se cuenta con un diagnóstico para la Prevención de la cotorra argentina en el Vizcaíno, y aunque no está consolidado como tal (SDTRR) si se realizará un Protocolo de DTRR en el Vizcaíno, además de que se cumplirá también para Sian Ka’an y Tutuaca, ya que los recursos disponibles estarán enfocados totalmente en el cumplimiento de los indicadores restantes.</i></p> <p><i>Además, ¿porque no se están considerando esfuerzos adicionales como lo de Álamos en el cumplimiento? En este caso considero que la evaluación debería estar en MS”.</i></p>	<p>CONANP Oficinas Centrales</p>	<p>SDTRR son muy incipientes y no se ejecutan. Se han considerado los esfuerzos realizados por el APFF SARC, sin embargo, no se ha hecho en las ANP que fueron definidas. En tres años de ejecución y a uno de finalizar el proyecto, no se han tenido avances relevantes.</p>
<p>2.2.6.</p> <p><i>Ahora podemos ver que los métodos no fueron los adecuados. Sin embargo, en su momento se consideraron pertinentes para iniciar con el trabajo de control. Si bien es cierto que no se han reflejado eficiencia en el zacate rosado en Álamos y pasto jaragua en el Cañón del Sumidero, si se han reflejado acciones relevantes de pino salado en Álamos, enredadera en Marismas y plantas invasoras en Cumbres de Monterrey. Para este último no sólo con recursos del Proyectos sino con propios Subsidios de la CONANP. (La información fue proporcionada en su momento).</i></p> <p><i>También se esperan muy buenos resultados de los trabajos próximos (Proyectos vigentes) en El Vizcaíno (vidrillo, tilapia y rana toro) y Cumbres de Monterrey (trueno y sombrilla japonesa con el uso de herbicidas de acuerdo a las observaciones durante esta evaluación).</i></p> <p><i>Lo anterior sustenta que esta evaluación no puede ser evaluada con I de ninguna manera, la evaluación considerada de acuerdo con lo anteriormente expuesto debería ser de MS”.</i></p>	<p>CONANP Oficinas Centrales</p>	<p>La información técnica ha estado disponible desde que inició el proyecto, se debió haber buscado más la participación. Por lo que lleva el proyecto en ejecución, es insatisfactorio debido a que ya lleva 3 años de proyecto sin resultados contundentes (por el número de proyectos, áreas a tratar y eficiencia). Se marca en rojo por la temporalidad, es decir, sólo resta un año de proyecto y hay que considerar los tiempos viables de aplicación de métodos químicos, por lo que quizás no se alcancen a consolidar los métodos para probar la eficiencia para replicabilidad.</p>
<p>2.2.7</p> <p>1) <i>“Considero que hay un error en esta apreciación, ya que el proceso de restauración toma años. Será imposible de valorar en el marco del proyecto. En ese sentido, las acciones de restauración podrán fortalecerse desde otras estrategias, como la ENbioMex y su Plan de acción al 2030”.</i></p>	<p>1) CONABIO 2) CONANP Oficinas Centrales</p>	<p>Comentario Patricia Koleff (los resultados de la restauración no son a corto plazo), ha sido incluido en el texto.</p> <p>Se entiende que ha habido un esfuerzo por parte de las ANP para lograr restauración, sin embargo, los resultados no son, hasta el momento satisfactorios.</p>

Comentario	Fuente	Comentarios y respuestas de la EMT
<p>2) <i>“Si bien no hay evidencias actuales de la restauración de sitios en ninguna de las dos áreas establecidas en los indicadores, y como es sabido que si se realizaron en Cañón del Sumidero. Les comento que, el que el control manual no haya sido el mejor método para controlar pasto jaragua, no quiere decir que no hubo un esfuerzo de reforestación en los sitios controlados. Si recuerdan en la visita de campo si había especies nativas sembradas y que habían logrado sobrevivir a la re-infestación. No creo que una deficiencia del control haga que se considere como totalmente nulo el esfuerzo, finalmente fue la experiencia de un piloto. La restauración estuvo contemplada totalmente durante el proyecto (cultivo de las siete plantas nativas – principalmente caoba, ceiba y cedro- y protocolo de siembra).</i></p> <p><i>También, y como tienen conocimiento en un esfuerzo institucional se realizará el control completo de la superficie (10 ha) y solventar las debilidades identificadas. Este esfuerzo que ustedes pudieron corroborar también debería ser considerado.</i></p> <p><i>Además, se proveerá al equipo del Parque las herramientas que les permitan mantener un control sistemático, posterior a la consecución de la consultoría.</i></p> <p><i>Por la explicación anterior, considero una evaluación de MI”.</i></p>		<p>Esta acción es dependiente de la anterior. No se podrán realizar acciones de restauración de no lograrse encaminar las acciones de control. Control eficiente para que naturalmente y con acciones encaminadas se dé la restauración.</p>
<p>Punto 2.7 pág. 36 <i>“Checar de dónde viene que la iniciativa de REDD+ “Medición, Reporte y Verificación (MRV) con el fin de medir las emisiones de gases de efecto invernadero causadas por la deforestación y degradación forestal, se haya usado en el diseño del proyecto”.</i></p>	UCP	<p>La iniciativa de REDD+ “Medición, Reporte y Verificación (MRV) con el fin de medir las emisiones de gases de efecto invernadero causadas por la deforestación y degradación forestal; la fuente es el PRODOC.</p>
<p>Tabla 2 pág.38 N/A</p>	UCP	<p>No se pueden hacer modificaciones al texto pues así está auto reportado el nivel de PIR, el cual es la base para ese año. Lo anterior, como resultado que se hicieron modificaciones con control de cambios a esta parte del texto (a fin de actualizarse).</p>
<p>Punto 3.2 pág. 62 Sobre que las metas del proyecto son demasiado ambiciosas. <i>“Concuerdo, y en todo caso se debería plantear mejor qué avances hacer que en el largo plazo lleven al resultado esperado en la Estrategia”.</i></p>	CONABIO	<p>Se anexa una nueva recomendación.</p>
<p>3.7.3 pág. 80 En referencia a que el Comité Científico ha aconsejado la diversificación de los métodos de control, pero no se ve en la práctica la aplicación de esas recomendaciones, lo que refleja la falta de formación técnica en las ANP donde se implementan las acciones prácticas.</p> <p><i>“Creo que no es el caso, tampoco dimos esa tarea al comité y el problema es de legislación y no haber atraído a personas del sector agrícola con experiencia en tema de control de plantas con productos químicos”</i></p>	CONABIO	<p>El equipo de evaluación propone cambiar el texto para: “No se ha aprovechado el conocimiento del Comité Científico para mejorar la efectividad de las acciones de control de plantas en las ANP continentales”.</p>
<p>C6 En referencia a , a que se ha visto que la influencia de la Coordinación de Especies Invasoras de la DEPC en las actividades desarrolladas en las ANP es limitada por el arreglo institucional en el que los Directores de las ANP son jerárquicamente superiores al Coordinador de EEI de la CONANP Central</p> <p><i>“Considero que la situación no es un tema del orden jerárquico, más bien y como lo comenté en las entrevistas, es un tema de falta de personal en las ANP con el enfoque específico de EEI, ya que el rol de este tema es el mismo de otros muchos temas, la sobrecarga de trabajo también influye para retrasar los tiempos de entrega de los diferentes documentos a revisar”.</i></p>	CONANP Oficinas Centrales	<p>Si ha habido una influencia en el tema de jerarquía en la CONANP. Así como de falta de personal en las ANP con el enfoque específico de EEI, ya que el rol de este tema es el mismo de otros muchos temas. La sobrecarga de trabajo también influye para retrasar los tiempos de entrega de los diferentes documentos a revisar.</p>

Comentario	Fuente	Comentarios y respuestas de la EMT
<p>C8 Sobre el uso de control biológico y debido a que no hay un proyecto en ANP que se oriente al control de plantas exóticas invasoras.</p> <p><i>“Creo que este punto está fuera de lugar y no corresponde al componente 2, de ser así favor de sustentarlo”.</i></p>	<p>CONANP Oficinas Centrales</p>	<p>Es importante, permitir el uso de otros métodos de control cómo el químico y el biológico que podrían tener efectos positivos.</p>
<p>Gestión del proyecto Pág. 100 Sobre el texto que dice “por falta de profesionales especializados en el tema en México (en referencia a la aplicación de métodos de control eficientes).</p> <p><i>“O por falta de no lograr captar profesionales del sector agrícola, a tema de invasoras en {areas naturales}. Lo cual, además requiere contar con los permisos necesarios”.</i></p>	<p>CONABIO</p>	<p>En referencia a que no se ha logrado captar profesionales del sector agrícola, para realizar acciones de control de EEI en ANP (personal especializado para realizar las consultorías). Se considera que no es solamente buscar gente con formación agrícola, sino gente profesional que conozca los impactos de estos productos en las ANP.</p>
<p>R11 En referencia a que es indispensable designar un responsable para los procesos en ANP.</p> <p><i>“Más allá del responsable, hay que lograr un acuerdo para permitir uso de otras técnicas en ANP”.</i></p>	<p>CONABIO</p>	<p>Consideramos que sigue siendo relevante designar un responsable para lograr acuerdos en el uso de diversos métodos de control y erradicación de EEI por parte de cada ANP.</p>
<p>R13 En referencia a sobre realizar un análisis de los procesos de entrega de informes sobre productos contratados y de otros procesos que generan retrasos de implementación.</p> <p><i>“En este punto realmente necesito saber el cómo hacerlo, porque ya hacemos todo lo posible, pero si la calidad de los productos derivados de las consultorías no son buenos no hay manera”.</i></p>	<p>UCP</p>	<p>Referente a buscar maneras de mejorar la calidad inicial de los informes. Se sugiere ser muy específico en la estructura que deben tener informes, entregándoles a los consultores dicha estructura con detalles de contenido mínimo y formato para aprobación.</p>

10 de julio de 2018 – Comentarios a la versión en inglés del Informe de la EMT

Comentario	Fuente	Respuestas de la EMT
<p>Página: Black rats (<i>Rattus rattus</i>) at the APFF Sierra de Álamos - Río Cuchujaqui – High This indicator reflects a flaw in project design because the black rat is not considered a problem in the PA. It was initially proposed as a problem species by an expert based on a punctual observation, which was not checked at the time.</p> <p><i>Según mi información (com. pers. con Elvira Rojedo) cuando se hizo el prodoc la rata apareció por primera vez y fue percibido como problema a la época.</i></p>	<p>Georgia Born, UCP</p>	<p>Durante la misión se revisó esta cuestión de la inclusión de la rata negra como especie blanco del proyecto. La explicación proporcionada por la administración de la APFF Sierra de Álamos – Río Cuchujaqui fue que, durante la elaboración del PRODOC, uno de los especialistas que se reunieron para determinar la priorización de especies, mencionó la presencia de la rata negra en el área. Después del inicio del proyecto se verificó que se trataba de una ocurrencia puntual en un predio y no se ha encontrado indicios de la rata negra en áreas naturales. Por esa razón se propuso sustituir esa especie por otra exótica invasora en la cual se justifique invertir recursos para control o erradicación. La falla en el diseño se dio por falta de datos mejor consolidados y de posibilidad de verificación durante la etapa de elaboración del proyecto, lo que a su vez refleja la falta de conocimiento sobre las especies exóticas invasoras anteriormente a la ejecución de este proyecto.</p>
<p>Página: 42 tabla indicadores En la versión español dice respecto a los MERI: Sin embargo, aún no se cuenta con todas las evaluaciones rápidas (incluso por necesidad de ajustes en el MERI). Rapid assessments have not been developed for all listed species yet (also because the MERI protocol needs to be...).</p>	<p>Georgia Born, UCP</p>	<p>Se ha ajustado el texto para decir que los MERI han sido ejecutados para todas las especies listadas. Durante la misión se ha mencionado la necesidad de ajustar los umbrales de riesgo del MERI porque se notó una tendenciosidad para resultados de riesgo alto. Con eso, aunque los MERI estén hechos para todas las especies listadas, se incluyó también la observación de la necesidad de revisión de los resultados a partir del ajuste de los umbrales de riesgo.</p>

Comentario	Fuente	Respuestas de la EMT
<i>Isabel dice que hay MERI para todas las especies de la lista oficial.</i>		
Página 46 (conteo de páginas): Primera línea: No specific output is defined for this activity (problem of project design). <i>No entiendo el comentario el output deberían ser planes de manejo pero SEMARNAT no he hecho nada por lo que nosotros vamos a tratar de hacerlo con un grupo de trabajo.</i> <i>En el PRODOC está incluida la mención a medidas de manejo: "1.1.5 Review of which species are listed as high priority species and what are the management measures that must be applied for such species".</i>	Georgia Born, UCP	El comentario se refiere a que en la Tabla 3 (indicadores por producto) se ha incluido una columna final con las actividades (outputs) a que se relaciona cada indicador (primera columna) y que no existe un indicador específico en el proyecto para el desarrollo de esos planes de manejo. Con la aclaración de que las medidas de manejo se mencionan en el PRODOC, se ha corregido el texto de manera a mejor reflejar esta realidad: "Todavía no existen planes de manejo para especies. En el 2018 se planea elaborar lineamientos generales con anexos por grupo para ser incluido en una NOM".
Página 50 conteo (en la página dice 45) EDRR at RB Marismas Nacionales Nayarit focuses on princess vine (<i>Cissus verticillata</i>). <i>El EDRR system no es solo para tripa de zopilote, también para giant cane (Arundo donax) and buffel grass (Cenchrus ciliaris).</i>	Georgia Born, UCP	El texto fue ajustado para incluir el comentario.
Página 41 conteo de páginas en la página dice 36: "95% of PROFEPA inspectors in the DGIPIAF (General Directory for Environmental Inspection in Ports, Airports and Borders) have been trained. If this indicator is considered within output 1.2.2, involvement of DGIVSRMEC (PROFEPA General Directory for Inspection and Surveillance of Wildlife, Marine Resources and Coastal Ecosystems) is lacking, as it is in charge of biodiversity issues, but has not participated in project implementation". <i>Desde el inicio nunca estaba planeado ni presupuestados la capacitación de esta área.</i>	Georgia Born, UCP	Comprendemos, por eso está dicho que si se considerara que el indicador se refiriera a la actividad 1.2.2 estaría faltando involucrar la DGIVSRMEC. El progreso fue considerado AS y está en verde, lo que indica que está cumplido. El comentario visa decir que es deseable el involucramiento del sector que trata de vida silvestre.
En la versión en inglés en el Word document Página 53, pto 1.1.9: Additionall falta la y	Georgia Born, UCP	Corregido.
Página 61, penúltimo párrafo: <i>(Myopsita monachus) debe decir (Myiopsitta monachus)</i>	Georgia Born, UCP	Corregido.
Página 62, primer párrafo: Responsibility debe decir responsibility	Georgia Born, UCP	Corregido.
Página 70, 3 párrafo: EDRR systems have been designed, but more time is needed to ensure they their operation and functioning.	Georgia Born, UCP	Corregido.
Página 70, ultimo párrafo The project assistant Jordi Parpal was added to the PMU. Quizá mejor The project assistant Jordi Parpal joined the PMU	Georgia Born, UCP	Corregido.
Página 85 penúltima fila: <i>(Felis gatus) cambiar en (Felis catus) (creo que fue un error en nuestro texto original.</i>	Georgia Born, UCP	Corregido.